

Proactively Managing Space Using the Segment Advisor

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Purpose

This module describes how you can use the segment advisor to proactively manage space in your database.

Topics

This chapter discusses the following:

- ☒ [Overview](#)
- ☒ [Prerequisites](#)
- ☒ [Creating a Tablespace and a Table](#)
- ☒ [Triggering a Tablespace Space Usage Alert](#)
- ☒ [Resolving a Tablespace Space Usage Alert](#)

Overview

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With Oracle Database 10g, a tablespace's disk space utilization is proactively managed by the database. Proactive tablespace management is possible in the following ways:

Through the use of database alerts, you are informed when a tablespace runs low on available disk space. You can then provide the tablespace with more disk space, or reclaim space from the tablespace. That way, you can avoid out-of-space conditions. Information gathered is stored in the Automatic Workload Repository (AWR) and used to do growth trend analysis and capacity planning of the database.

Tablespace thresholds can be defined in terms of the fullness of the tablespace. Critical and warning thresholds are the two thresholds that apply to a tablespace. The DBMS_SERVER_ALERTS package contains procedures to set and get the threshold values. You can also use the EM interface to define the thresholds. When the tablespace fullness crosses either of these two limits, an appropriate alert is raised. The threshold is expressed in terms of a percentage of the tablespace size or in bytes.

Prerequisites

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Before starting this module, you should have:

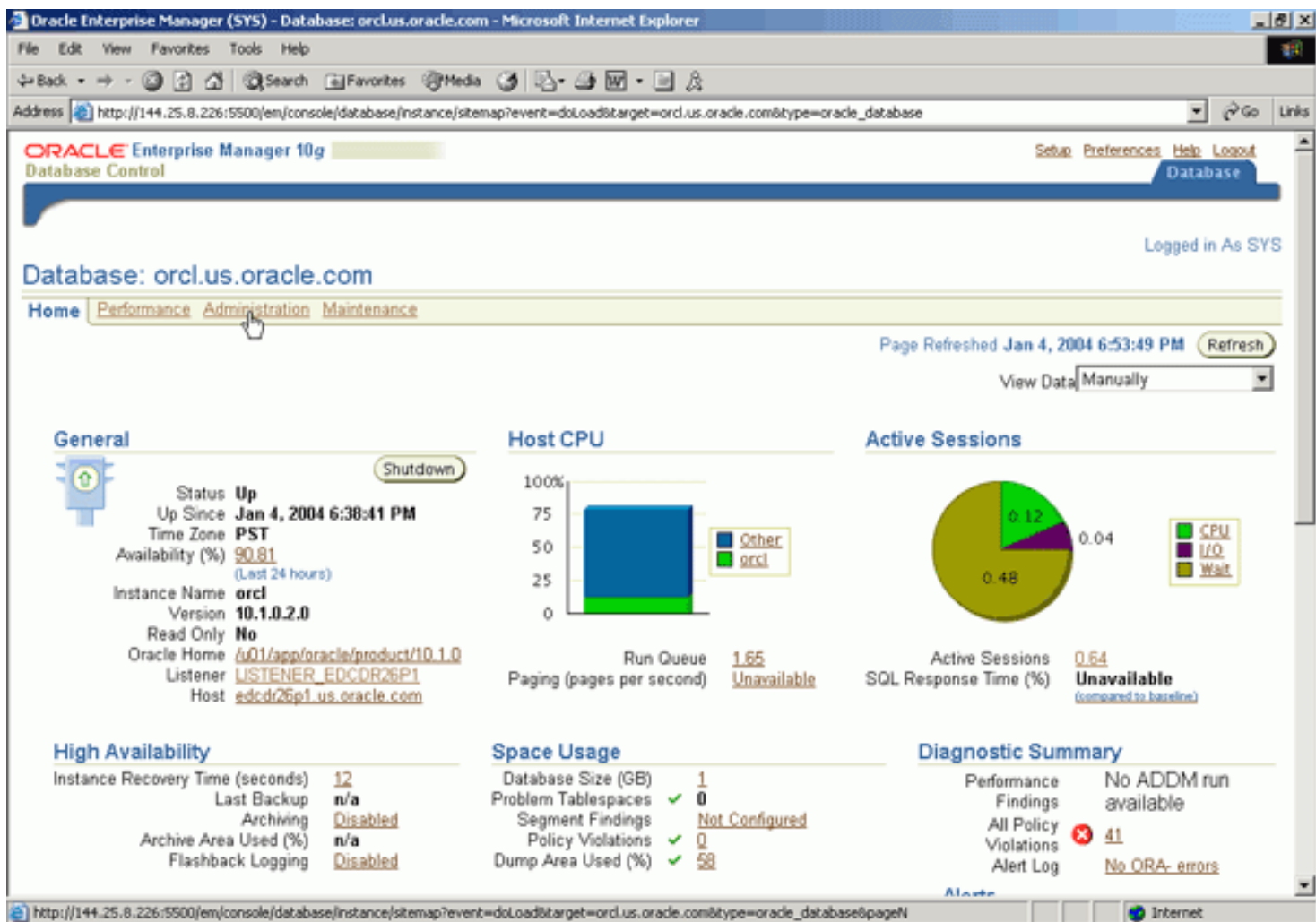
1. Completed the [Configuring Linux for the Installation of Oracle Database 10g](#) lesson
2. Completed the [Installing the Oracle Database 10g on Linux](#) lesson

Creating a Tablespace and a Table

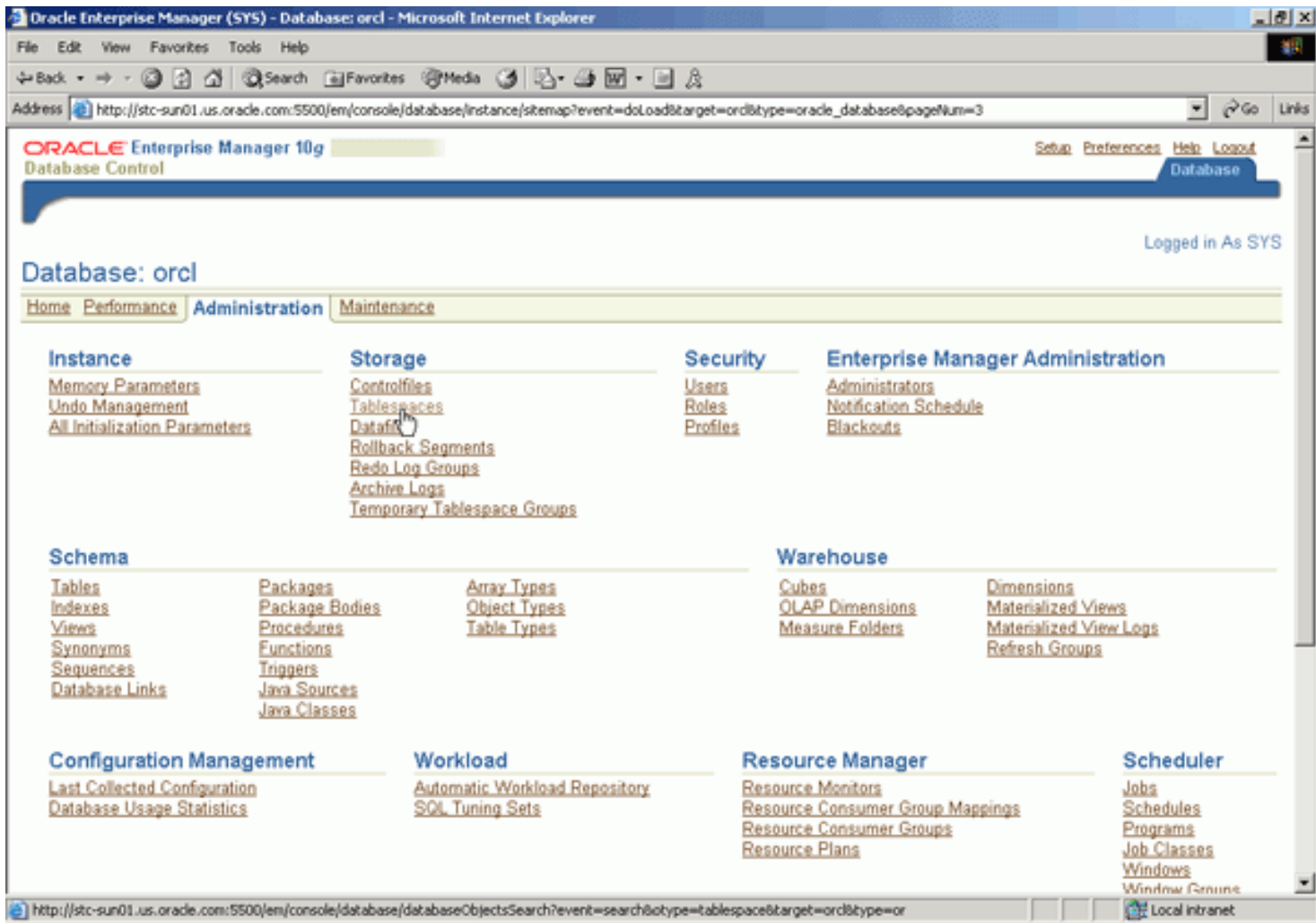
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First, you need to create a new tablespace with a 20MB data file. This tablespace needs to be locally managed, and uses Automatic Segment Space Management (ASSM). Finally, a table needs to be created in this new tablespace. This table will have its Enable Row Movement option set to yes. Having this option turned on allows for space reclamation on this table. Perform the following:

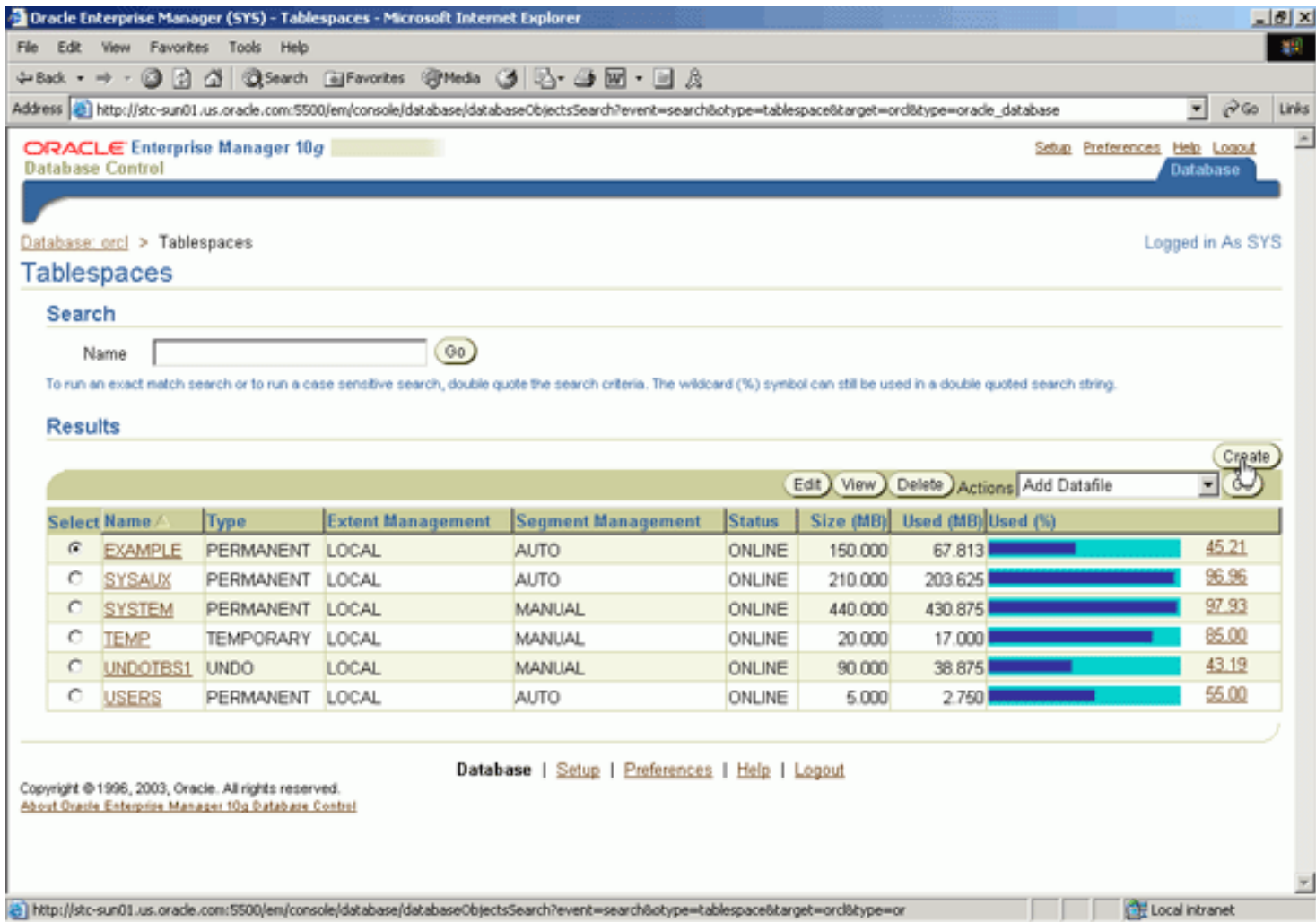
1. From the Enterprise Manager Home page, click on the **Administration** tab.



- Click on the **Tablespaces** link.



- Click on the **Create** button.



Oracle Enterprise Manager (SYS) - Tablespaces - Microsoft Internet Explorer

Database Control

Database: orcl > Tablespaces

Logged in As SYS

Search

Name

To run an exact match search or to run a case sensitive search, double quote the search criteria. The wildcard (%) symbol can still be used in a double quoted search string.

Results

Actions

Select	Name	Type	Extent Management	Segment Management	Status	Size (MB)	Used (MB)	Used (%)
<input checked="" type="radio"/>	EXAMPLE	PERMANENT	LOCAL	AUTO	ONLINE	150.000	67.813	45.21
<input type="radio"/>	SYSAUX	PERMANENT	LOCAL	AUTO	ONLINE	210.000	203.625	96.96
<input type="radio"/>	SYSTEM	PERMANENT	LOCAL	MANUAL	ONLINE	440.000	430.875	97.93
<input type="radio"/>	TEMP	TEMPORARY	LOCAL	MANUAL	ONLINE	20.000	17.000	85.00
<input type="radio"/>	UNDOTBS1	UNDO	LOCAL	MANUAL	ONLINE	90.000	38.875	43.19
<input type="radio"/>	USERS	PERMANENT	LOCAL	AUTO	ONLINE	5.000	2.750	55.00

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

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[About Oracle Enterprise Manager 10g Database Control](#)

http://stc-sun01.us.oracle.com:5500/em/console/database/databaseObjectsSearch?event=search&otype=tablespace&target=orcl&type=or Local intranet

- Enter the tablespace name **TBSALERT** then click **Add** to define a datafile for the tablespace.

Oracle Enterprise Manager 10g Database Control

Database: orcl > Tablespaces > Create Tablespace

Logged in As SYS

Create Tablespace

Show SQL Cancel OK

General Storage Thresholds

Name: TBSALERT

Extent Management

- ☒ Locally Managed
- ☐ Dictionary Managed

Type

- ☒ Permanent
 - ☐ Set as default permanent tablespace
- ☐ Temporary
 - ☐ Set as default temporary tablespace
- ☐ Undo

Status

- ☒ Read Write
- ☐ Read Only
- ☐ Offline

Datafiles

☐ Use bigfile tablespace
Tablespace can have only one datafile with no practical size limit.

Select Name	Directory	Size (KB)
No items found		

Add

General Storage Thresholds

Show SQL Cancel OK

http://stc-sun01.us.oracle.com:5500/em/console/database/storage/tablespace?event=create&cancelURL=/em/console/database/database

Local intranet

- Enter the datafile name **tbsalert.dbf** and the size **20MB** then click **Continue**.

The screenshot shows the Oracle Enterprise Manager 10g Database Control interface in a Microsoft Internet Explorer browser. The page title is "Create Tablespace: Add Datafile". The breadcrumb navigation shows "Database: orcl.us.oracle.com > Tablespaces > Create Tablespace: Add Datafile". The user is logged in as SYS. The page contains two main sections: "File Name" and "Storage".

File Name Section:

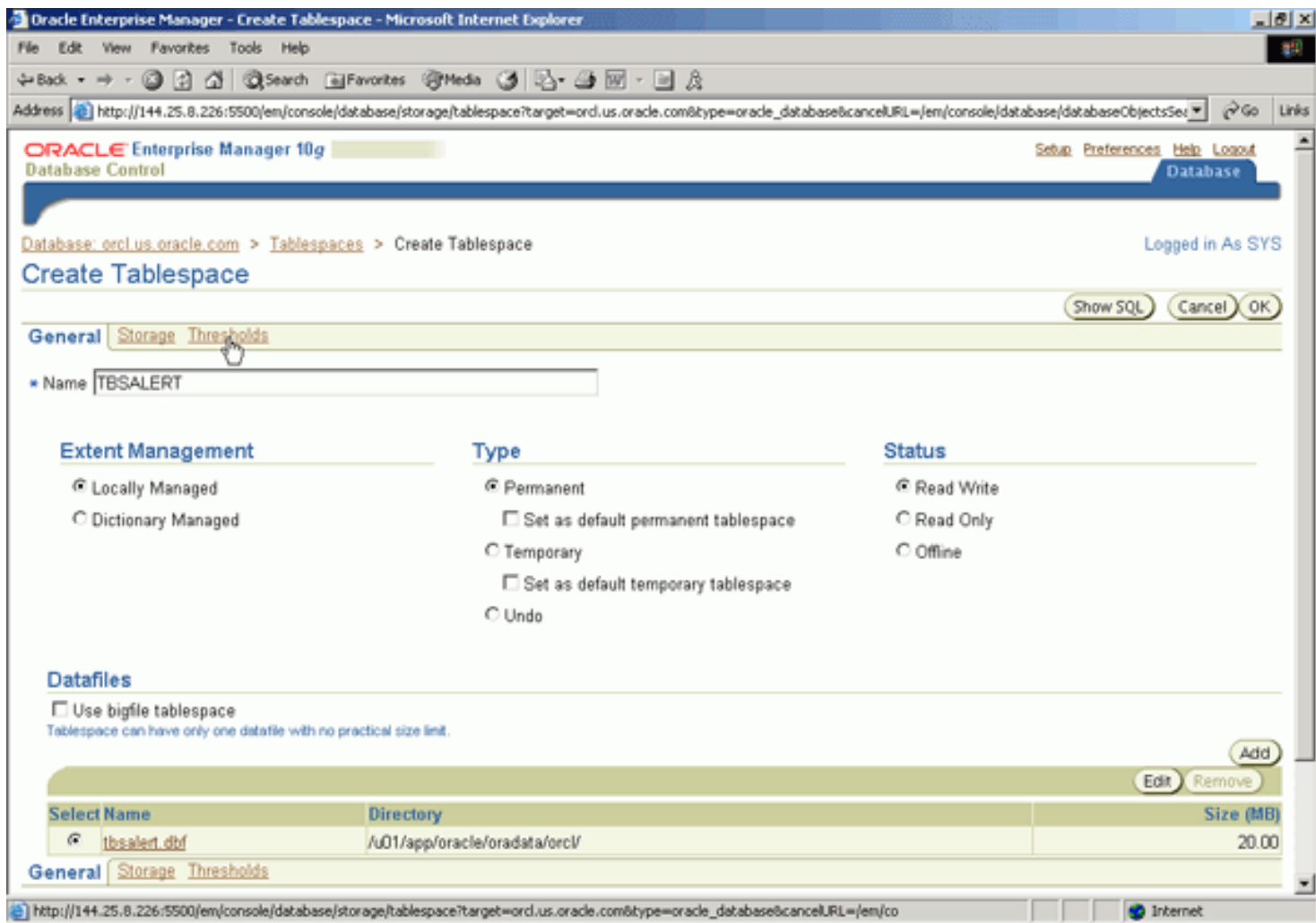
- * File Name:
- * File Directory:
- Tablespace: **TBSALERT**
- File Size: **MB**
- ☐ Reuse Existing File

Storage Section:

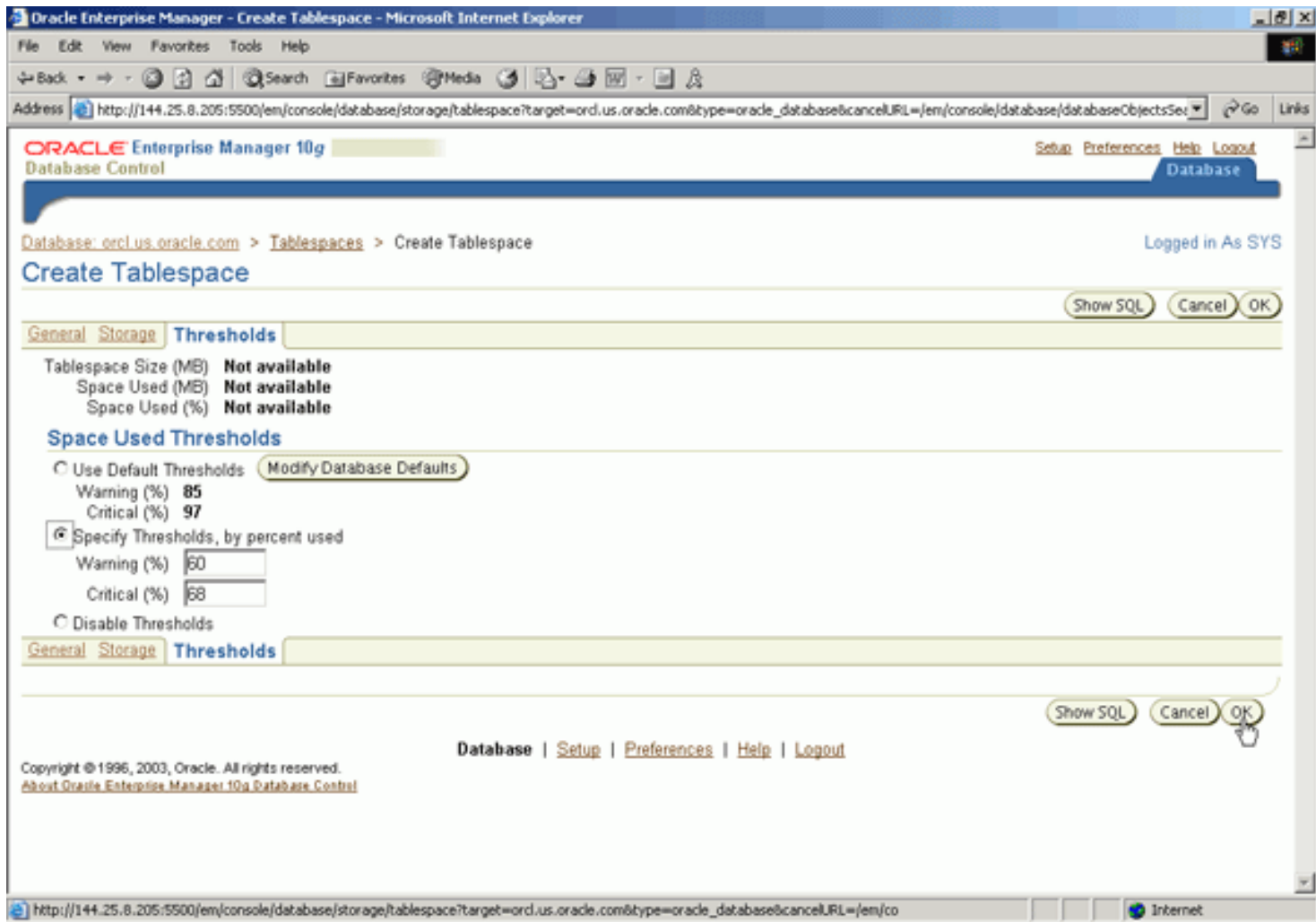
- ☐ Automatically extend datafile when full (AUTOEXTEND)
- Increment: **KB**
- Maximum File Size: ☒ Unlimited
- ☐ Value: **MB**

At the bottom of the form, there are "Cancel" and "Continue" buttons. The "Continue" button is highlighted with a mouse cursor. Below the form, there are links for "Database", "Setup", "Preferences", "Help", and "Logout". The footer includes copyright information and a link to "About Oracle Enterprise Manager 10g Database Control".

6. Click on **Thresholds** tab to specify the space used warning and critical threshold levels.



- Click **Specify Thresholds, by percent used**. Set the database wide default threshold values for space usage. Enter **60** for the Warning%, and **68** for the Critical%. Click **OK**.



8. Click the **Database** breadcrumb to go back to the **Administration** tab.

Oracle Enterprise Manager (SYS) - Tablespaces - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://stc-sun01.us.oracle.com:5500/em/console/database/databaseObjectsSearch?event=redisplay&lastEvent=create&target=oracle_database&otype=tablespace Go Links

ORACLE Enterprise Manager 10g Database Control

Setup Preferences Help Logout Database

Database: orcl > Tablespaces Logged in As SYS

Tablespaces

Update Message
The object has been created successfully

Search

Name Go

To run an exact match search or to run a case sensitive search, double quote the search criteria. The wildcard (%) symbol can still be used in a double quoted search string.

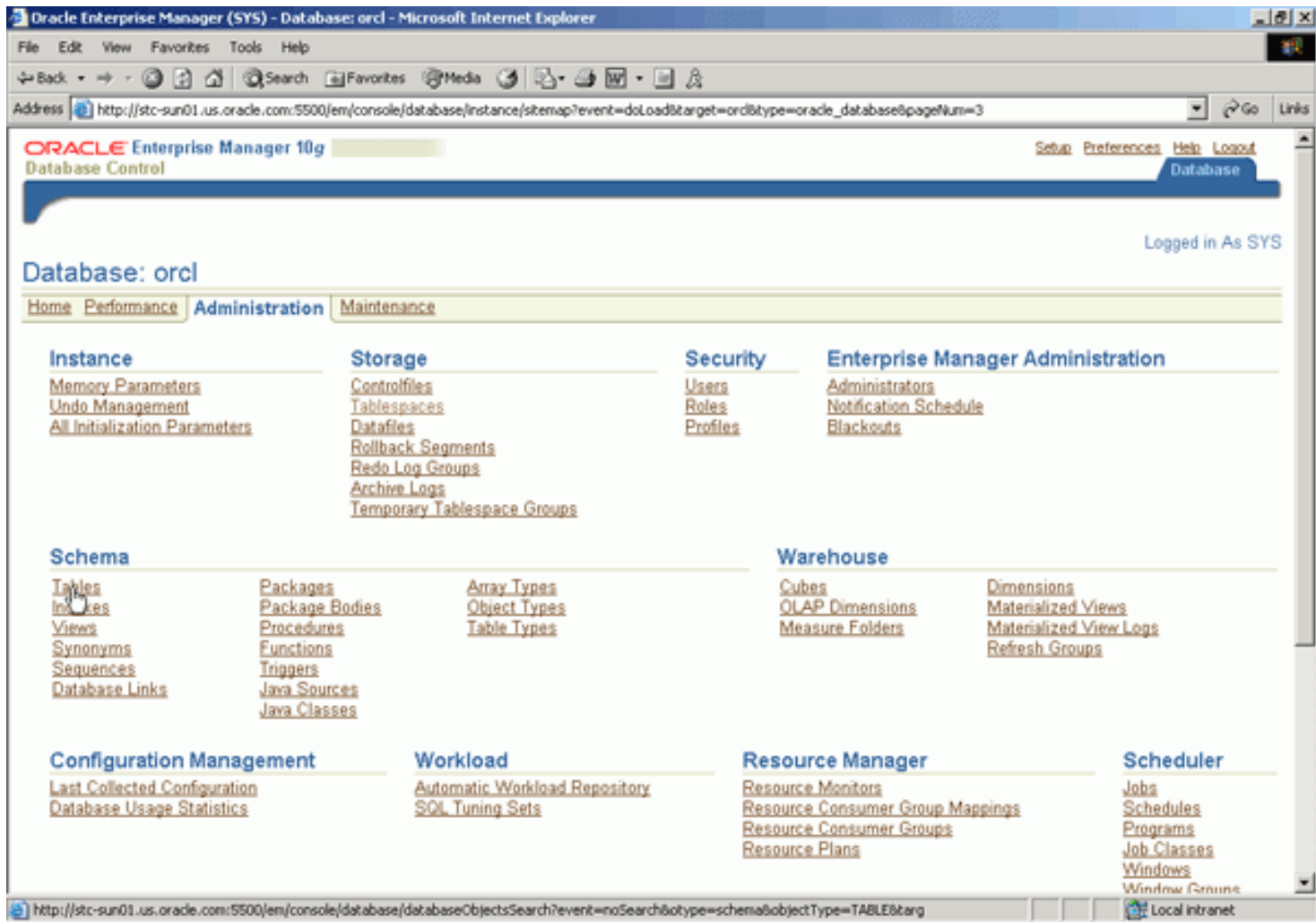
Results

Create Edit View Delete Actions Add Datafile Go

Select	Name	Type	Extent Management	Segment Management	Status	Size (MB)	Used (MB)	Used (%)
<input checked="" type="radio"/>	EXAMPLE	PERMANENT	LOCAL	AUTO	ONLINE	150.000	67.813	45.21
<input type="radio"/>	SYSAUX	PERMANENT	LOCAL	AUTO	ONLINE	210.000	203.625	96.96
<input type="radio"/>	SYSTEM	PERMANENT	LOCAL	MANUAL	ONLINE	440.000	430.875	97.93
<input type="radio"/>	TS\$ALERT	PERMANENT	LOCAL	AUTO	ONLINE	20.000	.063	0.31
<input type="radio"/>	TEMP	TEMPORARY	LOCAL	MANUAL	ONLINE	20.000	17.000	85.00
<input type="radio"/>	UNDOTBS1	UNDO	LOCAL	MANUAL	ONLINE	90.000	38.875	43.19
<input type="radio"/>	USERS	PERMANENT	LOCAL	AUTO	ONLINE	5.000	2.750	55.00

http://stc-sun01.us.oracle.com:5500/em/console/database/instance/sitemap?event=doLoad&target=oracle_database&pageNum= Local intranet

9. Click on the **Tables** link.



Click on the **Create** button.

10.

Oracle Enterprise Manager (SYS) - Tables - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://stc-sun01.us.oracle.com:5500/em/console/database/databaseObjectsSearch?event=noSearch&otype=schema&objectType=TABLE&target=oracle_database Go Links

ORACLE Enterprise Manager 10g Database Control

Setup Preferences Help Logout Database

Database: orcl > Tables Logged in As SYS

Tables

Search

Select an object type and optionally enter a schema name and an object name to filter the data that is displayed in your results set.

Object Type Schema Object Name Go

Table

To run an exact match search or to run a case sensitive search, double quote the search criteria. The wildcard (%) symbol can still be used in a double quoted search string.

Results

Select Schema	Table Name	Tablespace	Partitioned	Rows Last Analyzed	Create
No search conducted					

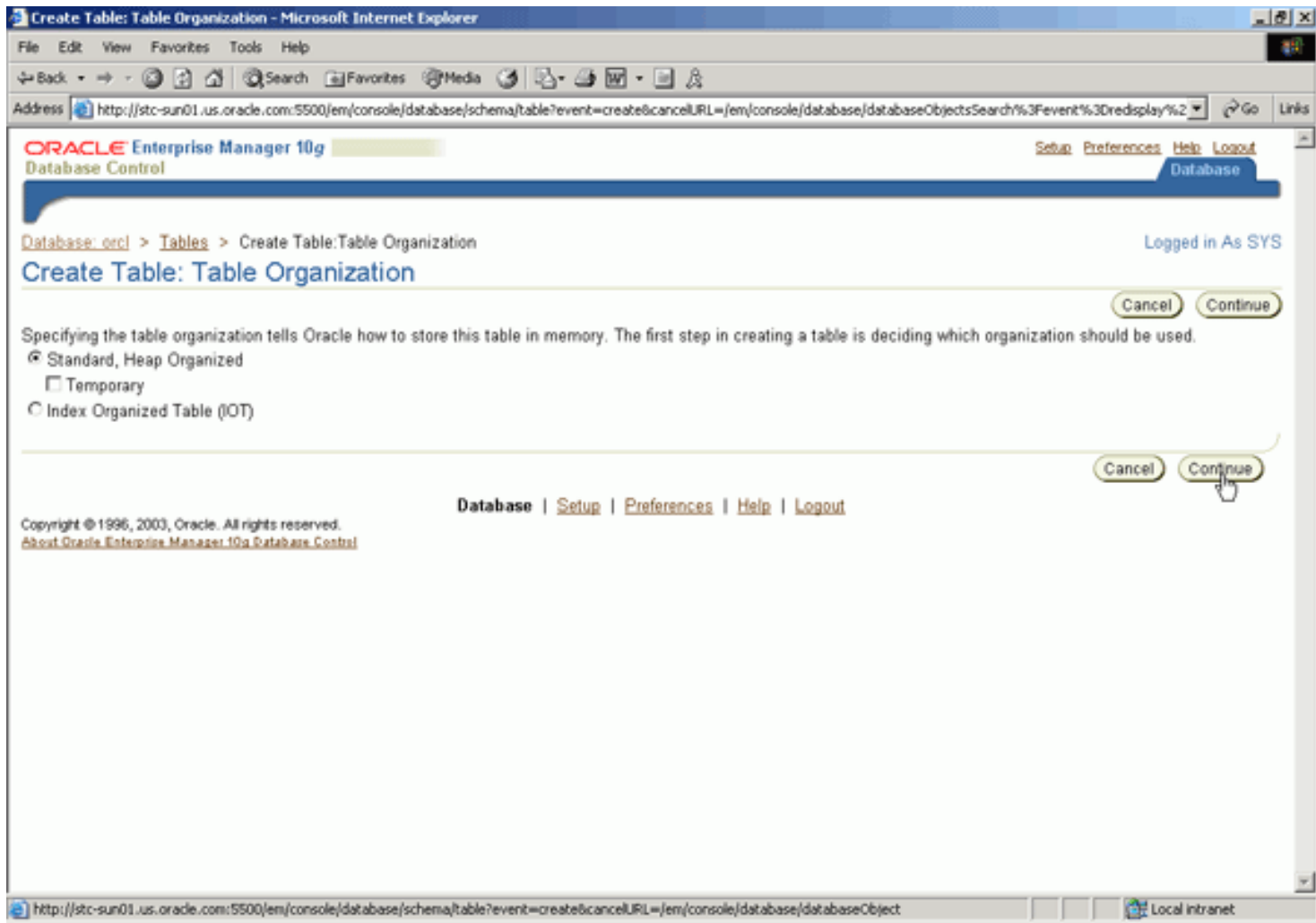
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Database | [Setup](#) | [Preferences](#) | [Help](#) | [Logout](#)

http://stc-sun01.us.oracle.com:5500/em/console/database/databaseObjectsSearch?event=noSearch&otype=schema&objectType=TABLE&target=oracle_database Local intranet

Click **Continue** .

11.



12. Enter **employees1** in the Name field. Specify **SYSTEM** as the schema and **TBLALERT** as the tablespace. Click on the Define Using drop-down list and select **SQL**. Type **select * from hr.employees** in the Create Table As field, then click on the **Options** tab.

Oracle Enterprise Manager - Table General - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://stc-sun01.us.oracle.com:5500/em/console/database/schema/table?target=oracle_database&cancelURL=/em/console/database/databaseObjectsSearch%3F Go Links

ORACLE Enterprise Manager 10g Database Control

Setup Preferences Help Logout Database

Database: orcl > Tables > Create Table Logged in As SYS

Create Table

Show SQL Cancel OK

General Constraints Storage Options

Name EMPLOYEES1

Schema SYSTEM

Tablespace TBSALERT

Organization Standard, Heap Organized

Define Using SQL

SQL

Enter a SQL select statement below. The results of this query will be used to populate this table with data.

CREATE TABLE AS select * from hr.employees

TIP example: Select * from scott.emp

General Constraints Storage Options

Show SQL Cancel OK

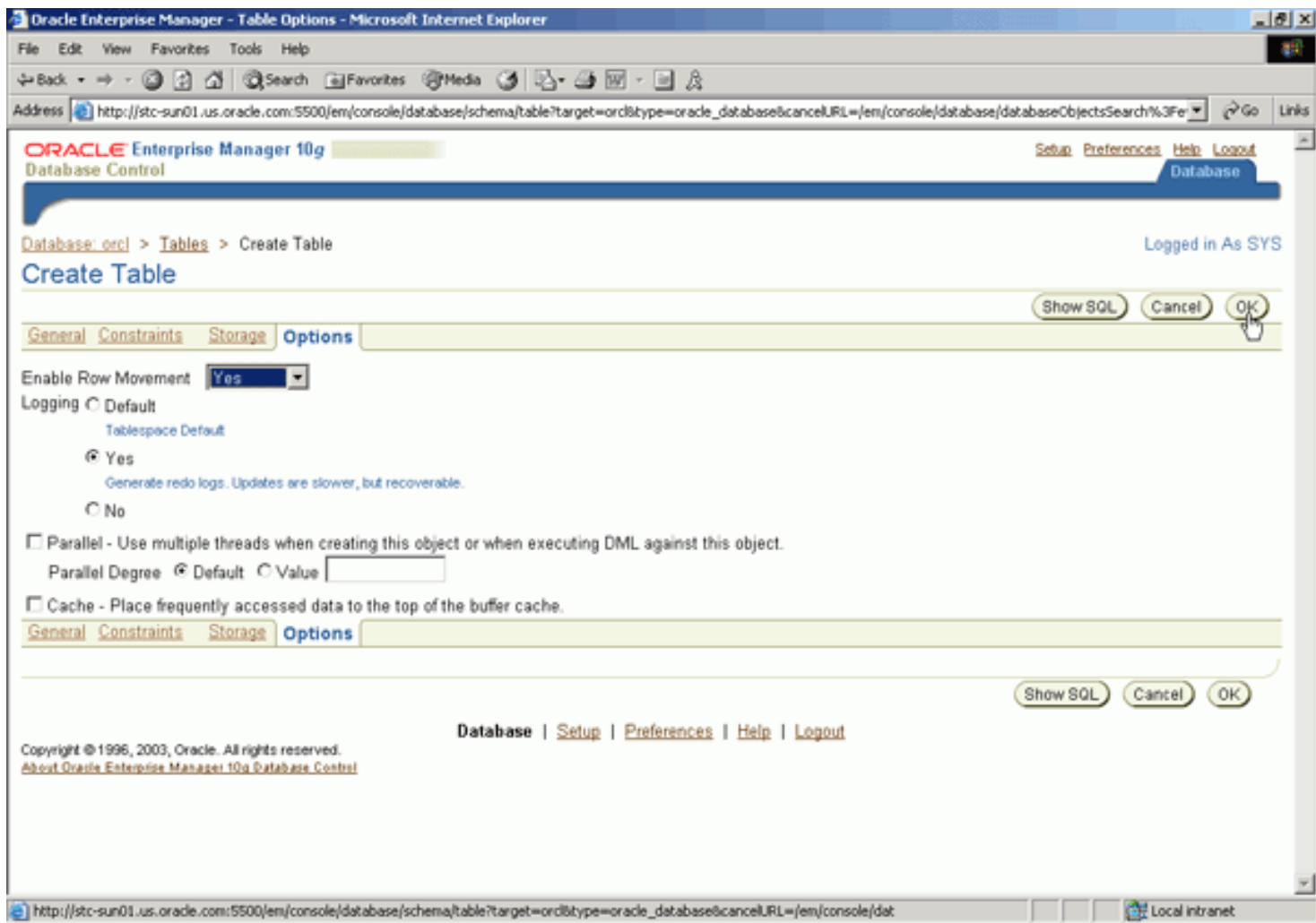
Database | Setup | Preferences | Help | Logout

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About Oracle Enterprise Manager 10g Database Control

Local intranet

Select **Yes** for Enable Row Movement and click **OK** to complete creation of the table.

13.



Your table has been created. Click the **Database** breadcrumb.

14.

Oracle Enterprise Manager (SYS) - Tables - Microsoft Internet Explorer

Address: http://stc-sun01.us.oracle.com:5500/em/console/database/databaseObjectsSearch?event=redisplay&lastEvent=create&target=oracle_database&objectType=TABLE

ORACLE Enterprise Manager 10g Database Control

Database: orcl > Tables

Logged in As SYS

Update Message
Table SYSTEM.EMPLOYEES1 has been created successfully

Search
Select an object type and optionally enter a schema name and an object name to filter the data that is displayed in your results set.
Object Type: Table Schema: SYSTEM Object Name: Go

To run an exact match search or to run a case sensitive search, double quote the search criteria. The wildcard (%) symbol can still be used in a double quoted search string.

Results

Select	Schema	Table Name	Tablespace	Partitioned	Rows	Last Analyzed
<input checked="" type="radio"/>	SYSTEM	AQ\$_INTERNET_AGENTS	SYSTEM	NO	3	2003-12-17 18:00:31
<input type="radio"/>	SYSTEM	AQ\$_INTERNET_AGENT_PRIVS	SYSTEM	NO	2	2003-12-17 18:00:32
<input type="radio"/>	SYSTEM	AQ\$_QUEUES	SYSTEM	NO	19	2003-12-17 18:00:32
<input type="radio"/>	SYSTEM	AQ\$_QUEUE_TABLES	SYSTEM	NO	10	2003-12-17 18:00:32
<input type="radio"/>	SYSTEM	AQ\$_SCHEDULES	SYSTEM	NO	0	2003-12-17 18:00:32
<input type="radio"/>	SYSTEM	DEF\$_AQCALL	SYSTEM	NO	0	2003-12-17 18:00:33
<input type="radio"/>	SYSTEM	DEF\$_AQERROR	SYSTEM	NO	0	2003-12-17 18:00:33

Triggering a Tablespace Space Usage Alert

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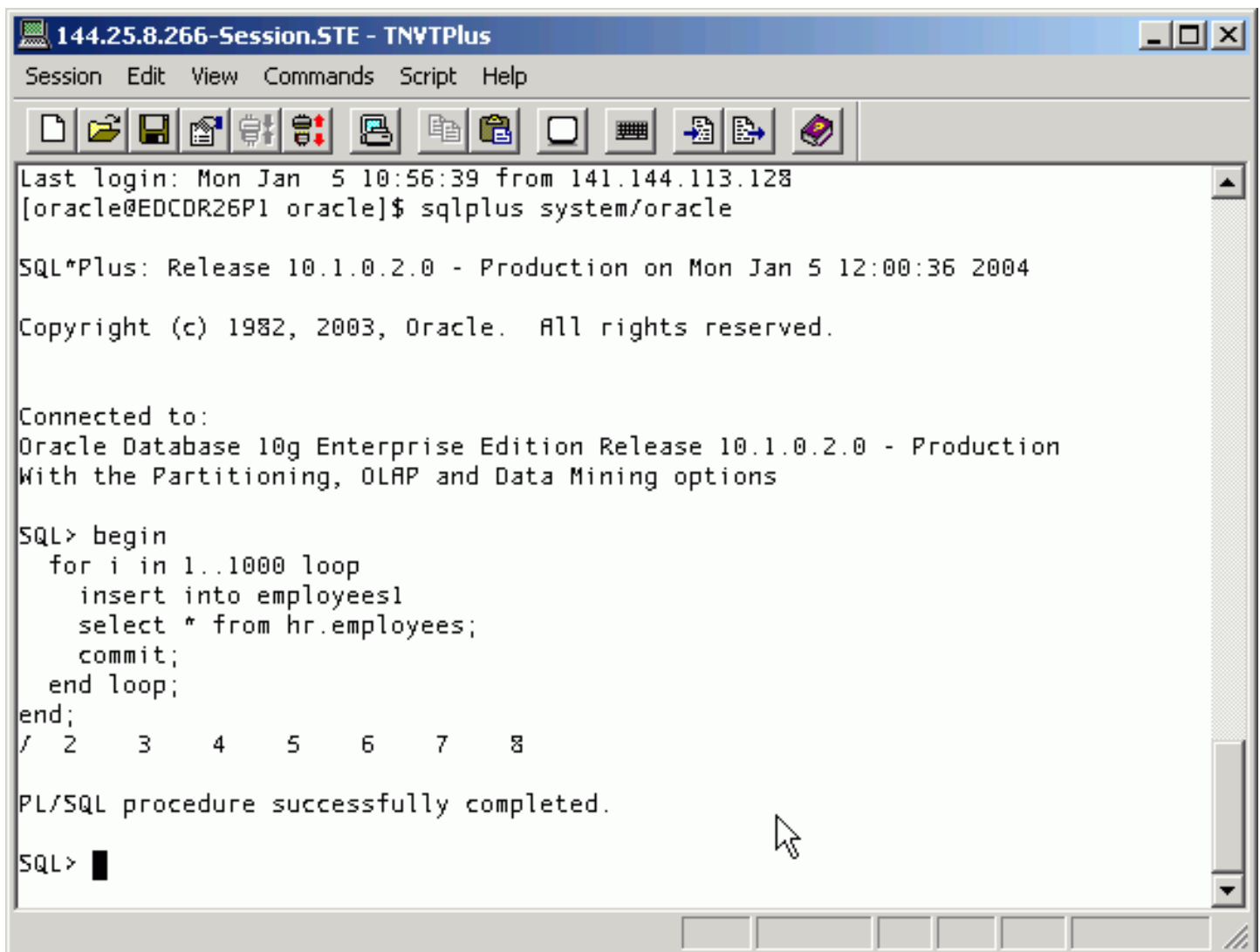
You will now perform some updates on the table to trigger a space utilization alert. Perform the following:

1. Open a **SQL*Plus** session and execute the following command:

```
sqlplus system/oracle
```


2. Copy and paste the following SQL commands into your SQL*Plus session to simulate user activity on the EMPLOYEES1 table:

```
begin
  for i in 1..1000 loop
    insert into employees1
      select * from hr.employees;
    commit;
  end loop;
end;
/
```



```
144.25.8.266-Session.STE - TNYTPlus
Session Edit View Commands Script Help

Last login: Mon Jan  5 10:56:39 from 141.144.113.128
[oracle@EDCDR26P1 oracle]$ sqlplus system/oracle

SQL*Plus: Release 10.1.0.2.0 - Production on Mon Jan 5 12:00:36 2004

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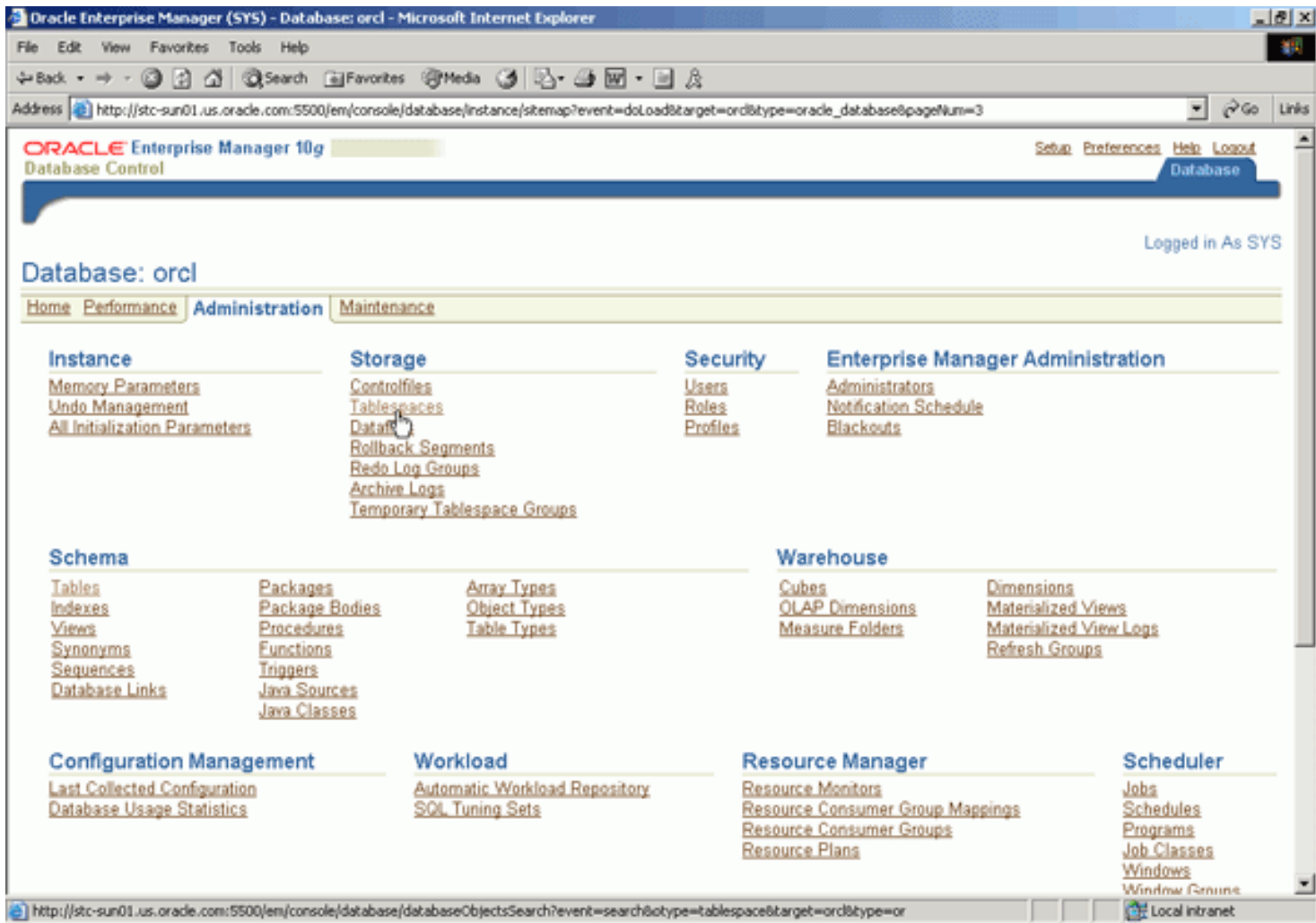
Connected to:
Oracle Database 10g Enterprise Edition Release 10.1.0.2.0 - Production
With the Partitioning, OLAP and Data Mining options

SQL> begin
  for i in 1..1000 loop
    insert into employees1
      select * from hr.employees;
    commit;
  end loop;
end;
/ 2      3      4      5      6      7      8

PL/SQL procedure successfully completed.

SQL> █
```

- Go to the **Enterprise Manager** window. Click on the **Database** breadcrumb to return to the **Administration** page then click on the **Tablespaces** link.



- Notice that the TBSALERT tablespace space used percentage has increased.

Oracle Enterprise Manager (SYS) - Tablespaces - Microsoft Internet Explorer

Address: http://stc-sun01.us.oracle.com:5500/em/console/database/databaseObjectsSearch?event=search&otype=tablespace&target=ord&type=oracle_database

ORACLE Enterprise Manager 10g Database Control

Database: orcl > Tablespaces

Logged in As SYS

Search

Name Go

To run an exact match search or to run a case sensitive search, double quote the search criteria. The wildcard (%) symbol can still be used in a double quoted search string.

Results

Create Edit View Delete Actions Add Datafile Go

Select	Name	Type	Extent Management	Segment Management	Status	Size (MB)	Used (MB)	Used (%)
<input checked="" type="radio"/>	EXAMPLE	PERMANENT	LOCAL	AUTO	ONLINE	150.000	67.813	45.21
<input type="radio"/>	SYSAUX	PERMANENT	LOCAL	AUTO	ONLINE	210.000	203.698	96.99
<input type="radio"/>	SYSTEM	PERMANENT	LOCAL	MANUAL	ONLINE	440.000	430.875	97.93
<input type="radio"/>	TSBSALET	PERMANENT	LOCAL	AUTO	ONLINE	20.000	9.063	45.31
<input type="radio"/>	TEMP	TEMPORARY	LOCAL	MANUAL	ONLINE	20.000	17.000	85.00
<input type="radio"/>	UNDOTBS1	UNDO	LOCAL	MANUAL	ONLINE	90.000	38.875	43.19
<input type="radio"/>	USERS	PERMANENT	LOCAL	AUTO	ONLINE	5.000	2.750	55.00

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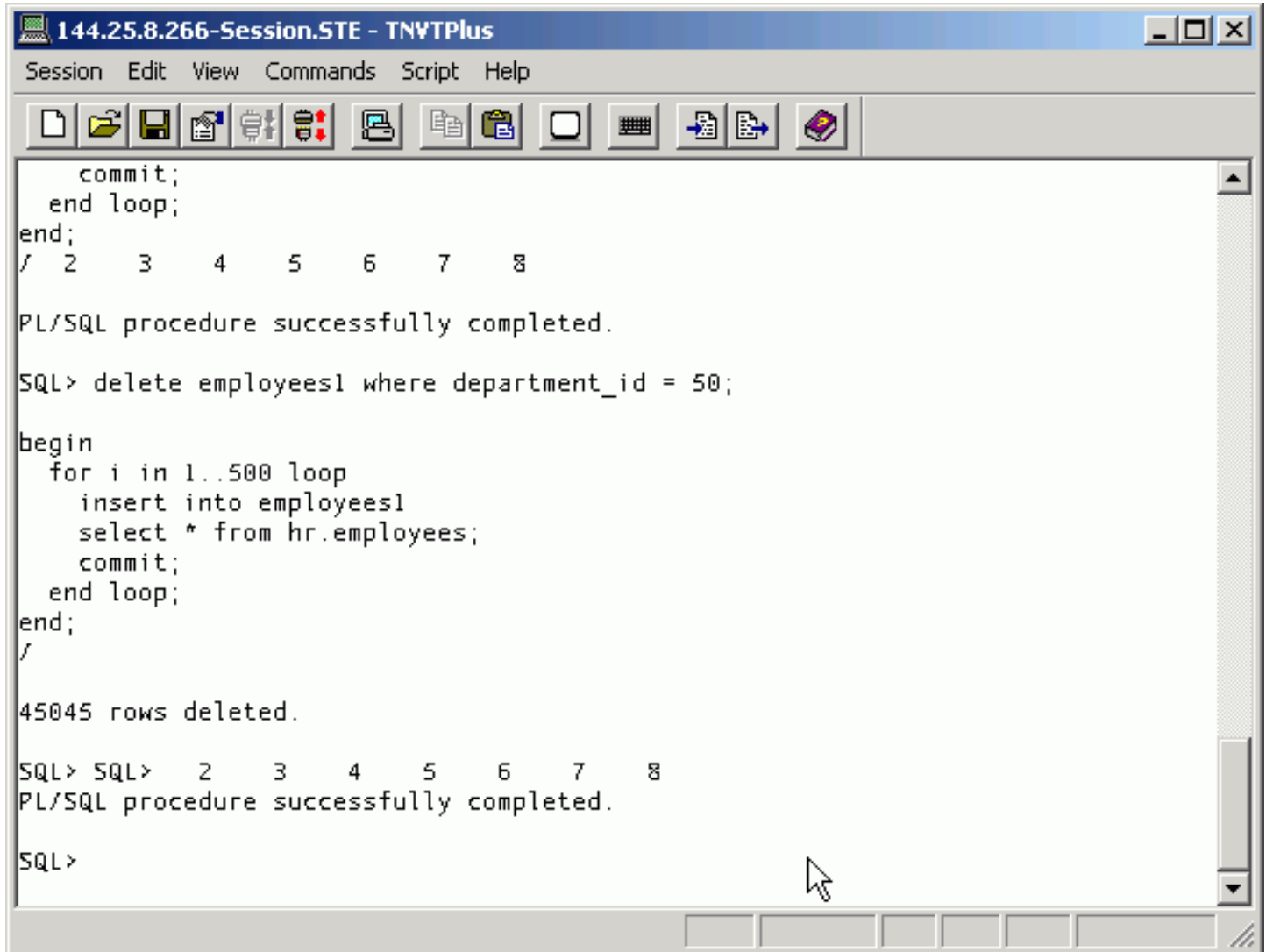
Database | Setup | Preferences | Help | Logout

Local intranet

- Switch back to the **SQL*Plus** window and copy and paste the following commands into your SQL*Plus session to simulate more user activity on the `EMPLOYEES1` table:

```
delete employees1 where department_id = 50;
```

```
begin
  for i in 1..500 loop
    insert into employees1
      select * from hr.employees;
    commit;
  end loop;
end;
/
```

The image shows a screenshot of a SQL*Plus window titled "144.25.8.266-Session.STE - TNVTPlus". The window has a menu bar with "Session", "Edit", "View", "Commands", "Script", and "Help". Below the menu bar is a toolbar with various icons for file operations, execution, and help. The main text area contains the following text:

```
commit;
end loop;
end;
/ 2      3      4      5      6      7      8

PL/SQL procedure successfully completed.

SQL> delete employees1 where department_id = 50;

begin
  for i in 1..500 loop
    insert into employees1
      select * from hr.employees;
    commit;
  end loop;
end;
/

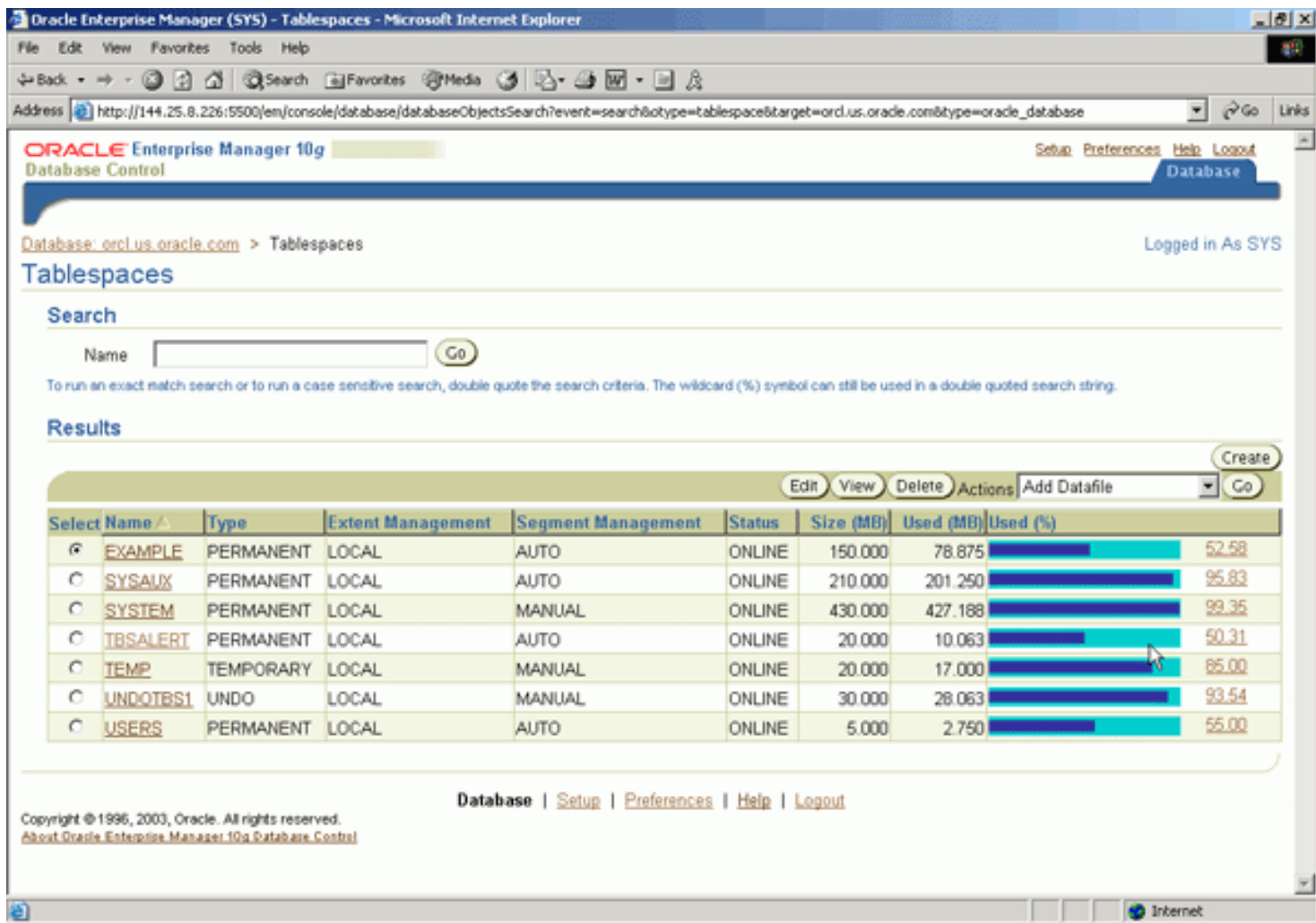
45045 rows deleted.

SQL> SQL> 2      3      4      5      6      7      8
PL/SQL procedure successfully completed.

SQL>
```

A mouse cursor is visible near the bottom right of the text area. The window has a standard Windows-style title bar and window controls.

6. Go to the **Enterprise Manager** window. Refresh your browser (for Linux Mozilla, select **View** from the menubar then select **Reload**). Notice that the TBSALERT tablespace space usage percentage has increased further.



- Switch back to the **SQL*Plus** window and copy and paste the following commands into your SQL*Plus session to simulate more user activity on the `EMPLOYEES1` table:

```
begin
  for i in 1..500 loop
    insert into employees1
      select * from hr.employees;
    commit;
  end loop;
end;
/
```

```
144.25.8.266-Session.STE - TNYTPlus
Session Edit View Commands Script Help

insert into employees1
select * from hr.employees;
commit;
end loop;
end;
/

45045 rows deleted.

SQL> SQL> 2 3 4 5 6 7 8
PL/SQL procedure successfully completed.

SQL> begin
for i in 1..500 loop
insert into employees1
select * from hr.employees;
commit;
end loop;
end;
/ 2 3 4 5 6 7 8

PL/SQL procedure successfully completed.

SQL> █
```

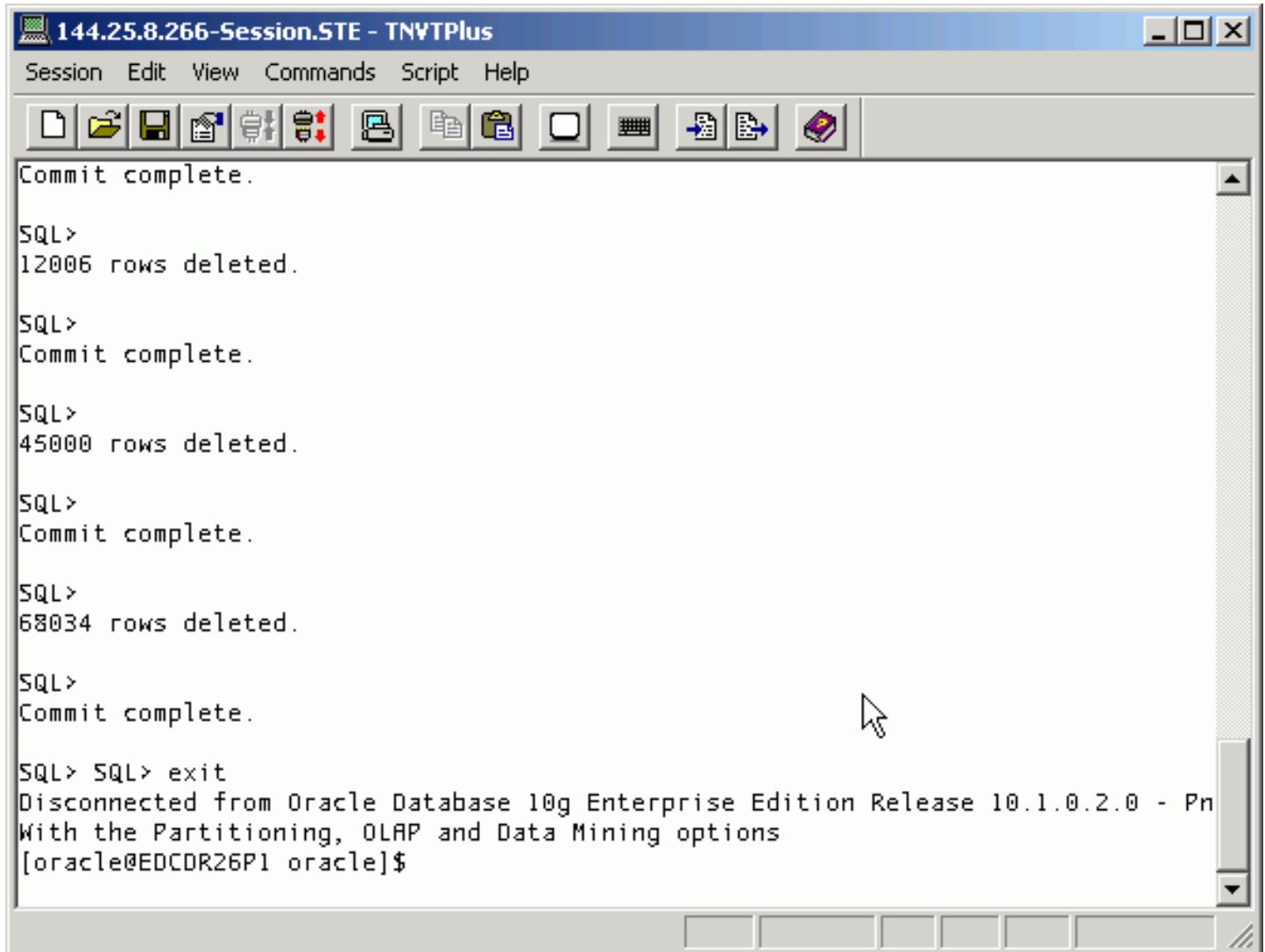
7. Copy and paste the following SQL commands into your SQL*Plus session to simulate user activity on the EMPLOYEES1 table:

```
delete employees1 where department_id = 30;
commit;
```

```
delete employees1 where department_id = 100;
commit;
```

```
delete employees1 where department_id = 50;
commit;
```

```
delete employees1 where department_id = 80;  
commit;  
  
exit
```

A screenshot of a TNVTPlus terminal window. The title bar reads "144.25.8.266-Session.STE - TNVTPlus". The menu bar includes "Session", "Edit", "View", "Commands", "Script", and "Help". The toolbar contains icons for file operations (new, open, save, print, etc.) and database-related functions. The main text area shows the following sequence of commands and output:

```
Commit complete.  
  
SQL>  
12006 rows deleted.  
  
SQL>  
Commit complete.  
  
SQL>  
45000 rows deleted.  
  
SQL>  
Commit complete.  
  
SQL>  
68034 rows deleted.  
  
SQL>  
Commit complete.  
  
SQL> SQL> exit  
Disconnected from Oracle Database 10g Enterprise Edition Release 10.1.0.2.0 - Pn  
With the Partitioning, OLAP and Data Mining options  
[oracle@EDCDR26P1 oracle]$
```

The window has a status bar at the bottom with several empty rectangular boxes and a small icon on the right.

8. Go to the **Enterprise Manager** window. Refresh your browser (for Linux Mozilla, select **View** from the menubar then select **Reload**). Notice that the TBSALERT tablespace space usage percentage has now exceeded the critical threshold level of 68%.

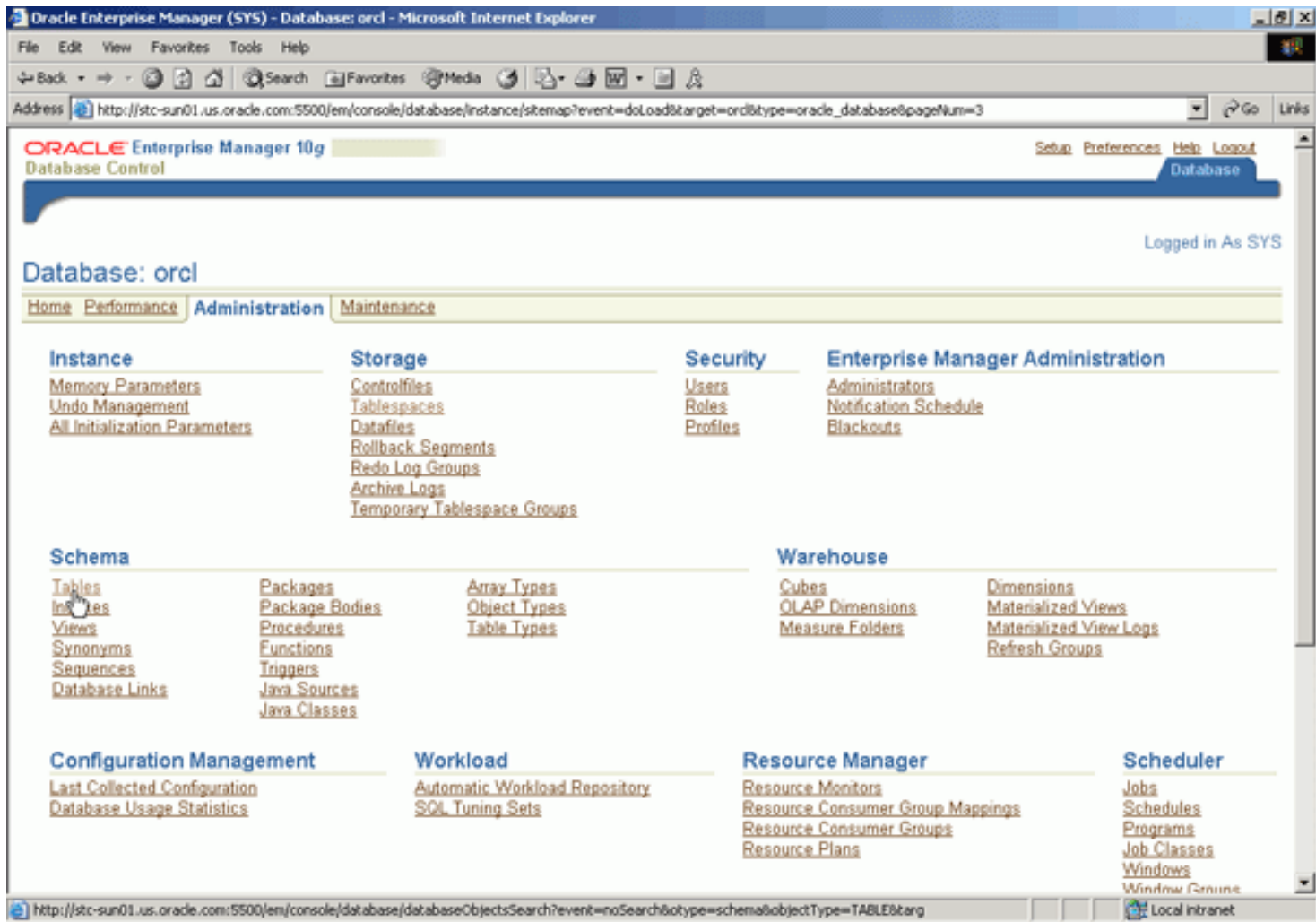
The screenshot shows the Oracle Enterprise Manager 10g Database Control interface in a Microsoft Internet Explorer browser. The page title is "Oracle Enterprise Manager (SYS) - Tablespaces". The breadcrumb navigation shows "Database: orcl.us.oracle.com > Tablespaces". The page is logged in as SYS.

The "Tablespaces" section includes a search bar and a "Results" table. The table lists various tablespaces with their properties and usage percentages. The TBSALERT tablespace is highlighted, showing a usage percentage of 70.31%.

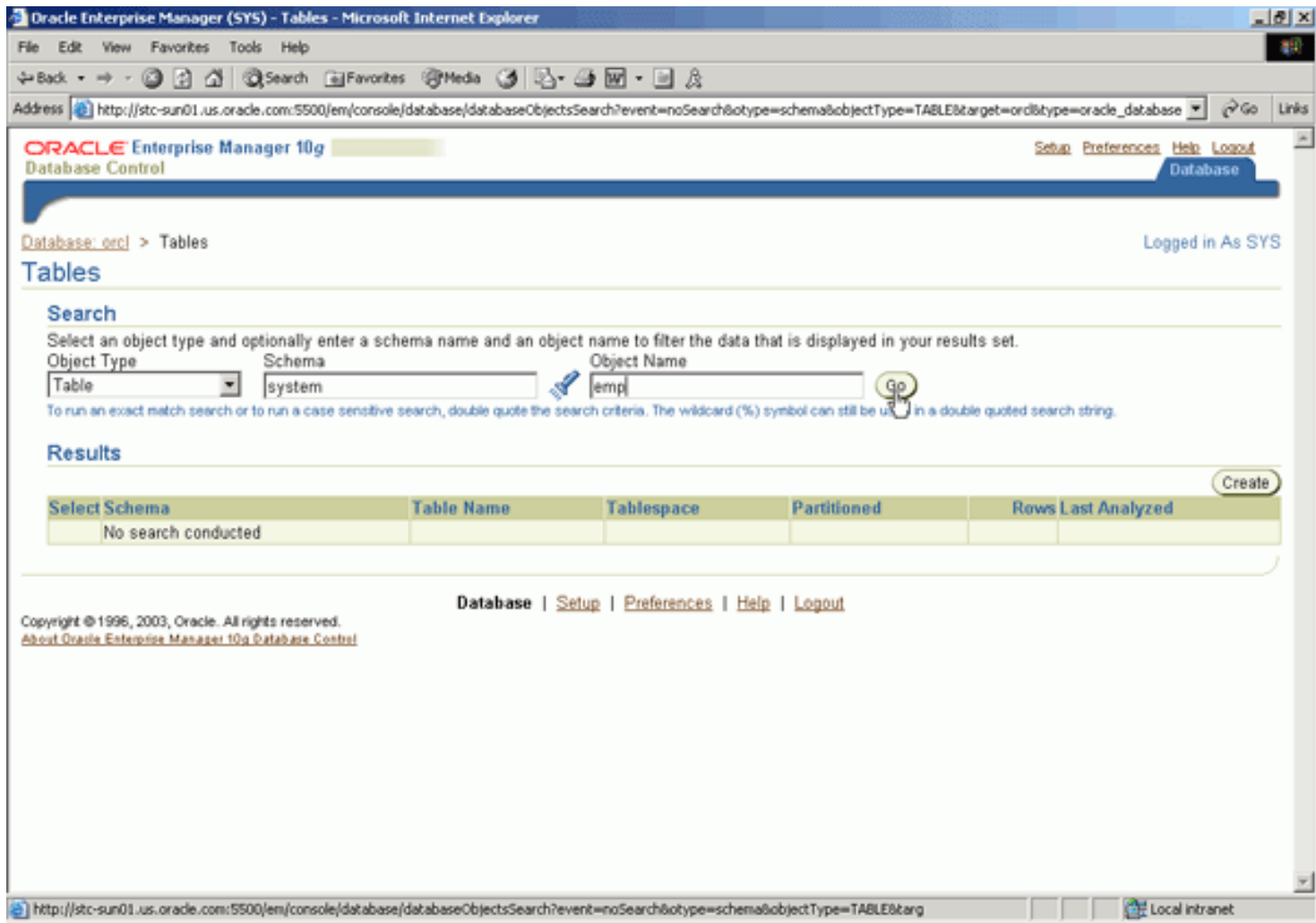
Select	Name	Type	Extent Management	Segment Management	Status	Size (MB)	Used (MB)	Used (%)
<input checked="" type="radio"/>	EXAMPLE	PERMANENT	LOCAL	AUTO	ONLINE	150.000	78.875	52.58
<input type="radio"/>	SYSAUX	PERMANENT	LOCAL	AUTO	ONLINE	210.000	201.250	95.83
<input type="radio"/>	SYSTEM	PERMANENT	LOCAL	MANUAL	ONLINE	430.000	427.250	99.36
<input type="radio"/>	TBSALERT	PERMANENT	LOCAL	AUTO	ONLINE	20.000	14.063	70.31
<input type="radio"/>	TEMP	TEMPORARY	LOCAL	MANUAL	ONLINE	20.000	17.000	85.00
<input type="radio"/>	UNDOTBS1	UNDO	LOCAL	MANUAL	ONLINE	45.000	44.375	98.61
<input type="radio"/>	USERS	PERMANENT	LOCAL	AUTO	ONLINE	5.000	2.750	55.00

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[About Oracle Enterprise Manager 10g Database Control](#)

9. While you are waiting for the space usage alert to be displayed on the Enterprise Manager home page, take a look at the table segment statistics. Click on the **Database** breadcrumb then click on the **Tables** link.



10. To locate the SYSTEM.EMPLOYEES1 table, enter **system** in the **Schema** field and **emp** in the **Object Name** field then click **Go** .



Click on the **EMPLOYEES1** link.

11.

Oracle Enterprise Manager (SYS) - Tables - Microsoft Internet Explorer

Address: http://stc-sun01.us.oracle.com:5500/em/console/database/databaseObjectsSearch?target=oracle_database&otype=schema

ORACLE Enterprise Manager 10g
Database Control

Database: orcl > Tables Logged in As SYS

Search

Select an object type and optionally enter a schema name and an object name to filter the data that is displayed in your results set.

Object Type: Schema: Object Name:

To run an exact match search or to run a case sensitive search, double quote the search criteria. The wildcard (%) symbol can still be used in a double quoted search string.

Results

Select	Schema	Table Name	Tablespace	Partitioned	Rows	Last Analyzed
<input checked="" type="checkbox"/>	SYSTEM	EMPLOYEES1	TBSALERT	NO		

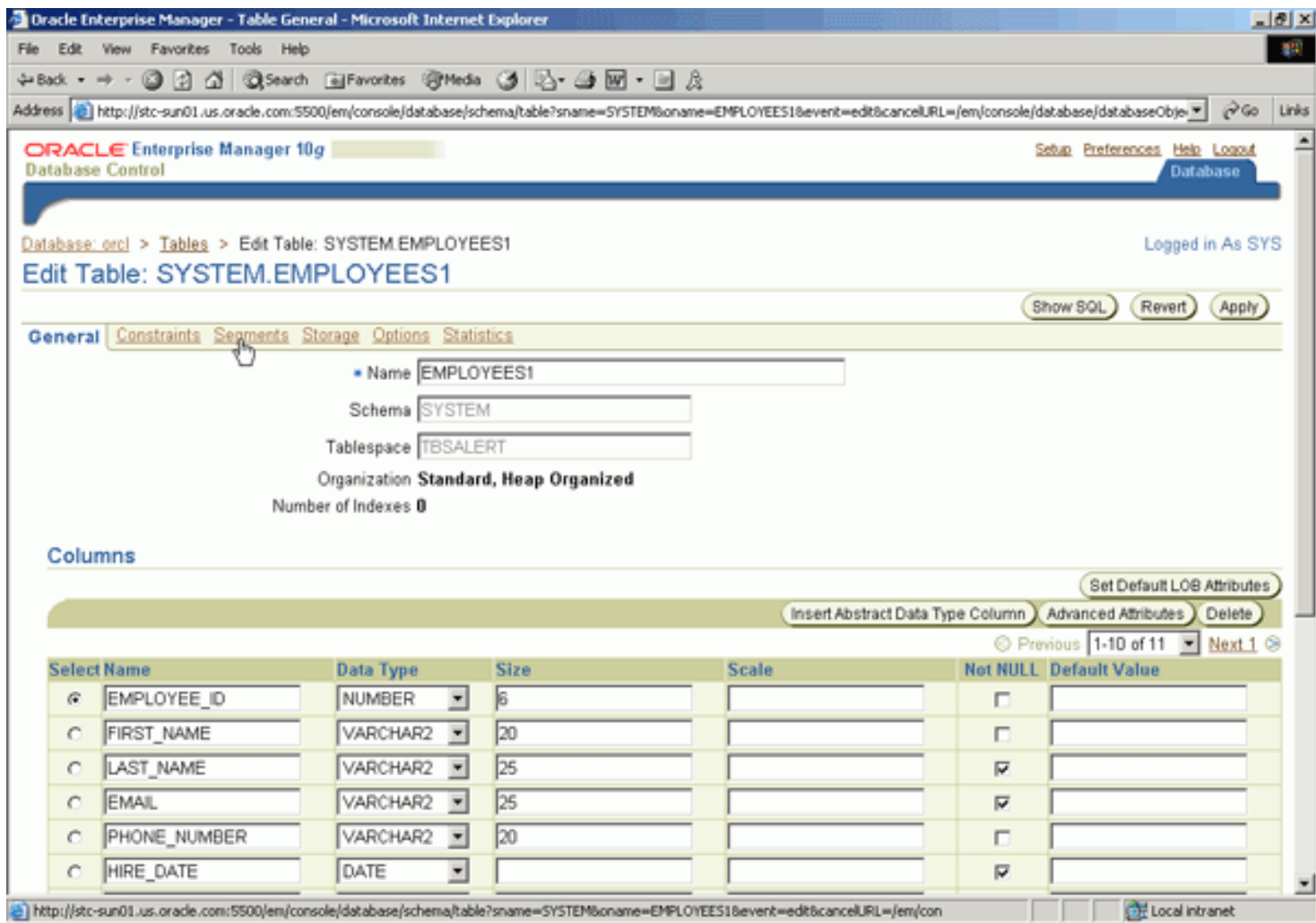
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[About Oracle Enterprise Manager 10g Database Control](#)

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

Address: <http://stc-sun01.us.oracle.com:5500/em/console/database/schema/table?sname=SYSTEM&oname=EMPLOYEES1&event=edit&cancelURL=/em/con> Local intranet

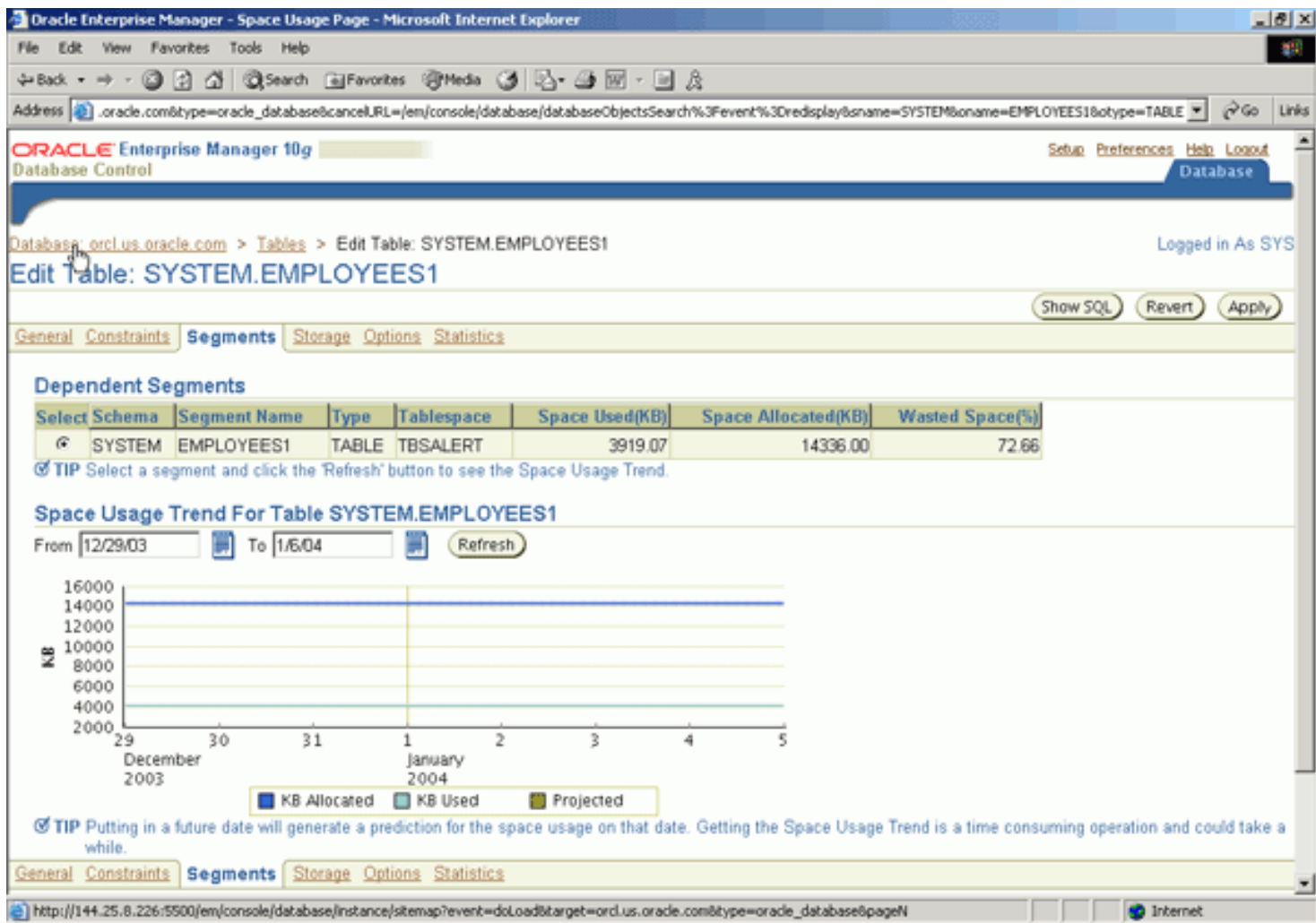
Click on the **Segments** tab.

12.

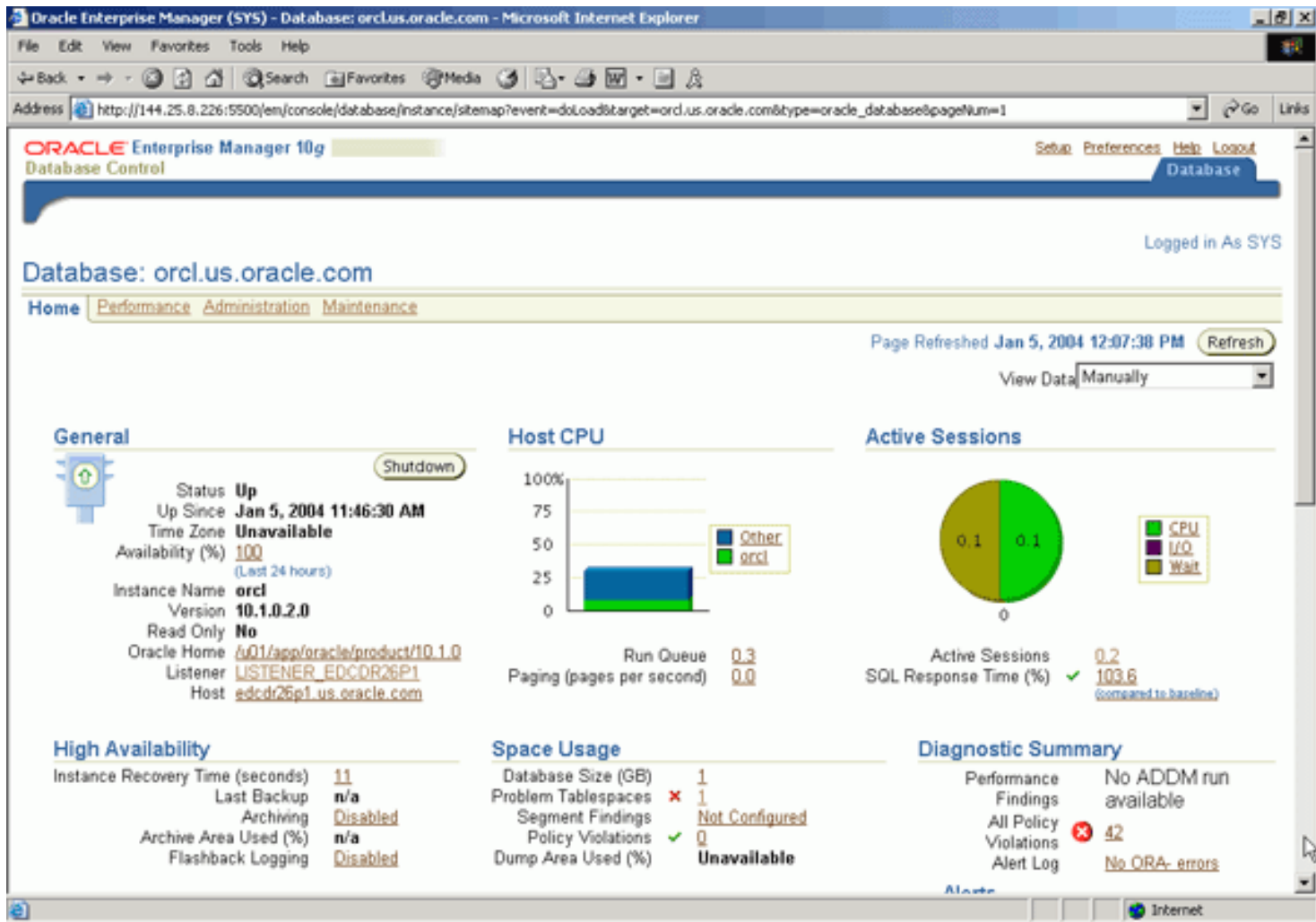


13. Notice the percentage of wasted space in the EMPLOYEES1 table. You can very likely resolve the tablespace space usage alert by reclaiming the unused space in this table.

On this same screen, you can project the EMPLOYEES1 table's future space usage by specifying a date range for **Space Usage Trend** then click the **Refresh** button. Because there has not been a long enough history of activity on the EMPLOYEES1 table, you will not see very meaningful data in the space usage analysis graph. Click on the **Database** breadcrumb then click on the **Home** page tab.



15. Click on the **Refresh** button a few times until you see a red **x** and the number **1** next to **Problem Tablespaces**. Scroll down to the **Alerts** table.



You should see a **Tablespaces Full** alert. Click on the **Tablespace [TBSALERT] is [70 percent] full** link.

16.

Oracle Enterprise Manager (SYS) - Database: orcl.us.oracle.com - Microsoft Internet Explorer

Address: http://144.25.8.226:5500/em/console/database/instance/sitemap?event=doLoad&target=orcl.us.oracle.com&type=oracle_database&pageNum=1

Findings: **Not Configured**

Alerts: **42** (All Policy Violations), **No ORA errors** (Alert Log)

Alerts Summary: **1** Critical, **1** Warning

Severity	Category	Name	Message	Alert Triggered	Last Value	Time
	Tablespaces Full	Tablespace Space Used (%)	Tablespace [TBSA1ERT] is [70 percent] full	Jan 5, 2004 12:06:46 PM	0	
	User Audit	Audited User	User SYS logged on from EDCOR26P1	Jan 5, 2004 12:01:00 PM	0	Jan 5, 2004 12:01:00 PM

Related Alerts

Severity	Target Name	Target Type	Category	Name	Message	Alert Triggered	Last Value	Time
(No alerts)								

Job Activity

Jobs scheduled to start no more than 7 days ago

Scheduled Executions: 0, Suspended Executions: 0, Running Executions: 0, Problem Executions: 0

Critical Patch Advisories

Patch Advisories: 0

Patch Advisory information may be stale. Oracle MetaLink refresh job has not run successfully in 72 hours.

Job: [RefreshFromMetalink](#)

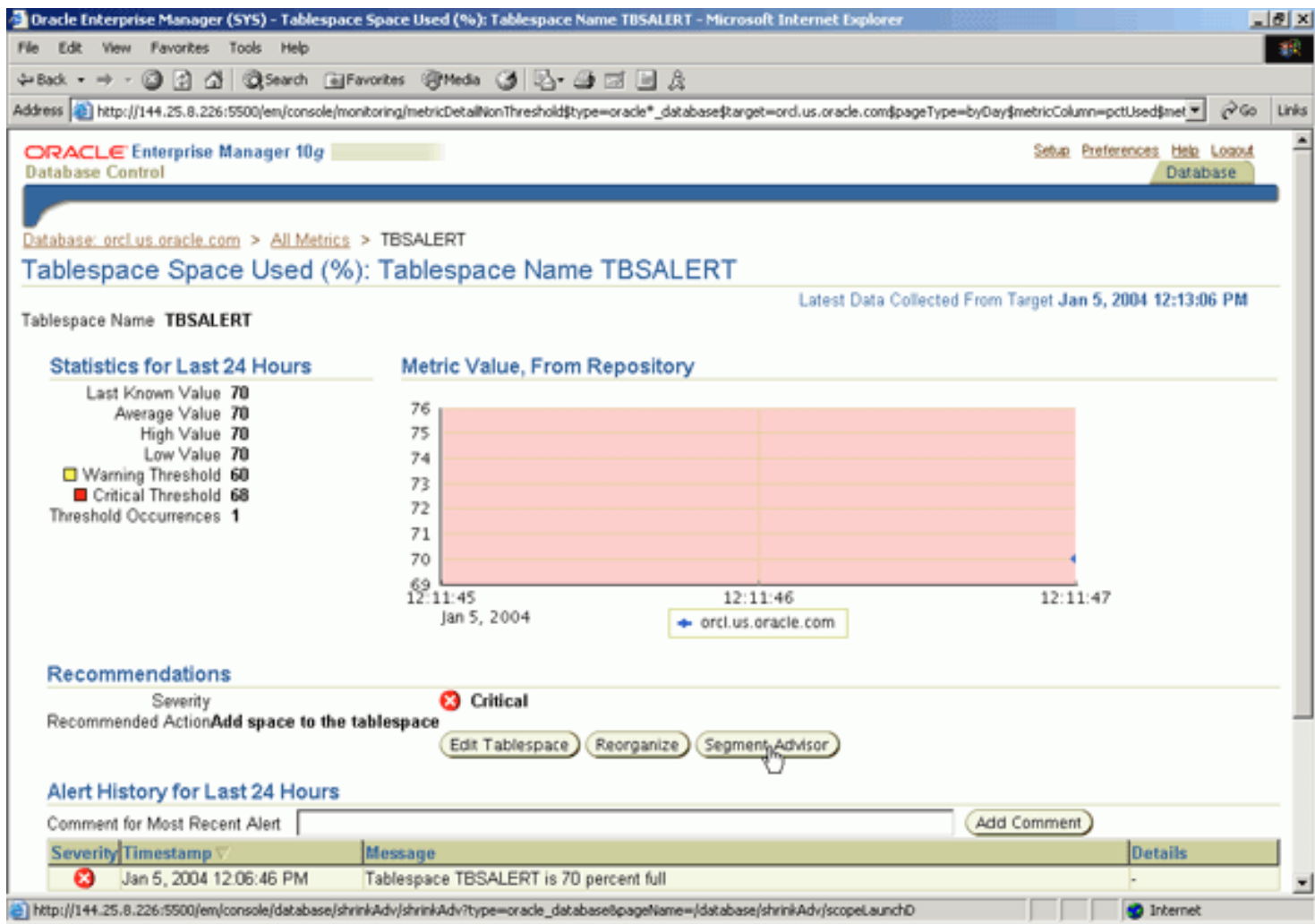
Home: [Performance](#) [Administration](#) [Maintenance](#)

Related Links

[Advisor Central](#), [All Metrics](#), [Jobs](#), [Monitoring Configuration](#), [Alert History](#), [Blackouts](#), [Manage Metrics](#), [User-Defined Metrics](#), [Alert Log Content](#), [iSQL*Plus](#), [Metric Collection Errors](#)

Address: http://144.25.8.226:5500/em/console/monitoring/metricDetailNonThreshold?type=oracle*_database&target=orcl.us.oracle.com&pageTyp

17. The Automatic Database Diagnostic Monitor (ADDM) advises to add more space. In the next section, you will resolve the tablespace full alert by reclaiming wasted space in the tablespace. Click the **Segment Advisor** button.

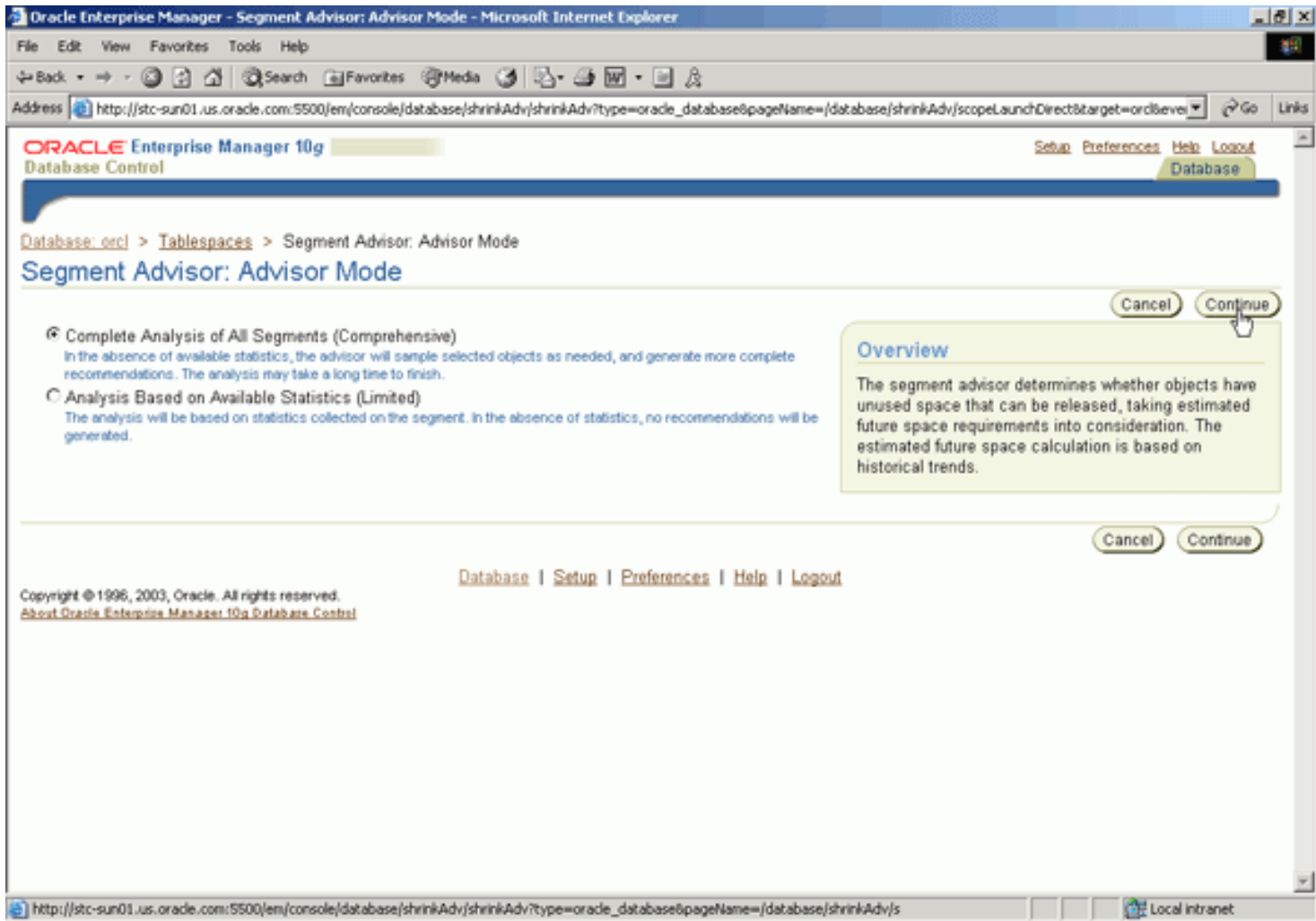


Resolving a Tablespace Space Usage Alert

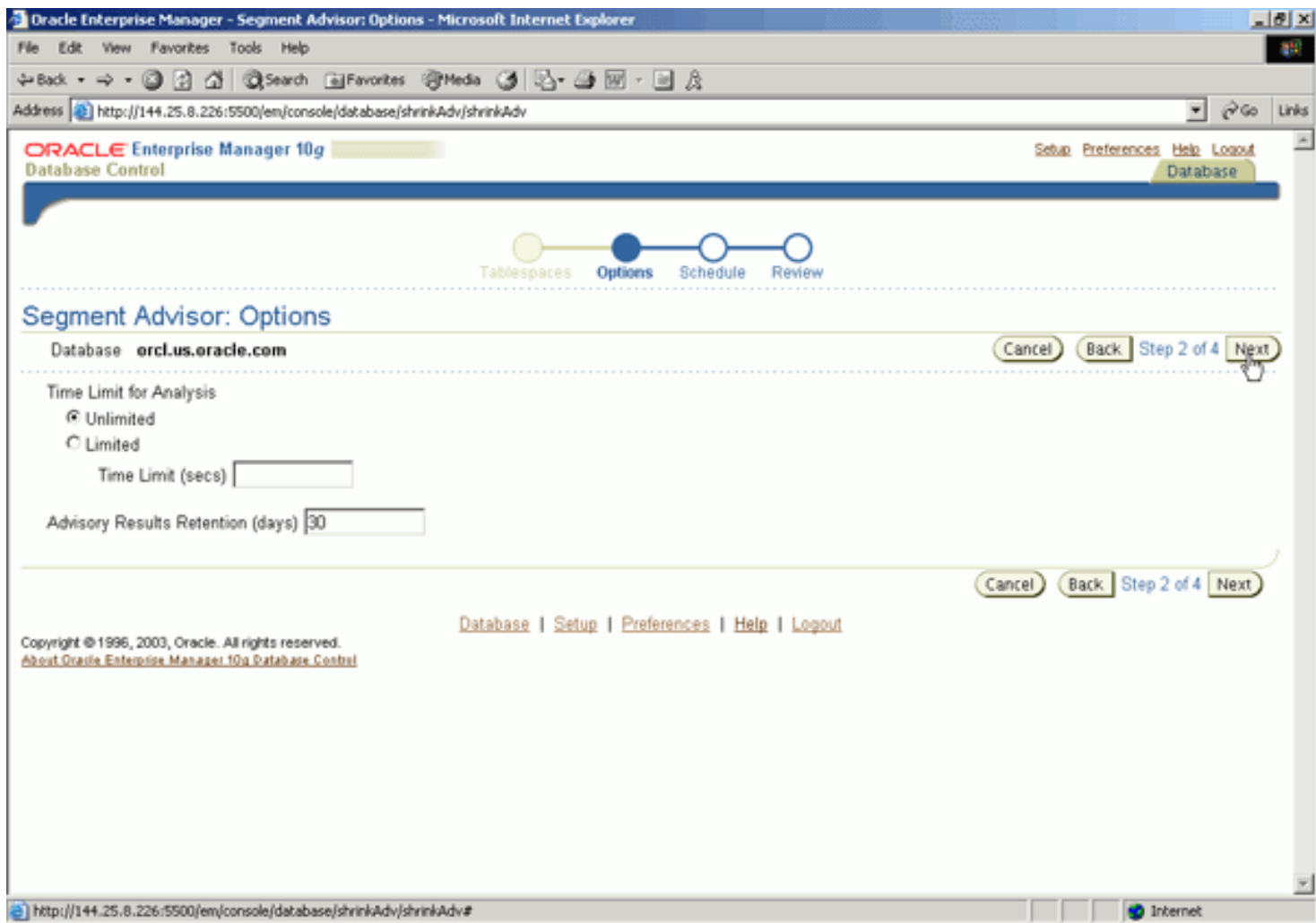
[Back to Topic List](#)

Because you do not want to add space to your tablespace, you want to determine which segments can be shrunk in order to reconstitute space to the tablespace. When space used by an object at steady state is much less than the amount of space allocated to it, it becomes necessary to reclaim the unused space. With previous releases of the Oracle server, space once allocated below the segment's HWM could only be freed by moving or redefining the segment. In Oracle Database 10 g you can now shrink segments. When a segment is shrunk, its data is compacted, its HWM is pushed down, and unused space is released back to the tablespace containing the segment. A shrink operation is an **online** and **in-place** operation, and does not use extra database space to be executed. In-place means the shrink operation does not create a separate object but rather the shrink is done on the same object. Perform the following:

1. Accept the defaults and click **Continue**.



2. At the Options window, accept the defaults and click **Next**.



3. At the Schedule window, select the Schedule Type **Standard** and make sure **Immediately** is selected and click **Next**.

Oracle Enterprise Manager - Segment Advisor: Schedule - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites Media Print View Source

Address http://144.25.8.226:5500/em/console/database/shrinkAdv/shrinkAdv Go Links

ORACLE Enterprise Manager 10g Database Control Setup Preferences Help Logout Database

Tablespaces Options **Schedule** Review

Segment Advisor: Schedule

Database **orcl.us.oracle.com** Cancel Back Step 3 of 4 **Next**

☒ **TIP** This operation may be resource-intensive and should be scheduled during off-peak hours.

Task Information

Task Name	SHRINK_6017170
Task Description	Get shrink advice based on object growth trend

Schedule

Schedule Type **Standard**


Time Zone **Database Time Zone GMT -8:00**

Repeating

Repeat **Do Not Repeat**

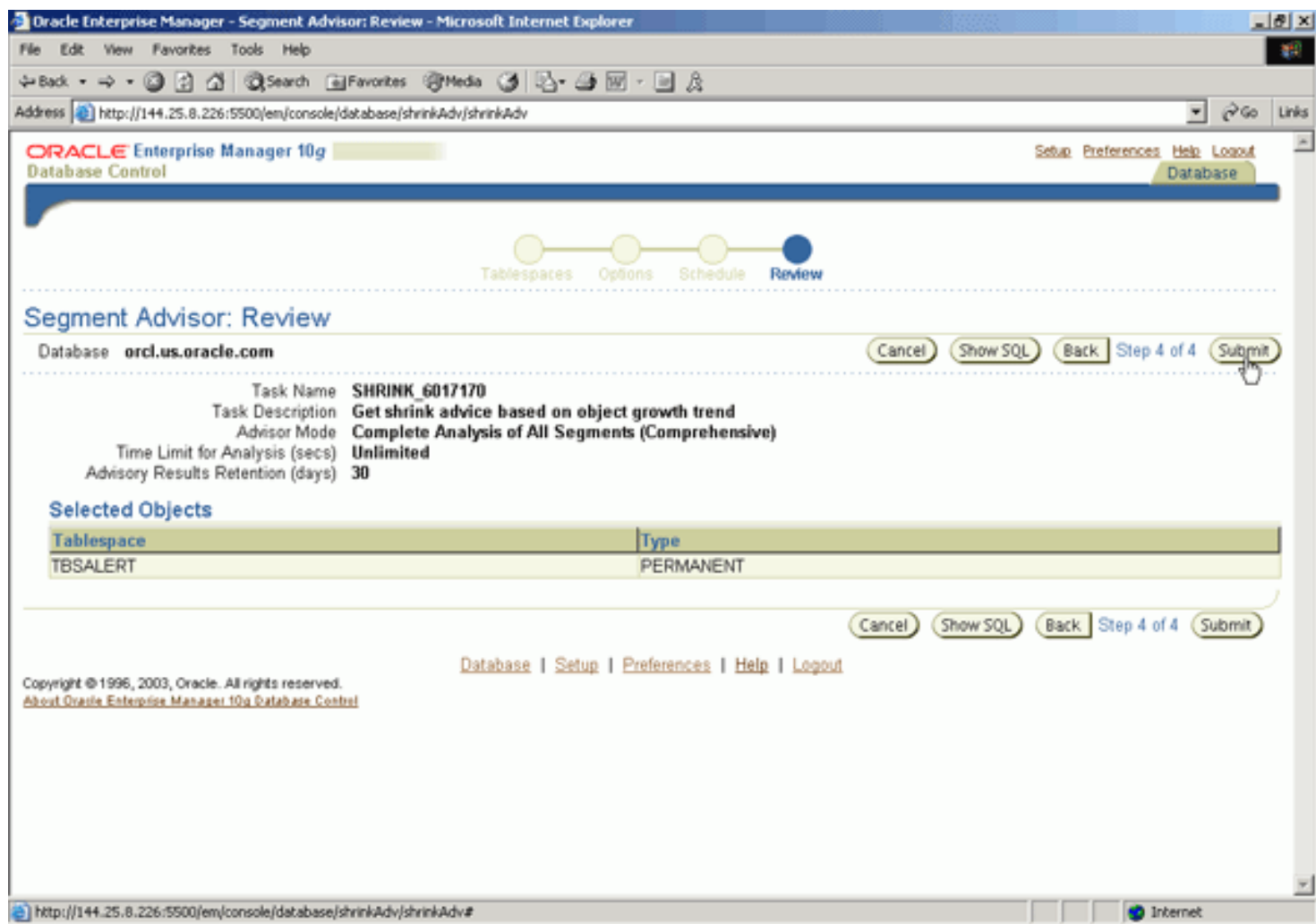
Start

☒ Immediately
☐ Later

Date **Jan 5, 2004** 

http://144.25.8.226:5500/em/console/database/shrinkAdv/shrinkAdv# Internet

- Click **Submit**.



5. Click the **Refresh** button until the task is completed.

The screenshot shows the Oracle Enterprise Manager 10g Database Control interface. The browser address bar displays the URL: `http://144.25.8.226:5500/em/console/database/instance/advisorTasks?dbPageNum=1&taskNameFilter=&`. The page title is "Oracle Enterprise Manager 10g Database Control". The user is logged in as "SYS".

The main content area shows a "Confirmation" message: "Advisor task created successfully: SHRINK_6017170". Below this, there is a "Refresh" button. The page was refreshed on Jan 5, 2004 12:17:21 PM.

The "Advisors" section lists several advisors: ADDM, SQL Tuning Advisor, SQL Access Advisor, Memory Advisor, MTTR Advisor, Segment Advisor, and Undo Management.

The "Advisor Tasks" section includes a "Change Default Expiration" button and a "Search" section. The search section prompts the user to select an advisory type and optionally enter a task name to filter the data. The "Advisory Type" dropdown is set to "All Types", and the "Task Name" field is empty. The "Advisor Runs" dropdown is set to "Last Run". A "Go" button is next to the search fields.

The "Results" section shows a table with the following columns: Select, Advisory Type, Name, Description, User, Status, Start Time, End Time, Expires In (days). The table contains one row for the Segment Advisor task "SHRINK_6017170".

Select	Advisory Type	Name	Description	User	Status	Start Time	End Time	Expires In (days)
<input checked="" type="radio"/>	Segment Advisor	SHRINK_6017170	Get shrink advice based on object growth trend	SYS	RUNNING	Jan 5, 2004 12:17:20 PM		30

At the bottom of the table, there are buttons for "View Result", "Delete", and "Actions". The "Actions" dropdown is set to "Re-schedule". A "Go" button is next to the actions dropdown.

- Once the task is complete, click **View Results**.

The screenshot shows the Oracle Enterprise Manager 10g Database Control interface. The browser address bar displays the URL: `http://144.25.8.226:5500/em/console/database/instance/advisorTasks?event=reload&dbPageNum=1`. The page title is "Oracle Enterprise Manager 10g Database Control". The user is logged in as "SYS".

The "Advisor Central" section is active, showing a list of advisors: ADDM, SQL Tuning Advisor, SQL Access Advisor, Memory Advisor, MTTR Advisor, Segment Advisor, and Undo Management. The "Advisor Tasks" section is also visible, with a "Change Default Expiration" button.

The "Search" section allows filtering by Advisory Type (All Types), Task Name, and Advisor Runs (Last Run). The "Results" section displays a table of advisor tasks.

Select	Advisory Type	Name	Description	User	Status	Start Time	End Time	Expires In (days)
<input checked="" type="radio"/>	Segment Advisor	SHRINK_6017170	Get shrink advice based on object growth trend	SYS	COMPLETED	Jan 5, 2004 12:17:20 PM	Jan 5, 2004 12:17:24 PM	30

At the bottom of the results table, there are buttons for "View Result", "Delete", "Actions", and "Re-schedule". The "View Result" button is highlighted.

- You can see that the EMPLOYEES1 table is a good candidate for a shrink operation. Scrolling down to the bottom of the result page, you can choose which kind of shrink operation to do. Make sure that the first option is selected because it is the one that reclaims space. Then click **Show SQL** to see what statements will be executed.

Oracle Enterprise Manager - Segment Advisor Task: SHRINK_6017170 - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://144.25.8.226:5500/em/console/database/shrinkAdv/shrinkAdv?task_id=1&event=view_result&advisoryCentralURL=/em/console/database/instance/advisorTasks%3Fdbf Go Links

ORACLE Enterprise Manager 10g Database Control Setup Preferences Help Logout Database

Database: orcl.us.oracle.com > Advisor Central > Segment Advisor Task: SHRINK_6017170

Segment Advisor Task: SHRINK_6017170

The advisor has determined that the following objects have wasted space. Oracle recommends shrinking these segments to release wasted space. Select the objects to shrink and click Schedule Implementation to schedule the shrink.

Task Name **SHRINK_6017170** Started **Jan 5, 2004 12:17:20 PM**
 Status **COMPLETED** Ended **Jan 5, 2004 12:17:24 PM**
 Advisor Mode **COMPREHENSIVE** Running Time (seconds) **4**
 Time Limit (seconds) **UNLIMITED**

Recommendations

[Show SQL](#) [Schedule Implementation](#)

☒ View Segments Recommended to Shrink
☐ View other Segments

[Select All](#) | [Select None](#)

Select	Tablespace	Schema	Segment	Partition	Segment Type	Allocated Space (MB)	Used Space (MB)	Reclaimable Space (MB)	Recommendation
<input checked="" type="checkbox"/>	TBSALERT	SYSTEM	EMPLOYEES1		TABLE	14.0	4.068	9.890	Perform shrink, estimated savings is 10370901 bytes.

Shrink Options

☒ Compact Segments and Release Space
 This will first compact the segments and then release the recovered space to the tablespace. During the short space release phase, any cursors referencing this segment may be invalidated and queries on the segment could be disrupted.

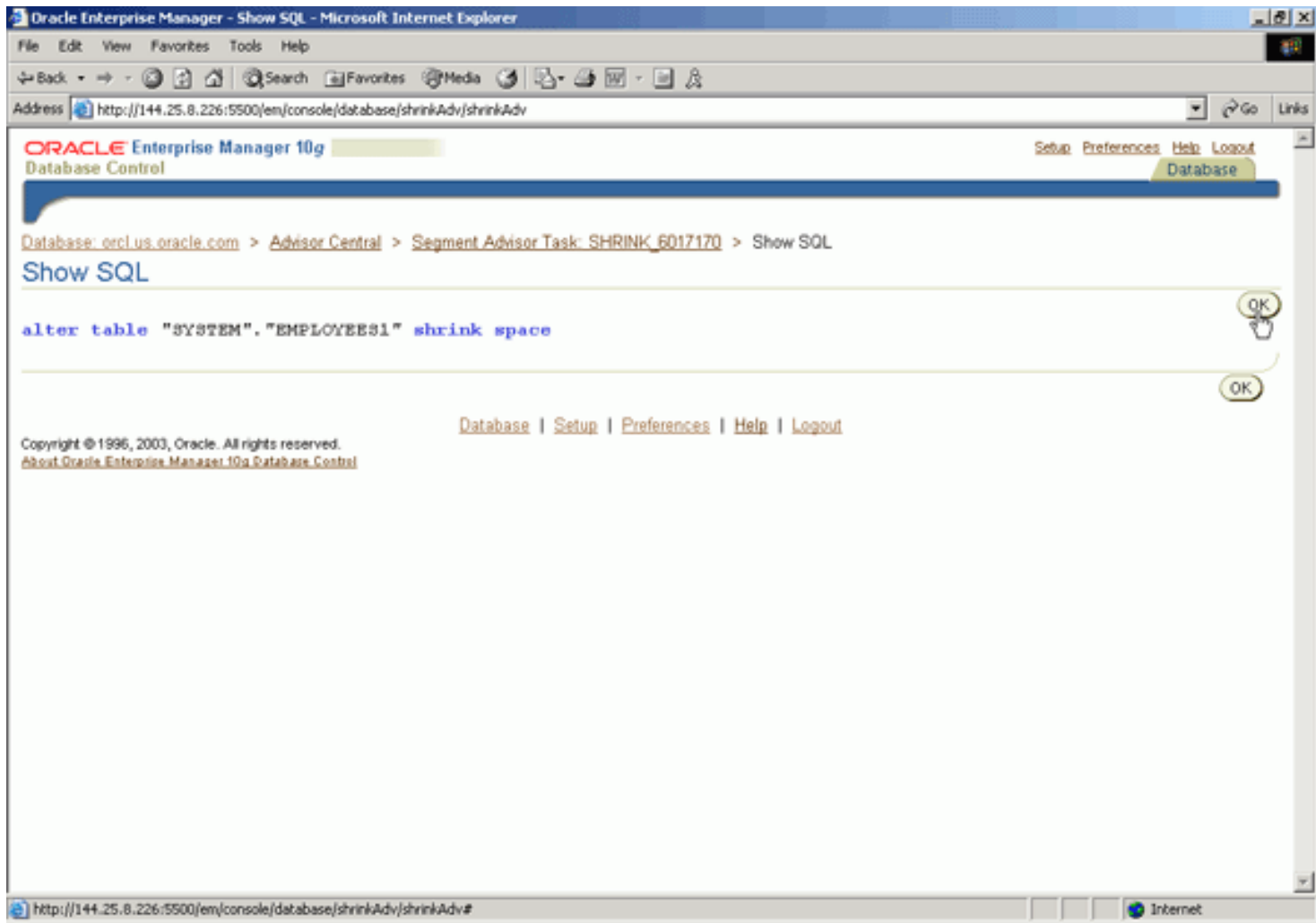
☐ Compact Segments
 Compacting will compact segment data without releasing the recovered space. After compacting the data, the recovered space can be quickly released by running Compact Segments and Release Space.

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Database | Setup | Preferences | Help | Logout

http://144.25.8.226:5500/em/console/database/shrinkAdv/shrinkAdv?task_id=1&event=view_result&advisoryCentralURL=/em/console/dat Internet

8. Click **OK**.



9. Click **Schedule Implementation** .

Oracle Enterprise Manager - Segment Advisor Task: SHRINK_6017170 - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites Media Print View Source

Address http://144.25.8.226:5500/em/console/database/shrinkAdv/shrinkAdv Go Links

ORACLE Enterprise Manager 10g Database Control Setup Preferences Help Logout Database

Database: orcl.us.oracle.com > Advisor Central > Segment Advisor Task: SHRINK_6017170

Segment Advisor Task: SHRINK_6017170

The advisor has determined that the following objects have wasted space. Oracle recommends shrinking these segments to release wasted space. Select the objects to shrink and click Schedule Implementation to schedule the shrink.

Task Name **SHRINK_6017170** Started **Jan 5, 2004 12:17:20 PM**
 Status **COMPLETED** Ended **Jan 5, 2004 12:17:24 PM**
 Advisor Mode **COMPREHENSIVE** Running Time (seconds) **4**
 Time Limit (seconds) **UNLIMITED**

Recommendations

[Show SQL](#) [Schedule Implementation](#)

☒ View Segments Recommended to Shrink
☐ View other Segments

[Select All](#) | [Select None](#)

Select	Tablespace	Schema	Segment	Partition	Segment Type	Allocated Space (MB)	Used Space (MB)	Reclaimable Space (MB)	Recommendation
<input checked="" type="checkbox"/>	TBSALERT	SYSTEM	EMPLOYEES1		TABLE	14.0	4.068	9.890	Perform shrink, estimated savings is 10370901 bytes.

Shrink Options

☒ Compact Segments and Release Space
 This will first compact the segments and then release the recovered space to the tablespace. During the short space release phase, any cursors referencing this segment may be invalidated and queries on the segment could be disrupted.

☐ Compact Segments
 Compacting will compact segment data without releasing the recovered space. After compacting the data, the recovered space can be quickly released by running Compact Segments and Release Space.

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Database | Setup | Preferences | Help | Logout

http://144.25.8.226:5500/em/console/database/shrinkAdv/shrinkAdv# Internet

Click **Submit**.

10.

Oracle Enterprise Manager - Schedule Implementation - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites Media Print View Source

Address <http://144.25.8.226:5500/em/console/database/shrinkAdv/shrinkAdv> Go Links

ORACLE Enterprise Manager 10g Database Control Setup Preferences Help Logout Database

Database: orcl.us.oracle.com > Advisor Central > Segment Advisor Task: SHRINK_6017170 > Schedule Implementation

Schedule Implementation

TIP This operation may be resource-intensive and should be scheduled during off-peak hours.

Job Information

Job Name

Job Description


Schedule

Time Zone

Start

☒ Immediately

☐ Later

Date 

(example: Jan 5, 2004)

Time ☐ AM ☒ PM

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[About Oracle Enterprise Manager 10g Database Control](#)

Database | Setup | Preferences | Help | Logout

<http://144.25.8.226:5500/em/console/database/shrinkAdv/shrinkAdv#> Internet

Click the **Run History** tab.

11.

The screenshot shows the Oracle Enterprise Manager 10g interface in a Microsoft Internet Explorer browser. The page title is "Oracle Enterprise Manager (SYS) - Scheduler Jobs". The address bar shows the URL: http://144.25.8.226:5500/em/console/database/instance/schr/jobs?pname=SYS&pageName=running&name=SQLSCRIPT_9372000&event=create_ok. The page displays a confirmation message: "Job SYS.SQLSCRIPT_9372000 has been created successfully". Below this, the "Scheduler Jobs" section is active, showing a table of jobs. The table has columns: Select, Name, Owner, Start Date, Elapsed Time (seconds), CPU Used (seconds), Session ID, Resource Consumer Group, and Previous Runs. One job is listed: "SQLSCRIPT_9372000" owned by "SYS", started on "Jan 5, 2004 12:22:03 PM -08:00", with an elapsed time of ".64" seconds, CPU used of "0.142", and 0 previous runs. The page also includes navigation tabs for "Scheduled", "Running", "Disabled", and "Run History", and buttons for "Edit", "View", "Stop", and "Delete". The footer contains copyright information and links for "Database", "Setup", "Preferences", "Help", and "Logout".

Oracle Enterprise Manager 10g
Database Control

Database: orcl.us.oracle.com > Scheduler Jobs Logged in As SYS

Confirmation
Job SYS.SQLSCRIPT_9372000 has been created successfully

Scheduler Jobs Page Refreshed Jan 5, 2004 12:22:03 PM Refresh Create

Scheduled **Running** Disabled Run History

Edit View Stop Delete

Select	Name	Owner	Start Date	Elapsed Time (seconds)	CPU Used (seconds)	Session ID	Resource Consumer Group	Previous Runs
<input checked="" type="checkbox"/>	SQLSCRIPT_9372000	SYS	Jan 5, 2004 12:22:03 PM -08:00	.64	0.142	142		0

Scheduled **Running** Disabled Run History

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[About Oracle Enterprise Manager 10g Database Control](#)

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

<http://144.25.8.226:5500/em/console/database/instance/schr/jobs?pageName=history> Internet

The job ended successfully.

12.

Oracle Enterprise Manager (SYS) - Scheduler Jobs - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <http://144.25.8.226:5500/em/console/database/instance/schr/jobs?pageName=history> Go Links

ORACLE Enterprise Manager 10g Database Control

Database: orcl.us.oracle.com > Scheduler Jobs Logged in As SYS

Page Refreshed Jan 5, 2004 12:22:35 PM Refresh Create

Scheduled Running Disabled Run History Purge All Logs View Purge Log

Select	Name	Owner	Status	Completion Date	Run Duration (minutes)
<input checked="" type="radio"/>	ADV_SHRINK_6017170	SYS	SUCCEEDED	Jan 5, 2004 12:17:24 PM -08:00	0.06
<input type="radio"/>	PURGE_LOG	SYS	SUCCEEDED	Jan 5, 2004 11:42:10 AM -08:00	0.06

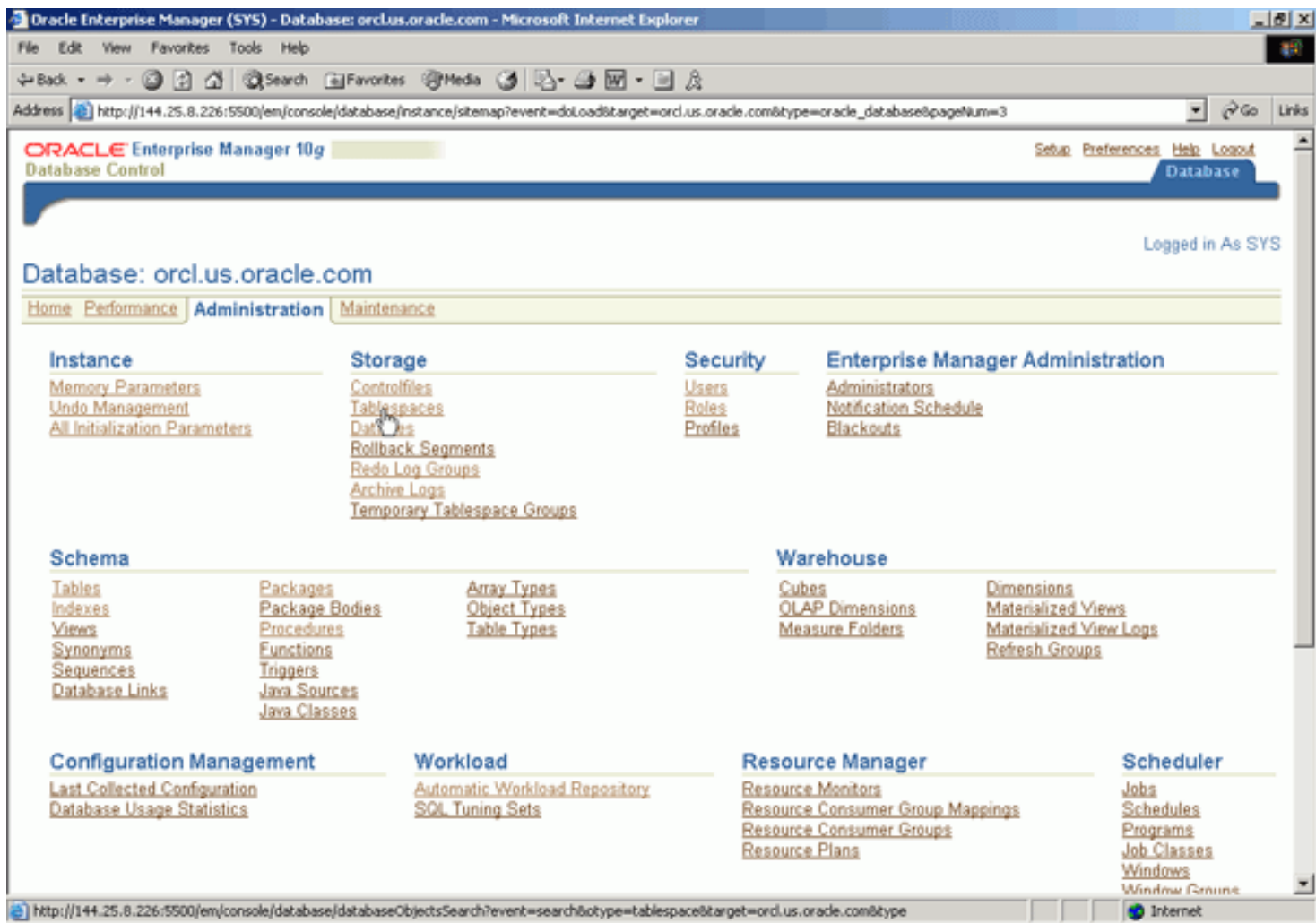
Scheduled Running Disabled Run History

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

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[About Oracle Enterprise Manager 10g Database Control](#)

http://144.25.8.226:5500/em/console/database/instance/sitemap?event=doLoad&target=orcl.us.oracle.com&type=oracle_database&pageN Internet

13. Check to see how much space was actually freed from the tablespace. Click the **Database** breadcrumb then click on the **Tablespaces** link.



Notice that the TBSALET tablespace's space usage level has been greatly reduced.

14.

Oracle Enterprise Manager (SYS) - Tablespaces - Microsoft Internet Explorer

Database Control

Database: orcl.us.oracle.com > Tablespaces

Logged in As SYS

Tablespaces

Search

Name

To run an exact match search or to run a case sensitive search, double quote the search criteria. The wildcard (%) symbol can still be used in a double quoted search string.

Results

Actions

Select	Name	Type	Extent Management	Segment Management	Status	Size (MB)	Used (MB)	Used (%)
<input checked="" type="radio"/>	EXAMPLE	PERMANENT	LOCAL	AUTO	ONLINE	150.000	78.875	52.58
<input type="radio"/>	SYSAUX	PERMANENT	LOCAL	AUTO	ONLINE	230.000	221.313	96.22
<input type="radio"/>	SYSTEM	PERMANENT	LOCAL	MANUAL	ONLINE	440.000	433.188	98.45
<input type="radio"/>	TSBSALT	PERMANENT	LOCAL	AUTO	ONLINE	20.000	2.563	12.81
<input type="radio"/>	TEMP	TEMPORARY	LOCAL	MANUAL	ONLINE	20.000	17.000	65.00
<input type="radio"/>	UNDOTBS1	UNDO	LOCAL	MANUAL	ONLINE	90.000	50.438	56.04
<input type="radio"/>	USERS	PERMANENT	LOCAL	AUTO	ONLINE	5.000	3.000	60.00

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

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15. Within about 10 minutes, the tablespace full alert should be removed from the Alerts table on the Home page. To return to the Home page, click on the **Database** breadcrumb then click the **Home** tab. Click the **Refresh** button a few times until the **Tablespace Full** alert is removed.

