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Oracle Database 10g Diagnostik- und Taskmanagement

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Diagnostik Management

„Was passiert in der
Datenbank, gibt es Probleme?“

„Möglichst schnell“

„Mit wenig Aufwand“

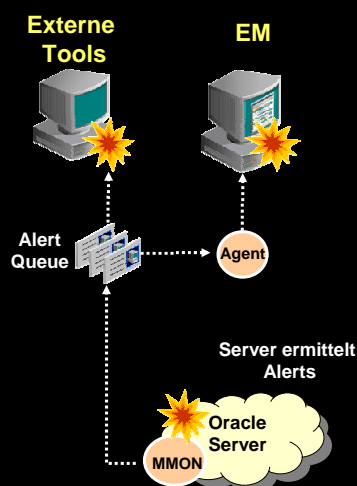
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Performance Diagnostik & Troubleshooting Herausforderungen

- “Monitoring erzeugt zuviel Overhead”
- “Tuningprozess ist zeitaufwendig und zu komplex”
- “Nichtoptimierte (“schlechte”) SQL Statements finden ist kompliziert”
- “Interpretation der Performancedaten ist schwierig”
- “Alerts werden zu spät generiert”

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Performance Diagnostik Server generierte Alerts



- Keine Konfiguration notwendig
- Geringer Overhead
- **Pushing** statt Pinging
- Integriert in das intelligente Framework

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Performance Diagnostik Server-generierte Alerts

Alerts

Severity	Category	Name	Message	Alert Triggered
	Wait Bottlenecks	db file sequential read (%)	81.98% of service time is spent waiting on this event.	May 13, 2003 4:32:41 PM
	Dump Area	Dump Area Used (%)	71% of dump area is used.	May 8, 2003 7:17:19 PM
	Dump Area	Dump Area Used (%)	71% of dump area is used.	May 8, 2003 7:17:19 PM
	Wait Bottlenecks	log file sync (%)	19.21% of service time is spent waiting on this event.	May 13, 2003 4:18:41 PM
	Invalid Objects	Invalid Object Count	8 object(s) are invalid under SYS.	Mar 18, 2003 7:06:59 PM

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Performance Diagnostik Server-generierte Alerts

ORACLE Enterprise Manager Setup Preferences Help Logout

Home **Targets** Configuration Alerts Jobs Management System

Databases Hosts Application Servers Web Applications Groups **All Targets**

Database: svrman_dlsun1972 > Edit Metric Thresholds

svrman_dlsun1972: Edit Metric Thresholds

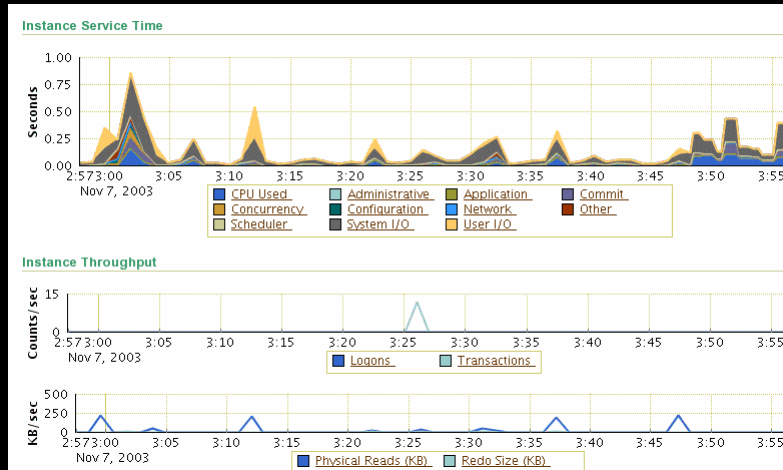
Use these metrics to monitor conditions as they reach their critical and warning thresholds. Alerts are generated when thresholds are reached. Change the thresholds as required.

TIP A Response Action is a user-specified command or script that is executed automatically by the Management Agent when the metric reaches the Warning or Critical state. The command or script specified must include a fully qualified path and must be accessible to the Management Agent.

Related Link [Response to Target Down](#) Manage Metric Indexes

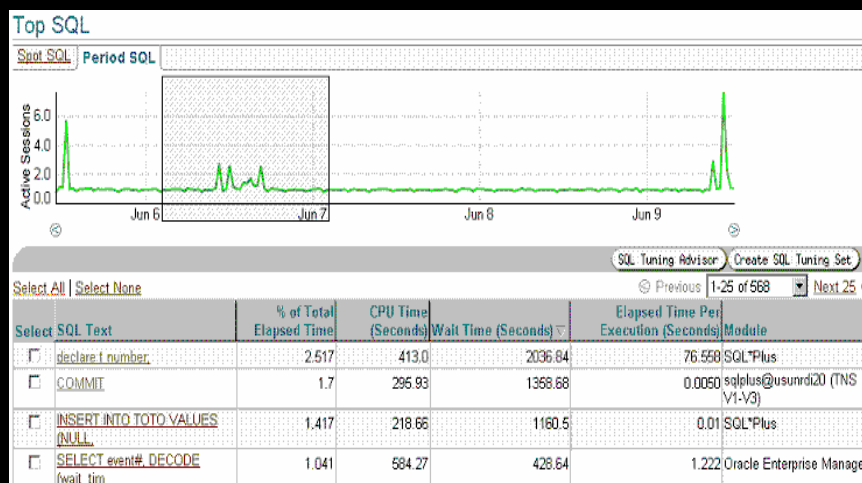
Select Metric	Comparison Operator	Warning Threshold	Critical Threshold	Response Actions
Active Sessions Waiting: I/O (%)	>	75		
Active Sessions Waiting: Other (%)	>	75		
<input checked="" type="checkbox"/> Archive Area Used (%)	>	70	80	
<input type="checkbox"/> Archiver Hung Alert Log Error	Contains		ORA-	
Archiver Hung Alert Log Error Status	>		0	
<input type="checkbox"/> Audited User	=		SYS	
<input type="checkbox"/> Blocking Session Count	>		0	
Broken Job Count	>		0	
Buffer Cache Hit (%)	<			

Performance Diagnostik Aktueller Zustand der Datenbank




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Performance Diagnostik Automatisches Workload Repository



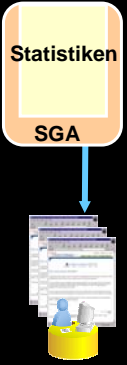
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Performance Diagnostik




```

SELECT
  substr(SQL_TEXT,1,850)
 ||SORTS||EXECUTIONS||
 || DISK_READS||...
FROM v$sqlarea
WHERE disk_reads>10000
AND nvl(executions,0)>0
ORDER BY
  disk_reads/executions
  DESC
        
```




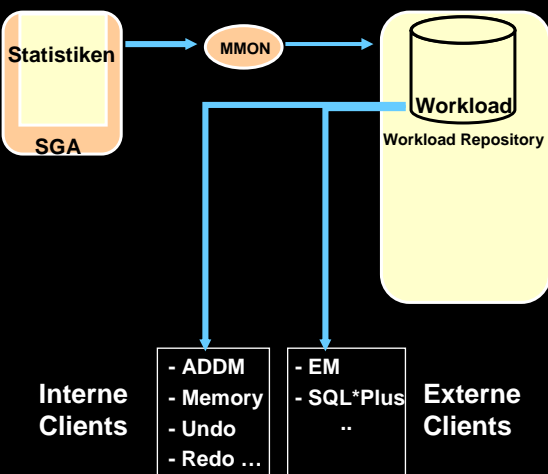
Reaktives Monitoring

- Regelmäßiges Abfragen von Performance-metriken mit SQL



Performance Diagnostik AWR






- Regelmäßiges Ermitteln von Performance-metriken (Snapshots) ohne SQL
- Historisierte Speicherung von Performance-kennzahlen
- Grundlage für Diagnosen

Interne Clients

- ADDM
- Memory
- Undo
- Redo ...

Externe Clients

- EM
- SQL*Plus
- ..



Performance Diagnostik Metriken

The diagram illustrates the process of performance diagnostics. On the left, Oracle 9i and 10g databases are shown with SQL queries being analyzed for differences. In the center, a DBA (Database Administrator) is shown querying metrics. On the right, the metrics are displayed in Enterprise Manager. The Oracle logo is visible at the bottom right of the slide.

- Vorgefertigte Metriken
 - V\$sysmetric
 - V\$sesmetric
 - V\$filemetric
 - V\$eventmetric
 - ...
- Anzeige in Enterprise Manager

Performance Diagnostik Nutzung von Datenbankfunktionalitäten

Database Feature Usage Statistics

Feature Usage | [High Water Marks](#)

Database Feature Usage Statistics provide an approximation of how often various database features are used.

Database **mgmt10i_030530_dsunrd#03**
 Instance Name **mgmt10i**
 Database Version **10.1.0.0.0**
 Last Sampled At **Jun 2, 2003 1:32:48 PM**
 Next Sampled At **Jun 9, 2003 1:32:48 PM**
 Sample Period (days) **0.0**

Usage Statistics

Previous | 1-25 of 52 | Next 25

Feature Name	Currently Used	Detected Usages	Total Samples	First Usage Date	Last Usage Date	Version
Advanced Replication	No	0	1			10.1.0.0.0
Advanced Security	No	0	1			10.1.0.0.0
Audit Options	No	0	1			10.1.0.0.0
Automatic SQL Execution Memory	Yes	1	1	Jun 2, 2003 1:32:48 PM	Jun 2, 2003 1:32:48 PM	10.1.0.0.0
Automatic Segment Space Management	No	0	1			10.1.0.0.0
Automatic Undo Management	No	0	1			10.1.0.0.0
Change-Aware Incremental Backup	No	0	1			10.1.0.0.0
Client Identifier	No	0	1			10.1.0.0.0
Data Guard	No	0	1			10.1.0.0.0
Data Guard Broker	No	0	1			10.1.0.0.0
Data Mining	No	0	1			10.1.0.0.0
Dynamic SGA	Yes	1	1	Jun 2, 2003 1:32:48 PM	Jun 2, 2003 1:32:48 PM	10.1.0.0.0

Performance Diagnostik Nutzung von Datenbankfunktionalitäten

Database Feature Usage Statistics

[Feature Usage](#) | [High Water Marks](#)

Database **mgmt10i_030530_dsunrdff03**
 Instance Name **mgmt10i**
 Database Version **10.1.0.0.0**
 Last Sampled At **Jun 2, 2003 1:32:48 PM**
 Next Sampled At **Jun 9, 2003 1:32:48 PM**
 Sample Period (days) **0.0**

High Water Marks

Name	High Water Marks	Last Sampled Value	Version
Maximum Number of Concurrent Sessions seen in the database	11	11	10.1.0.0.0
Maximum Number of Datafiles	5	5	10.1.0.0.0
Maximum Number of Partitions belonging to a table	16	16	10.1.0.0.0
Maximum Number of Partitions belonging to an index	16	16	10.1.0.0.0
Maximum Number of Tablespaces	5	5	10.1.0.0.0
Maximum Query Length	0	0	10.1.0.0.0
Maximum Size of the Database (Blocks)	351232	351232	10.1.0.0.0
Number of User Indexes	160	160	10.1.0.0.0
Number of User Tables	104	104	10.1.0.0.0
Size of Largest Segment (Blocks)	60405	60405	10.1.0.0.0

[Related Links](#)
[Patch](#)

Performance Diagnostik AWR - Einstellungen

[Setup](#) | [Preferences](#) | [Help](#)

Enterprise Manager

[Home](#) | [Targets](#) | [Configuration](#) | [Alerts](#) | [Jobs](#) | [Management System](#)

[Hosts](#) | [Databases](#) | [Application Servers](#) | [Web Applications](#) | [Groups](#) | [All Targets](#)

Host: [dlsun1972.us.oracle.com](#) > Database: [svrman_dlsun1972](#) > Workload Repository

Workload Repository Settings

[Show SQL](#) | [Cancel](#) | [OK](#)

Snapshot Retention Settings

Use Time Based Retention Days
 Retain Forever

Snapshot Collection Settings

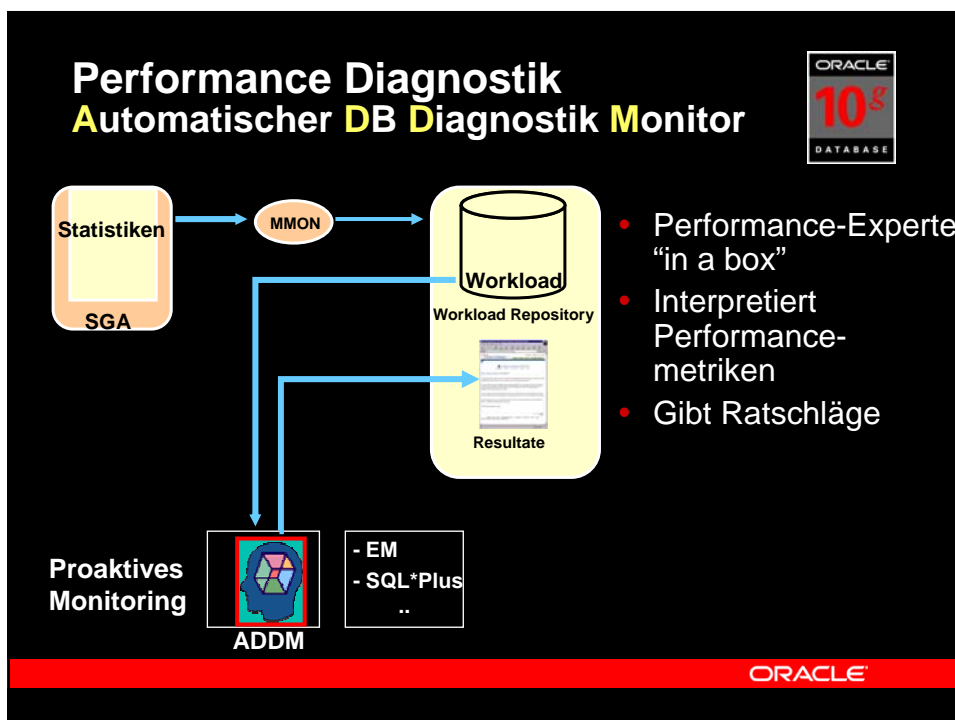
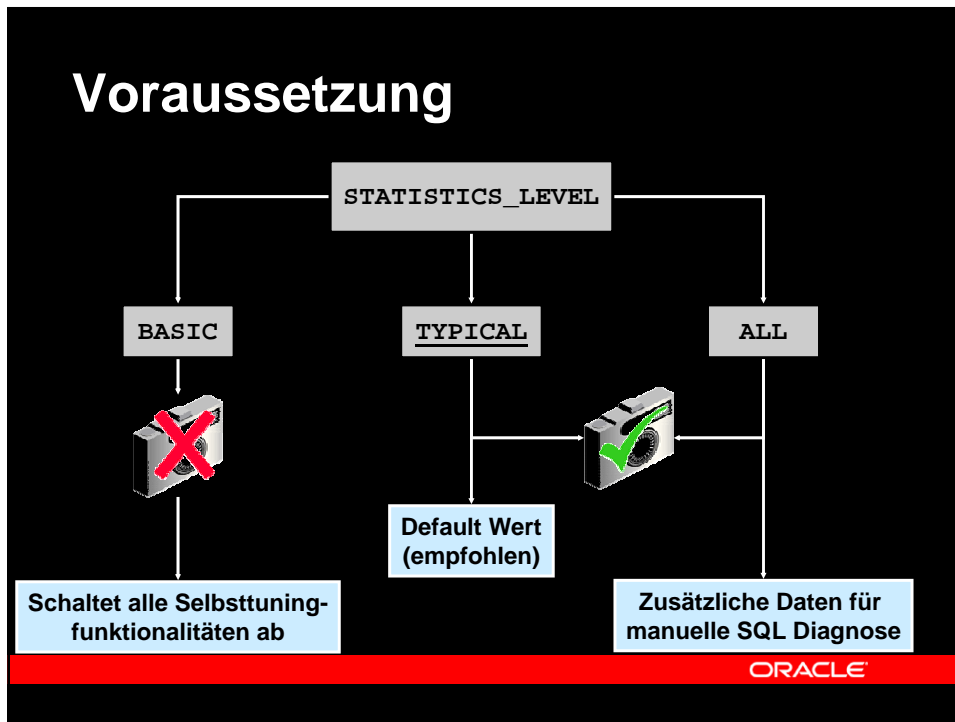
System Snapshot Interval Minutes
 Turn off Snapshot Collection
 Collection Level **TYPICAL**

[Show SQL](#) | [Cancel](#) | [OK](#)

[Home](#) | [Targets](#) | [Configuration](#) | [Alerts](#) | [Jobs](#) | [Management System](#) | [Setup](#) | [Preferences](#) | [Help](#) | [Logout](#)

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 About Oracle Enterprise Manager

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Performance Diagnostik ADDM

[Choose ADDM Task](#) Create ADDM Task...

Select the ADDM Task for which you would like to see details using the icons. Session activity is shown in the graph to help you.

Active Sessions

June 11, 2003

ADDM Task Detail

Database Time (minutes) **94.33** Analysis Start Time **Jun 11, 2003 2:30:14 PM** Analysis Duration (minutes) **29.85**

Finding	Impact (%)	Recommendation Summary
Read and write contention on database blocks was consuming significant database time.	16	SCHEMA 3
Contention on buffer cache latches was consuming significant database time.	2	SQL TUNE 2

Performance Diagnostik ADDM - Empfehlungen

[Host: usunrdi20](#) > [Database: mgmt10i_usunrdi20](#) > [Advisor Central](#) > [ADDM Task](#) > ADDM Finding Details

ADDM Finding Details

Analysis Start Time **Jun 10, 2003 9:30:30 AM**
 Analysis Duration (minutes) **29.75**
 Finding **Read and write contention on database blocks was consuming significant database time.**
 Database Time (minutes) **274.16**
 Impact (minutes) **98.23**
 Impact (%) **35.83**

Recommendations

[Show All Details](#) | [Hide All Details](#)

Details Category	Benefit (minutes)
Hide SCHEMA	57.56
Action Consider using ORACLE's recommended solution of bitmapped segments in a locally managed tablespace for the tablespace "USERS" containing the database object "SCOTT.TOTO" with object id 41560.	
Hide SCHEMA	57.56
Action Consider partitioning "SCOTT.TOTO" with object id 41560 in a manner that will evenly distribute concurrent DML across multiple partitions.	
Hide SCHEMA	57.56
Action A temporary solution may be achieved by increasing the number of free lists in segment "SCOTT.TOTO".	

Beispiel: Hard Parsing



Untersuche

- Wait Events
- v\$sysstat
- Parse time > parse time
cpu und # hard parses
- Sessions und
zugehöriges SQL
- Objektzugriff
- Gebrauch von Literals

=> benutze Cursor
Sharing



Untersuche

- ADDM Empfehlungen

=> benutze Cursor
Sharing

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Task Management

„Die Datenbank soll
automatisierte Tasks selbst
verwalten“

„Möglichst auch auf BS-Ebene“

„Mit grafischem Tool“

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Taks Management



- DBMS_JOB
 - Nur PL/SQL
 - Eingeschränktes Scheduling Modell
 - Keine Integration in Enterprise Manager



- DBMS_SCHEDULER
 - Neben PL/SQL **auch BS Tasks**
 - **Erweiteres** Scheduling Modell
 - **Volle** Integration in Enterprise Manager

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Task Management

- Anwendungen
 - Backup
 - Aktualisieren von Statistiken
 - :

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Jobs in EM

ORACLE Enterprise Manager Setup Preferences

Home **Targets** Configuration Alerts Jobs Management

Databases Hosts Application Servers Web Applications Groups **All Targets**

Host: dsunrd03.us.oracle.com > Database: mgmt10i_030530_dsunrd03_2 > Jobs

Jobs Page Refreshed Jun 12, 2003 5:31:45 AM

Scheduled Running Unscheduled History Create Job

Edit View Delete Actions Create Like Go

Select	Name	Owner	Execution Date	Class Name	Executes
<input checked="" type="radio"/>	ADV_TASK_00002	SYSTEM	Jun 4, 2003 4:48:01 PM	DEFAULT_JOB_CLASS	0
<input type="radio"/>	ADV_TUNETASK1	SYSTEM	Jun 11, 2003 4:45:32 PM	DEFAULT_JOB_CLASS	0

Scheduled Running Unscheduled History

Home | Targets | Configuration | Alerts | Jobs | Management System | Setup | Preferences | Help | Logout

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About Oracle Enterprise Manager

Jobs in EM

Create Job Show SQL Cancel OK

General Schedule Options

* Name

* Owner SYSTEM

Enabled Yes No

Description

Logging Level Low

Maximum Run Duration (min)
Maximum time that the job will be allowed to run for (after this has elapsed the job will be stopped)

Job Class
Specify a class for this job. Resource management is determined per class. Priority for the job can be set within each class.

Job Class DEFAULT_JOB_CLASS Create Job Class

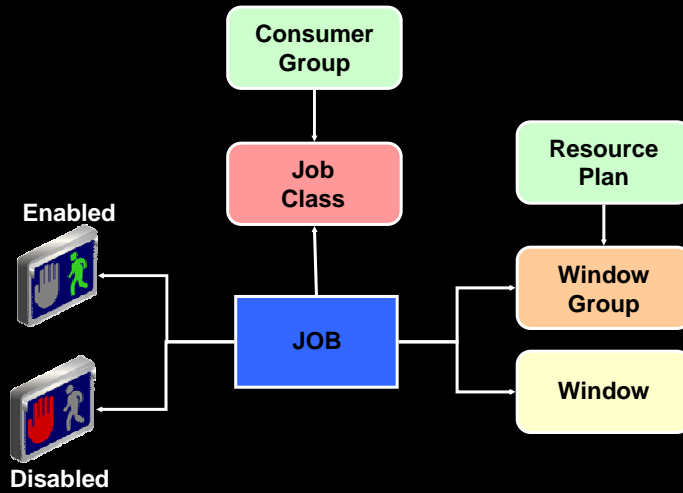
Priority High

Command
Specify a program or in-line program for execution. Select Command Option

Command Option PL/SQL Block

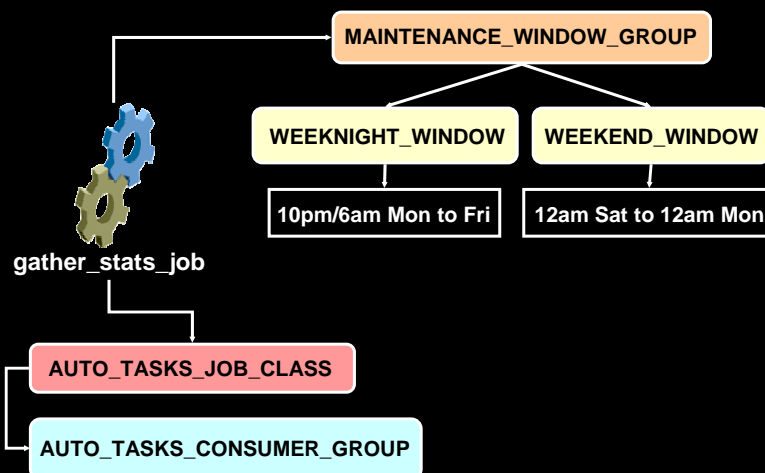
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Job Scheduler Konzept



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Gather Statistics Job



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PL/SQL-Interface

```
DBMS_SCHEDULER.CREATE_JOB(  
  job_name      => 'table_reorg',  
  job_type     => 'STORED_PROCEDURE',  
  job_action    => 'mypack.tab_reorg_job_proc',  
  job_class    => 'AUTO_TASKS_JOB_CLASS',  
  schedule_name => 'WEEKEND_WINDOW');
```

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Zusammenfassung

- Serverbasiertes Monitoring durch Alerts und AWR
- ADDM zum Performance Tuning
- Integriertes Taskmanagement
- Volle Integration in Enterprise Manager

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