

NORAD Precision Tuning™

Quickly identify and tune problematic SQL statements that have the highest impact on performance.

v 2.0

Products for Distributed Systems

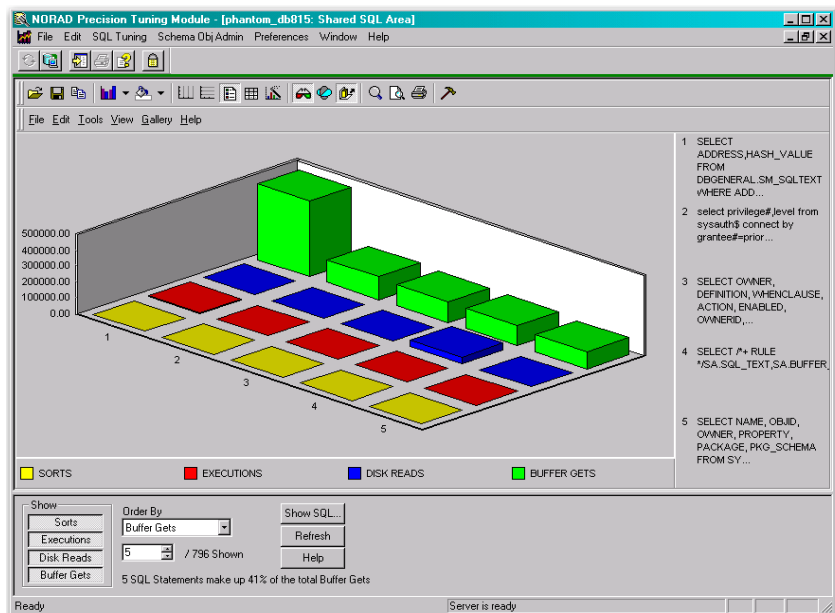
Overview

The **NORAD** family of products provide IT departments with real-time feedback and automatic corrective actions to ensure application and system uptime with the goal of maximizing application performance, availability and reliability. The mission of NORAD is to protect the IT systems and business processes that are vital to today's business economy.

NORAD Precision Tuning increases the Application Developer and DBA's ability to maximize application data performance by identifying SQL statements that have the greatest impact on performance and providing the facility to explain and tune the statements. As the business applications become even more vital to an organization's competitive advantage, NORAD will ensure the health and availability of the business application's database.

Key Benefits

- *Technical professionals can concentrate on increasing performance by tuning SQL statements rather than searching for problematic SQL statements.*
- *Easily find tuning prospects embedded in PL/SQL objects, then replace the tuned statement in the PL/SQL object definition.*
- *Automatically store currently cached SQL statements in a table-based repository by scheduling the collection with a built-in scheduler feature.*
- *Step through Oracle Explain Plans at a constant rate or one step at a time with the a click of a button.*
- *Execute statements in real-time to automatically calculate resource consumption statistics.*
- *Tune SQL statements to take full advantage of the Oracle SQL language and the Oracle features designed to speed application performance.*

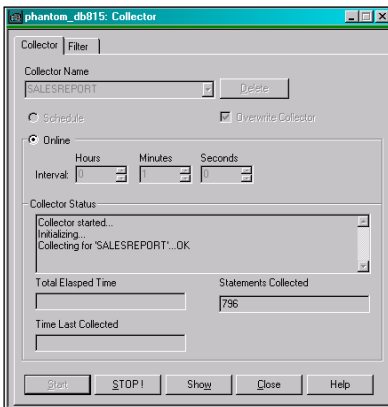


NORAD Precision Tuning™ quickly identify currently cached SQL statements which require the most resources and have the highest impact on performance.

Identify High-Impact SQL Statements

The identification and tuning of high-impact SQL is critical to the successful implementation of new applications, and the maintenance and management of existing ones. NORAD Precision Tuning's **SQL Area Graph** quickly identifies the currently cached SQL statements which require the most resources and have the greatest impact on performance.

SQL statements in the SQL Area Graph can be sorted to determine which statements are being executed the most often, causing the most buffer gets, disk reads or sorts. Once the statements having the greatest impact on performance are identified, NORAD's SQL Tuner can be used to tune those statements.



Easily find tuning prospects by scheduling unattended collections of currently cached SQL statements.

Easily Find Tuning Prospects

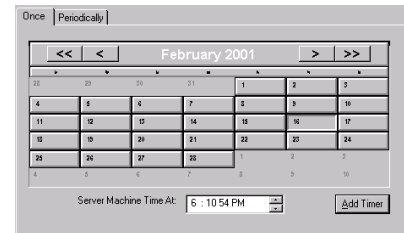
Use NORAD Precision Tuning's **Collector** to ease the tedious process of finding tuning prospects with its built-in facility to store currently cached SQL statements in a table-based repository.

For example, if NORAD Surveillance is used to identify that every time the Sales Department runs its monthly report, the system response time instantly degrades, the next time the monthly report is run, NORAD Precision Tuning can be used to capture all the SQL statements that the report generates so the statements can be tuned.

The Collector's filtering capabilities can be used to specify which statements should be collected and stored. This includes the capability to filter statements based on the number of executions, buffer gets, sorts, disk reads or the ability to select only the statements which are generated by a particular Oracle session, as in the case of the monthly report.

Schedule Unattended Collections

Collections can be performed immediately or scheduled to be performed at a later time with Precision Tuning built-in **Scheduler** feature. The Scheduler utilizes the Precision Tuning Server Agent to start and stop the Collector without interaction from technical professionals.



Quickly Find Tuning Prospects Hidden In PL/SQL Objects

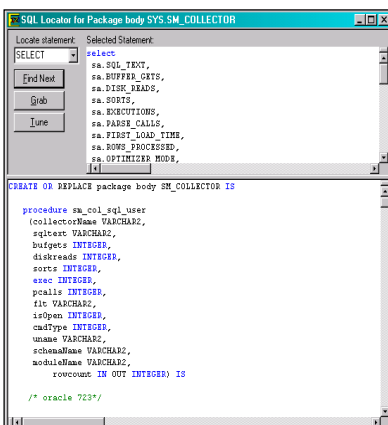
The most notable feature is the **PL/SQL Locator**. The PL/SQL Locator is used to isolate tuning prospects embedded in PL/SQL objects such as Packages, Procedures, Functions and Triggers. Embedded SQL statements can be grabbed and transferred to the SQL Tuner where they can be explained, executed, benchmarked, and tuned like any other tuning prospect. Once a statement has been tuned, it can be automatically replaced in the PL/SQL object definition.

Spend Less Time Searching and More Time Tuning

By adding filtering criteria for currently cached SQL statements or SQL statements previously stored by the Precision Tuning Collector, the SQL Finder speeds up the search for tuning prospects.

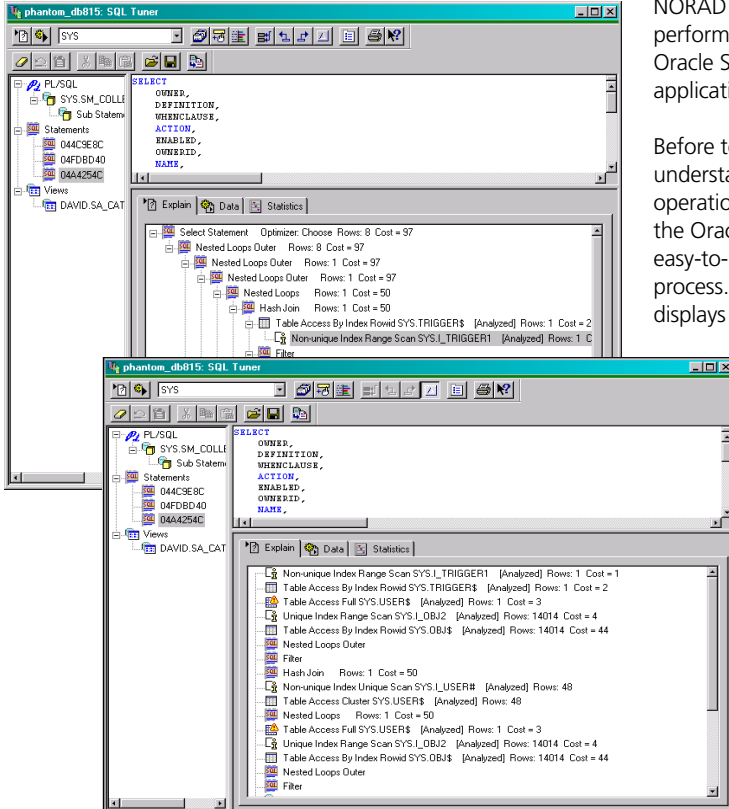
In addition to being able to filter SQL statements that have been executed a certain number of times, performed a specified number of buffer gets, disk reads, sorts or parse calls, technical professionals can also filter based upon particular users, schemas, first load time, or even a partial SQL statement.

The easier tuning prospects can be located, the more quickly they can be tuned.



PL/SQL Locator finds tuning prospects in PL/SQL objects.

Increase Performance by Reducing Resource Consumption



Display Explain Plans in Oracle's standard format with a click of a button. Easily step through Explain Plans by displaying steps in sorted execution order.

NORAD Precision Tuning's **SQL Tuner** is used to increase performance by editing SQL statements to take full advantage of the Oracle SQL Language and RDBMS features designed to speed application processing.

Before technical professionals can tune SQL statements, they must understand the statement's execution plan or the sequence of operations that Oracle performs before executing the statement, i.e., the Oracle Explain Plan. Traditionally, the difficulty of extracting an easy-to-read Explain Plan from Oracle has hindered the tuning process. With the click of a button, NORAD's built-in facility quickly displays the Explain Plan in Oracle's standard format.

Technical professionals who are not familiar with reading the standard Oracle format for Explain Plans can utilize Precision Tuning's animation feature that steps through the Explain Plan at a constant rate, or one step at a time. Alternatively, Explain Plans can be displayed in sorted execution order, making it easier to step through printed Explain Plans.

Since Explain Plan results alone do not indicate which statements perform well and which ones perform poorly, it is necessary to examine the statement's actual resource consumption. To accomplish this, the NORAD Precision Tuning has the ability to execute the statement real-time which automatically calculates physical and logical reads, table scans, sorts, CPU total, elapsed time, and much more.

Now that access to the Oracle Explain Plan and resource consumption during execution has been established, the tuning process can begin. When adding optimizer hints, DBAs often know more about their data than the Oracle Optimizer and can use hints to force Oracle to follow the chosen execution plan. With its point and click interface, NORAD Precision Tuning reduces syntax errors that can occur when adding over forty different hints. Once a hint has been added to the SQL statement, an Explain Plan for the modified statement can be generated along with new resource consumption statistics.

Speed Up the Tuning Process

Use NORAD Precision Tuning's **Benchmark** feature to speed up the tuning process. Up to sixteen standard modifications to the original statement can be quickly generated including: generating Explain Plans, executing and retrieving resource consumption statistics for each version of the statement. A graph can be generated to compare the statistics between the different versions of the original statement.

Reduce Disk Contention

Use the **File Performance Graph** to reduce disk contention that occurs when multiple processes try to simultaneously access the same disk. Most disks have limits on both the number of accesses and the amount of data they can transfer per second. When these limits are reached, processes may have to wait to access the disk.

NORAD Precision Tuning has a facility to graph the read and write statistics for each database data file. Disk contention is identified graphically when one or more disk drives are shown to perform the majority of the I/O.

The DBA can reduce contention by moving one or more of the disk's heavily accessed files to a less active disk. The File Performance Graph can be filtered by tablespace, or sorted by reads or writes.

Product Summary

- Quickly identify currently cached SQL statements which have the highest impact on performance.
- Ease the tedious process of finding tuning prospects by storing SQL statements in a table-based repository.
- Increase performance by editing SQL statements to take full advantage of the Oracle SQL Language.
- Reduce syntax errors by adding optimizer hints with a point and click interface.
- Speed up the tuning process by generating standard statement modifications and automatically generating Explain Plans and resource consumption statistics.
- Reduce disk contention by identifying the disk drives which are performing the majority of I/O.

Related Products:

NORAD Surveillance DB

NORAD Surveillance *DB* is a real-time monitoring tool capable of overseeing your entire database environment. A DBA can view real-time performance data without writing scripts, reducing the need for a large, skilled staff to trace problems. Surveillance *DB* deploys an analytical drill-down methodology for quick problem identification.

Surveillance *DB* has an extensive alerting and alarming facility that comes with a large set of pre-defined collections and rules. Right out of the box, NORAD Surveillance *DB* can be set up easily to notify multiple DBAs by e-mail, pager, HP Openview or Tivoli alerts, pop-up windows, or recording the error in the Windows Event Log.

NORAD Surveillance OS

Adds operating system and application monitoring capabilities to NORAD Surveillance *DB*'s outstanding database monitoring ability. This universal application management solution is designed to monitor application health and performance data, take automatic corrective actions, and proactively predict, detect and prevent critical system problems before they adversely affect productivity. For your company, this translates into greater server and application uptime, increased productivity, and saves your organization valuable resources.

NORAD Surveillance IP

Using NORAD Surveillance *IP* to monitor and manage your QIP solution helps your organization meet its goals for the issuance and management of IP addresses and DNS domain names.

System Requirements

Console Requirements:

- Windows XP, NT, 2000 or 95/98
- Pentium Processor
- 32 MB of RAM
- TCP/IP
- 20 MB free hard disk space

RDBMS Requirements:

- Oracle version 7.x, 8.0 or 8.1, 9.0 or 9i Release 2
- Oracle SQL*Net V2 or Net8

About Bradmark

For 20 years, Bradmark has provided a business advantage by ensuring that the databases, which are vital to the organization's competitive advantage, meet or exceed health and availability requirements.

Bradmark is committed to providing data management solutions in support of our customers' business challenges.

In addition to a direct sales force, Bradmark has an established worldwide network of channel partners.

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