

Diagnosing and Resolving Performance Problems Using ADDM

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Purpose

This module describes how you can use ADDM to diagnose and resolve performance problems..

Topics

This chapter discusses the following:

- ☒ [Overview](#)
- ☒ [Prerequisites](#)
- ☒ [Creating a Performance Finding](#)
- ☒ [Resolving the Performance Finding using ADDM](#)

Overview

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At times database performance problems arise that require your diagnosis and correction. Sometimes problems are brought to your attention by users who complain about slow performance. Other times you might notice performance spikes in the Host CPU chart on the home page.

In all cases, these problems are flagged by the Automatic Database Diagnostics Monitor (ADDM), which does a top-down system analysis every half hour by default and reports its findings on the Oracle Enterprise Manager Home page. ADDM runs automatically every 30 minutes to coincide with the snapshots taken by the Automatic Workload Repository (AWR). Its output consists of a description of each problem it has identified, and a recommended action.

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 Performance Finding

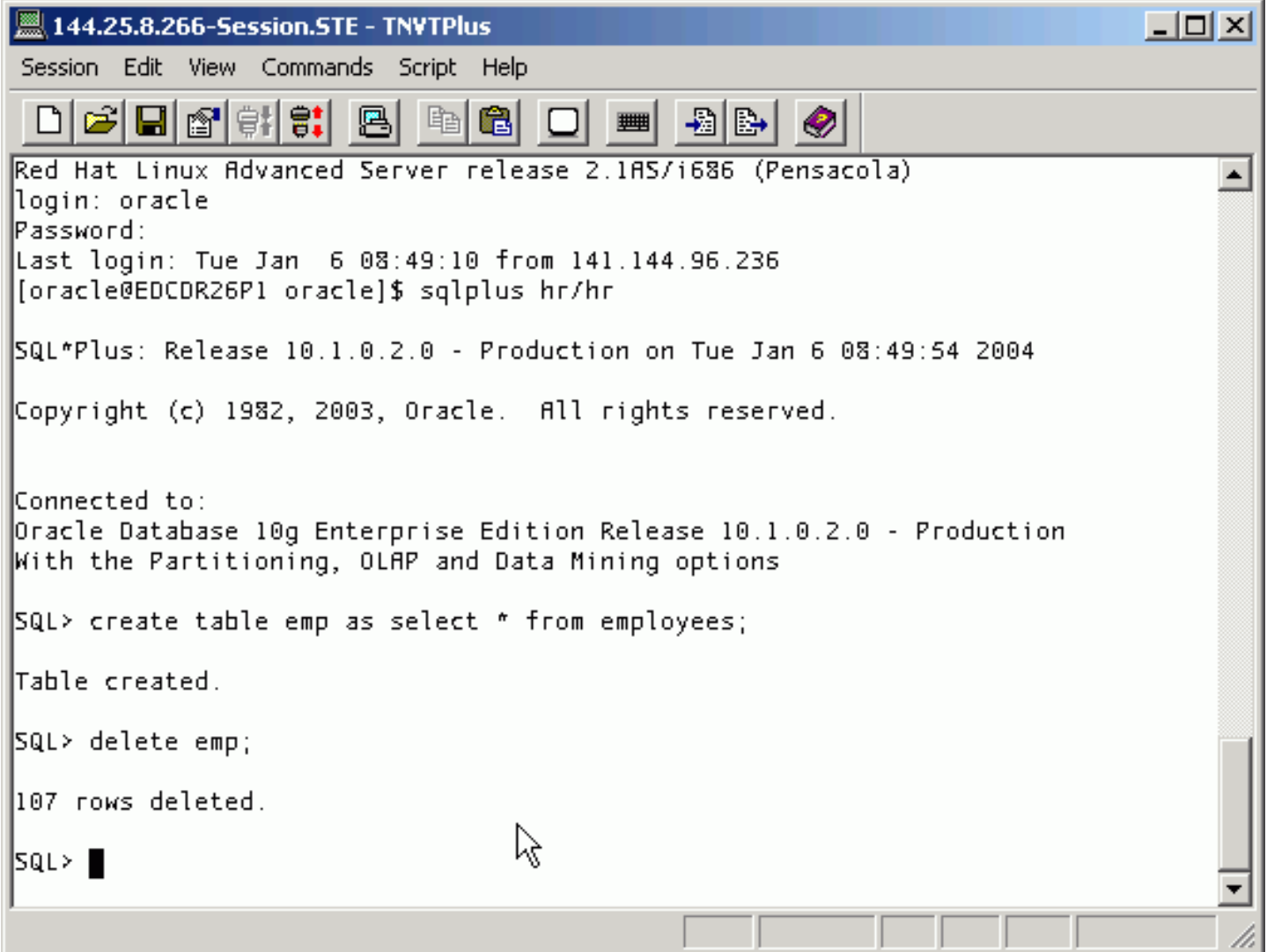
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To show how ADDM works, you need to create a performance finding. In this case, you will create a session waiting on a row lock. Perform the following:

1. Open a terminal window and execute the following commands:

```
sqlplus hr/hr
```

```
create table emp as select * from employees;  
delete emp;
```



The screenshot shows a terminal window with the title bar "144.25.8.266-Session.STE - TNVTPlus". The window contains the following text:

```
Red Hat Linux Advanced Server release 2.1AS/i686 (Pensacola)
login: oracle
Password:
Last login: Tue Jan  6 08:49:10 from 141.144.96.236
[oracle@EDCDR26P1 oracle]$ sqlplus hr/hr

SQL*Plus: Release 10.1.0.2.0 - Production on Tue Jan 6 08:49:54 2004

Copyright (c) 1982, 2003, Oracle.  All rights reserved.

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

SQL> create table emp as select * from employees;

Table created.

SQL> delete emp;

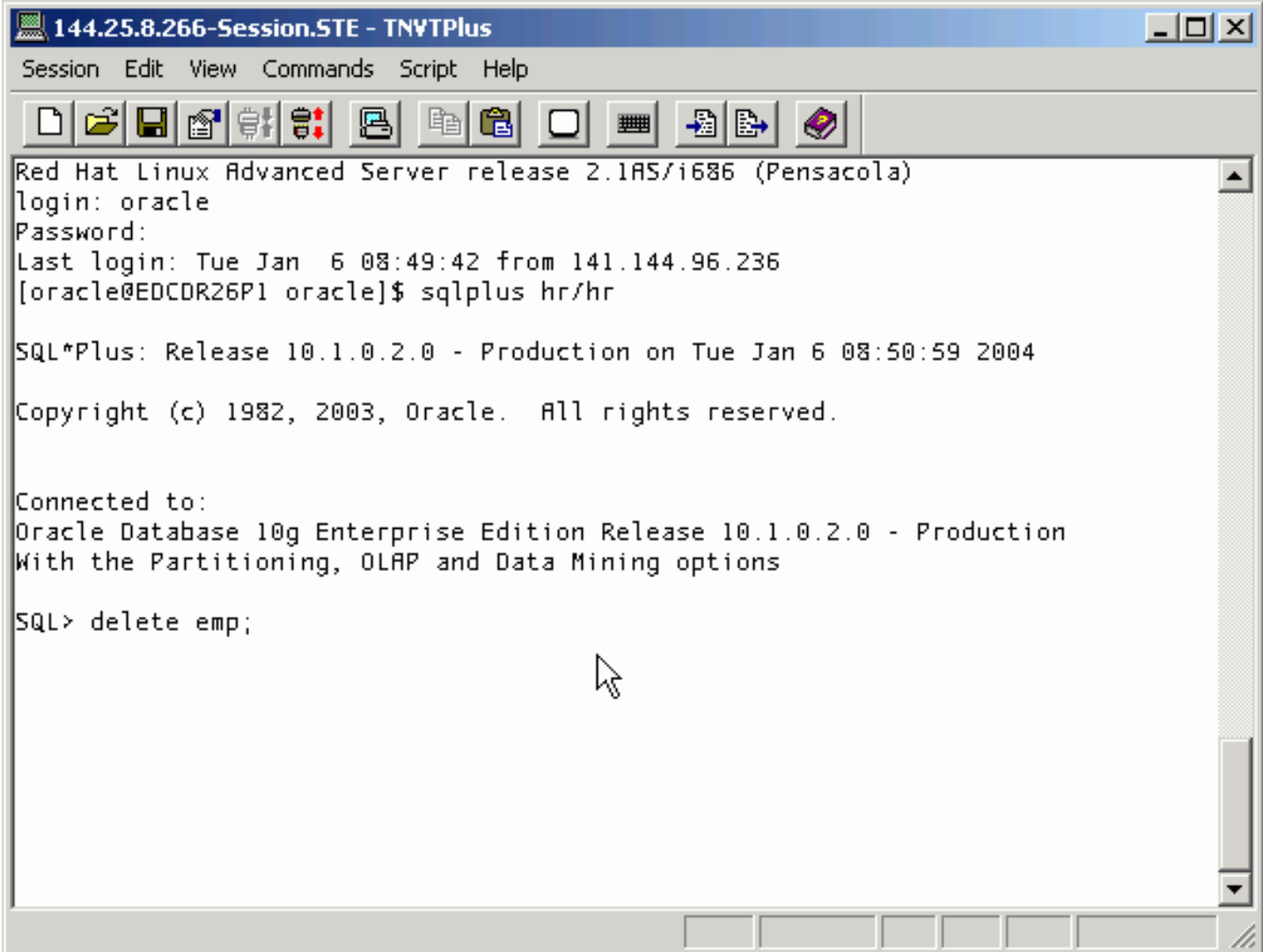
107 rows deleted.

SQL> █
```

2. Open another terminal window and execute the following commands to create a row locking conflict:

```
sqlplus hr/hr
```

```
delete emp;
```



The screenshot shows a terminal window with the title bar "144.25.8.266-Session.STE - TNYTPlus". The window contains the following text:

```
Red Hat Linux Advanced Server release 2.1AS/i686 (Pensacola)
login: oracle
Password:
Last login: Tue Jan  6 08:49:42 from 141.144.96.236
[oracle@EDCDR26P1 oracle]$ sqlplus hr/hr

SQL*Plus: Release 10.1.0.2.0 - Production on Tue Jan 6 08:50:59 2004

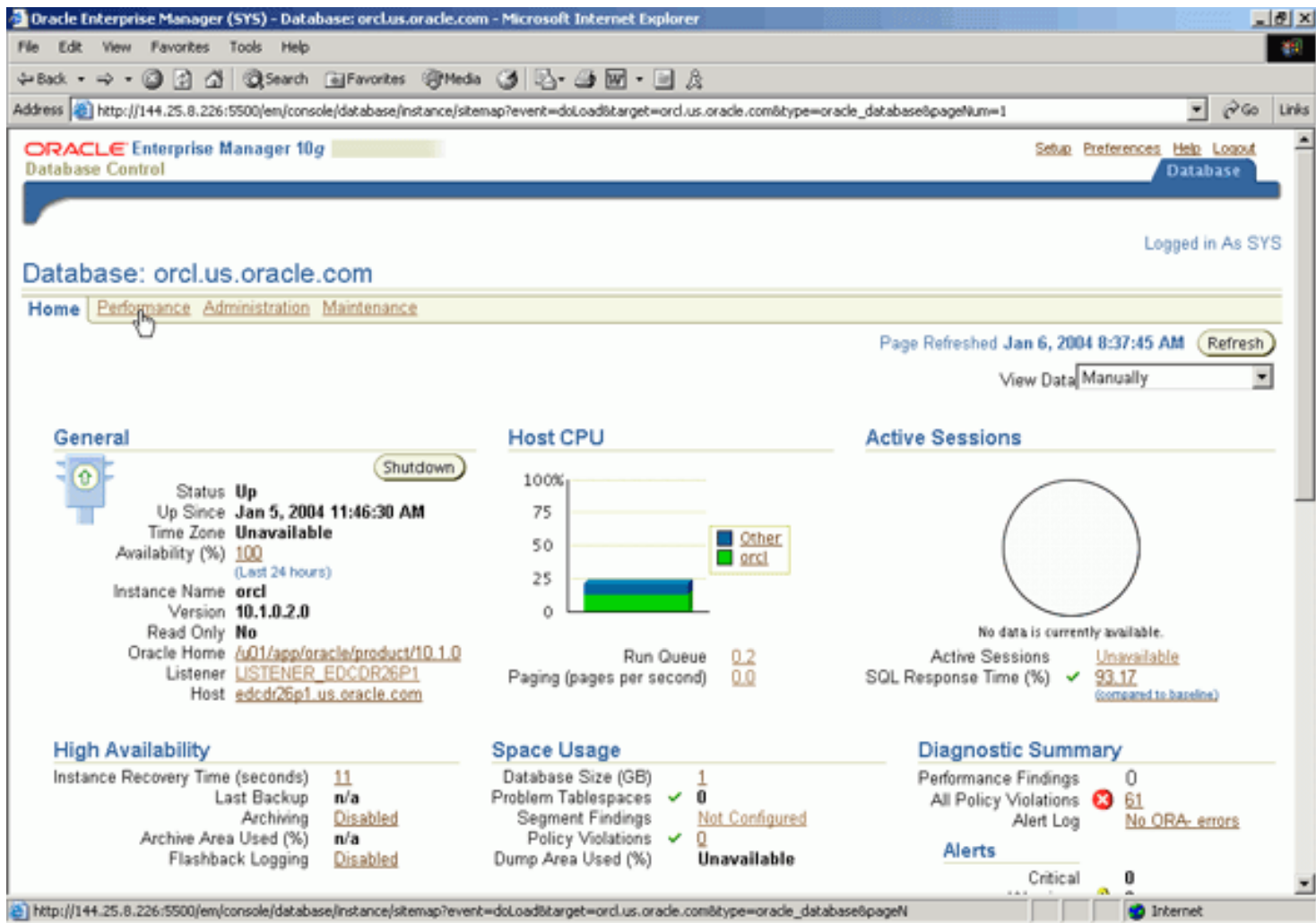
Copyright (c) 1982, 2003, Oracle.  All rights reserved.

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

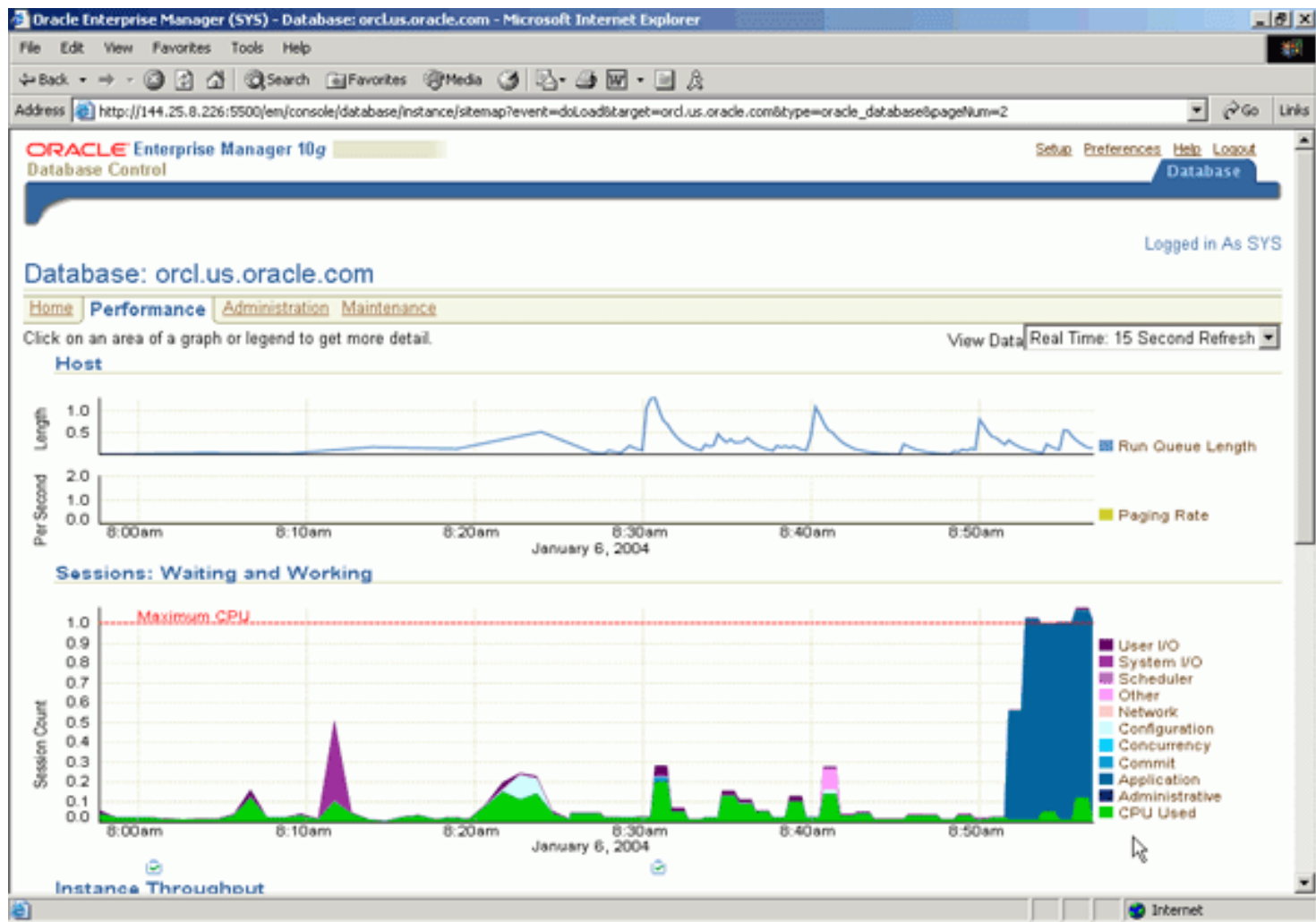
SQL> delete emp;
```

A mouse cursor is visible over the text "SQL> delete emp;" in the terminal window.

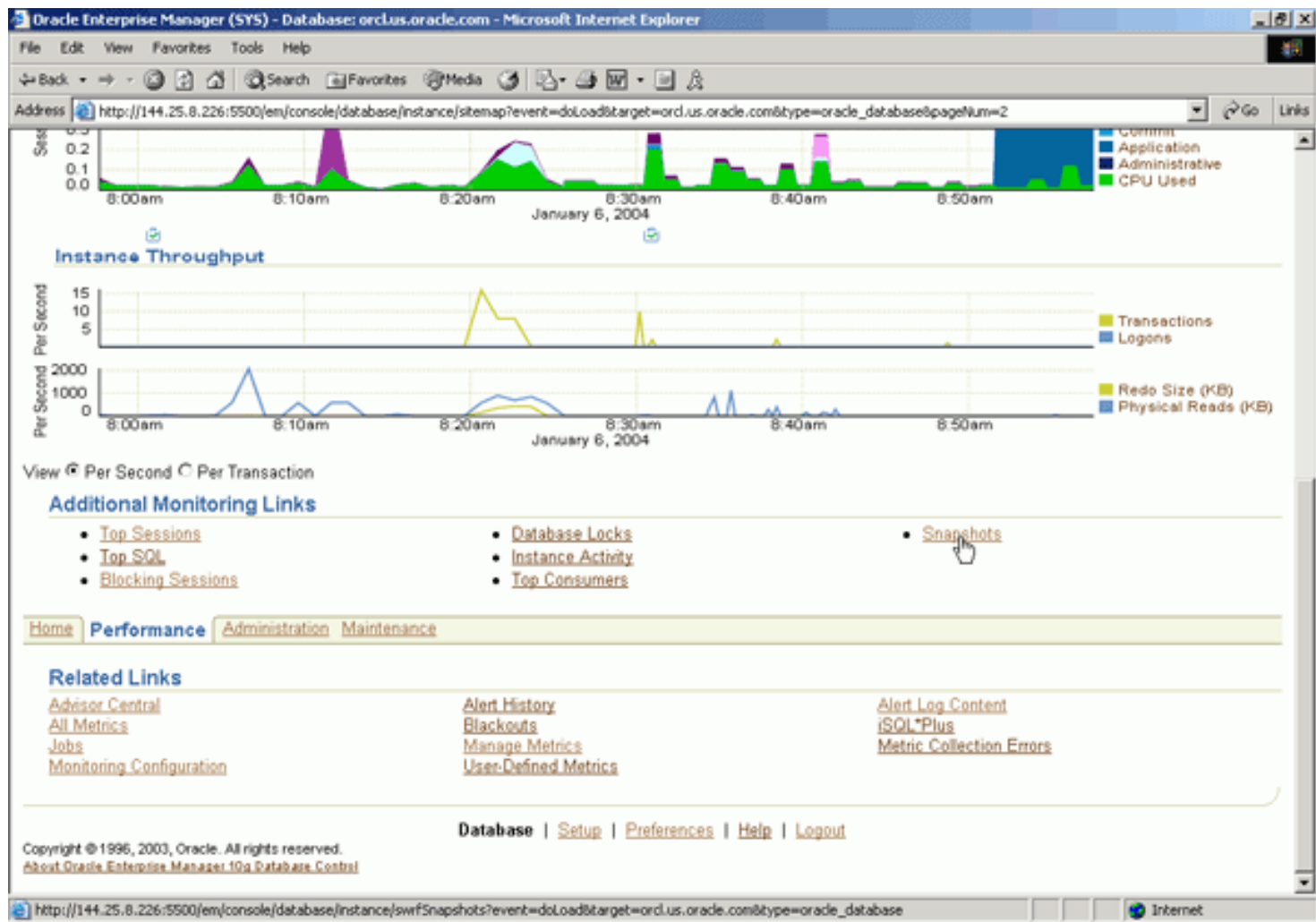
- From your Enterprise Manager browser window, click on the **Performance** tab.



- You see that the sessions waiting is very high. Wait about 10 minutes and scroll down to the bottom of the window.



5. You want to create a snapshot to capture the performance finding. Click on **Snapshots**.



6. Click **Create** to create a snapshot.

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

Database Control

Database: orcl.us.oracle.com > Automatic Workload Repository > Snapshots

Logged in As SYS

Snapshots

A snapshot is a collection of database statistics at a single point in time. You can use the information in snapshots to diagnose database problems.

Page Refreshed Jan 6, 2004 9:00:00 AM [Refresh](#)

Select Beginning Snapshot

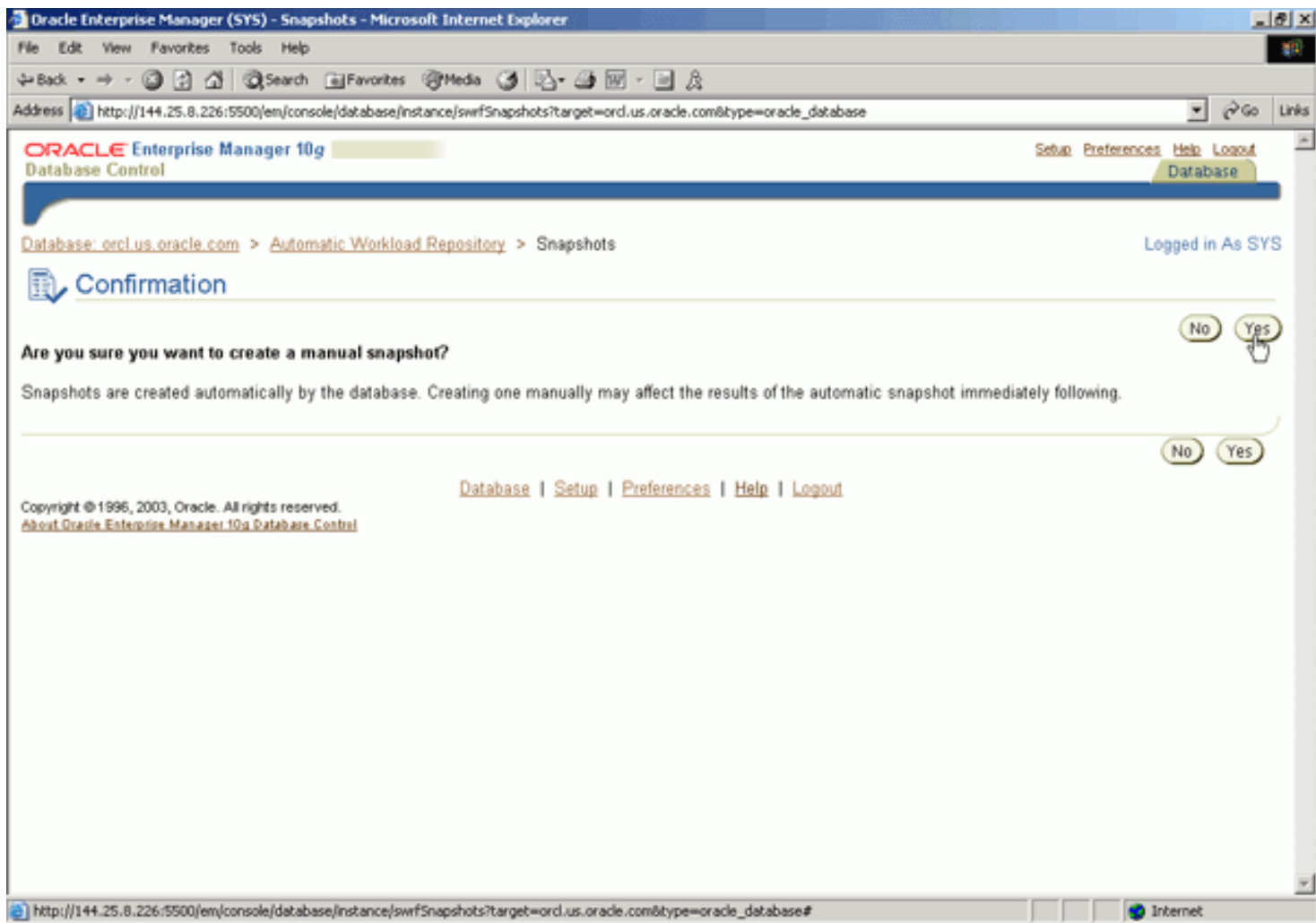
Go To Time:
(Example: 12/15/03)

[Delete](#) [Actions](#) [Create Preserved Snapshot Set](#) [Create](#)

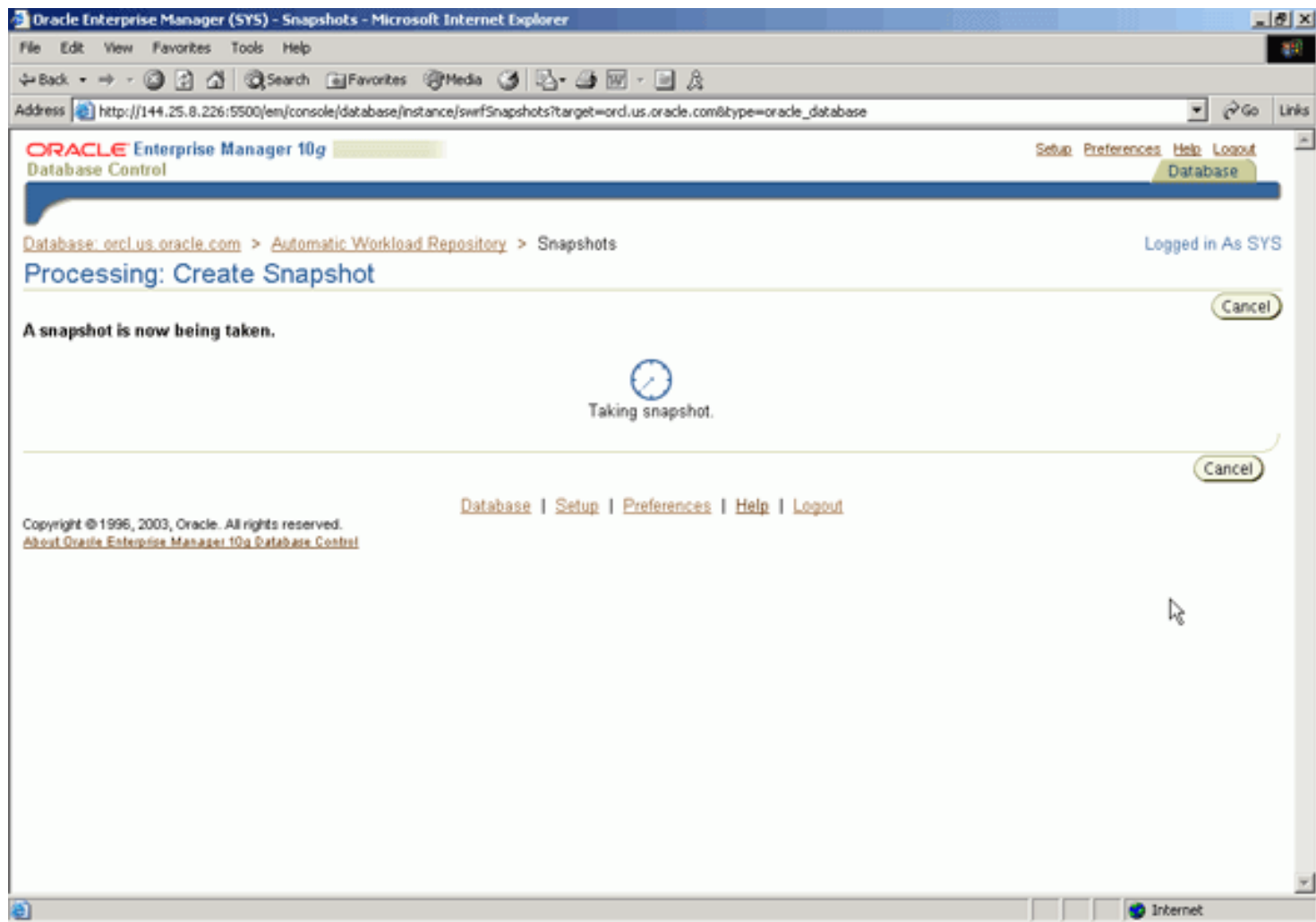
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Select	ID	Capture Time	Collection Level	Within A Preserved Snapshot Set
<input checked="" type="radio"/>	26	Jan 6, 2004 12:30:30 AM	TYPICAL	
<input type="radio"/>	27	Jan 6, 2004 1:00:12 AM	TYPICAL	
<input type="radio"/>	28	Jan 6, 2004 1:30:54 AM	TYPICAL	
<input type="radio"/>	29	Jan 6, 2004 2:00:36 AM	TYPICAL	
<input type="radio"/>	30	Jan 6, 2004 2:30:17 AM	TYPICAL	
<input type="radio"/>	31	Jan 6, 2004 3:01:00 AM	TYPICAL	
<input type="radio"/>	32	Jan 6, 2004 3:30:41 AM	TYPICAL	
<input type="radio"/>	33	Jan 6, 2004 4:00:22 AM	TYPICAL	
<input type="radio"/>	34	Jan 6, 2004 4:30:04 AM	TYPICAL	
<input type="radio"/>	35	Jan 6, 2004 5:00:47 AM	TYPICAL	
<input type="radio"/>	36	Jan 6, 2004 5:30:28 AM	TYPICAL	
<input type="radio"/>	37	Jan 6, 2004 6:00:09 AM	TYPICAL	

- Click **Yes** to create a Manual Snapshot.



8. A snapshot is now being taken.



9. Once the snapshot is created, click the **database** breadcrumb then the **home** tab.

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

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

ORACLE Enterprise Manager 10g Database Control

Database: [orcl.us.oracle.com](#) > [Automatic Workload Repository](#) > Snapshots

Logged in As SYS

Confirmation
A snapshot has been created successfully

Snapshots
A snapshot is a collection of database statistics at a single point in time. You can use the information in snapshots to diagnose database problems.
Page Refreshed Jan 6, 2004 9:02:34 AM [Refresh](#)

Select Beginning Snapshot
Go To Time:
(Example: 12/15/03)

[Delete](#) [Actions](#) [Create Preserved Snapshot Set](#)

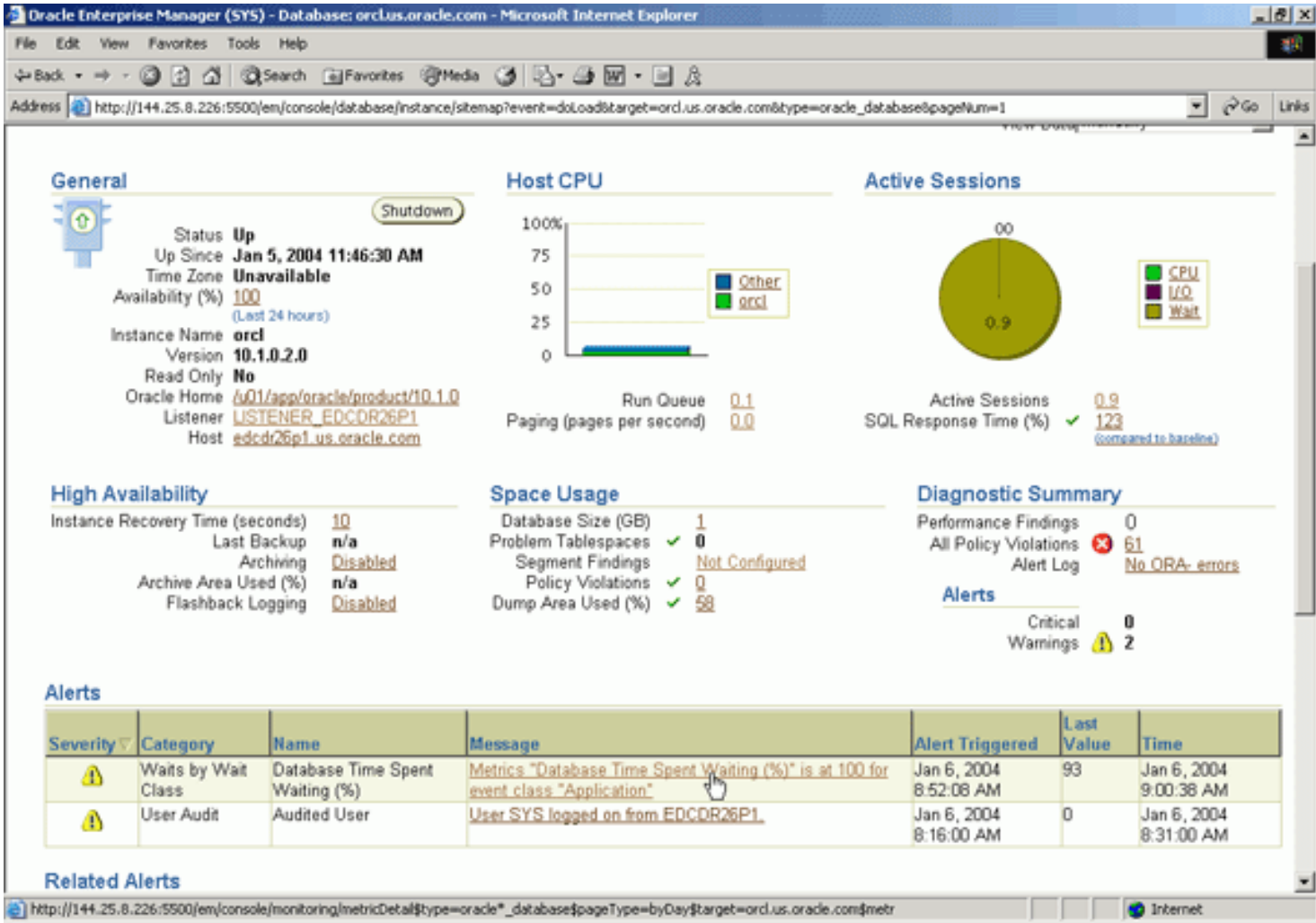
[Previous 25](#) [26-44 of 44](#) [Next](#)

Select	ID	Capture Time	Collection Level	Within A Preserved Snapshot Set
<input checked="" type="radio"/>	26	Jan 6, 2004 12:30:30 AM	TYPICAL	
<input type="radio"/>	27	Jan 6, 2004 1:00:12 AM	TYPICAL	
<input type="radio"/>	28	Jan 6, 2004 1:30:54 AM	TYPICAL	
<input type="radio"/>	29	Jan 6, 2004 2:00:36 AM	TYPICAL	
<input type="radio"/>	30	Jan 6, 2004 2:30:17 AM	TYPICAL	
<input type="radio"/>	31	Jan 6, 2004 3:01:00 AM	TYPICAL	
<input type="radio"/>	32	Jan 6, 2004 3:30:41 AM	TYPICAL	
<input type="radio"/>	33	Jan 6, 2004 4:00:22 AM	TYPICAL	

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

A performance finding is now detected through an alert in the Alert section of the Home page.

10.

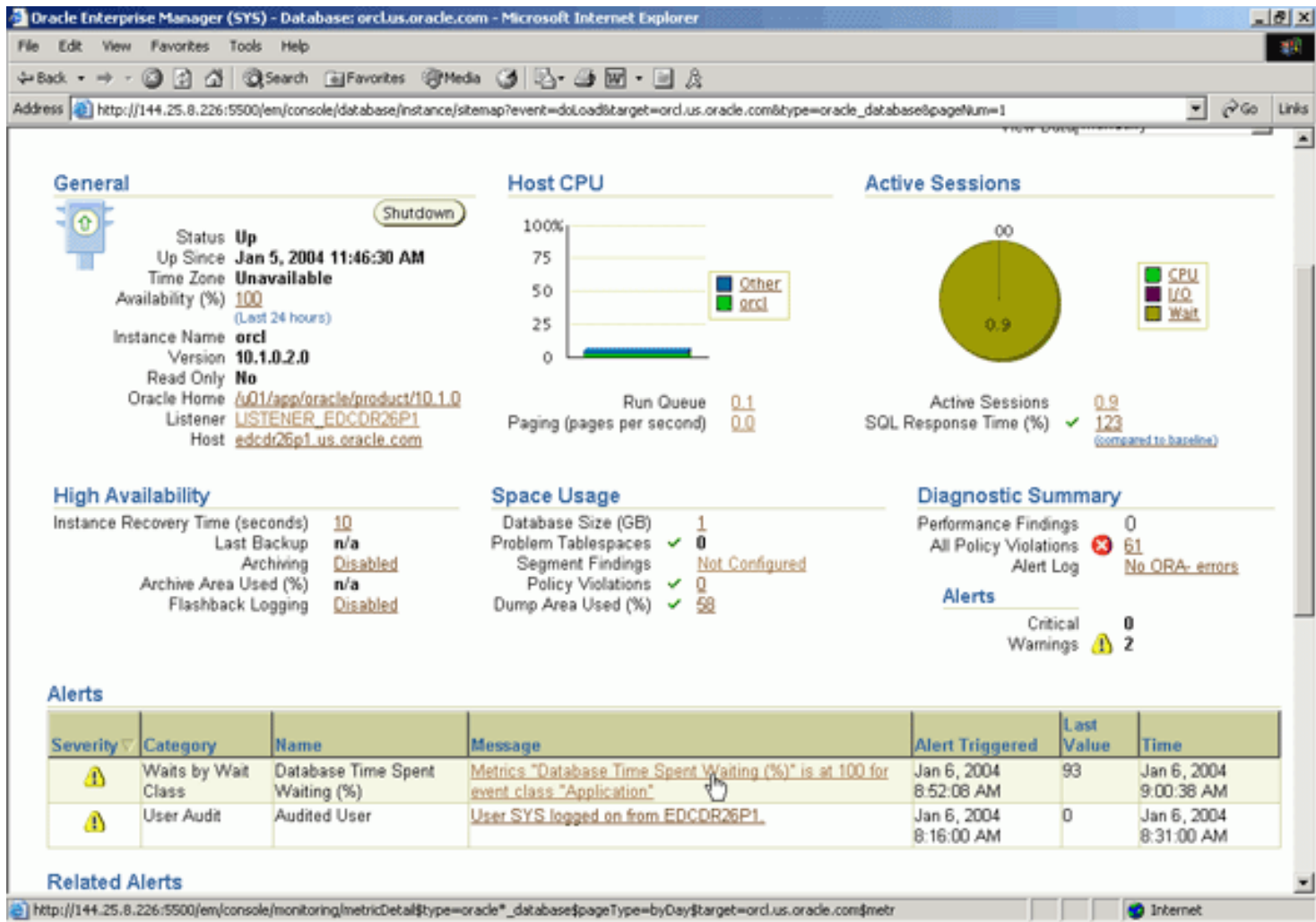


Resolving the Performance Finding using ADDM

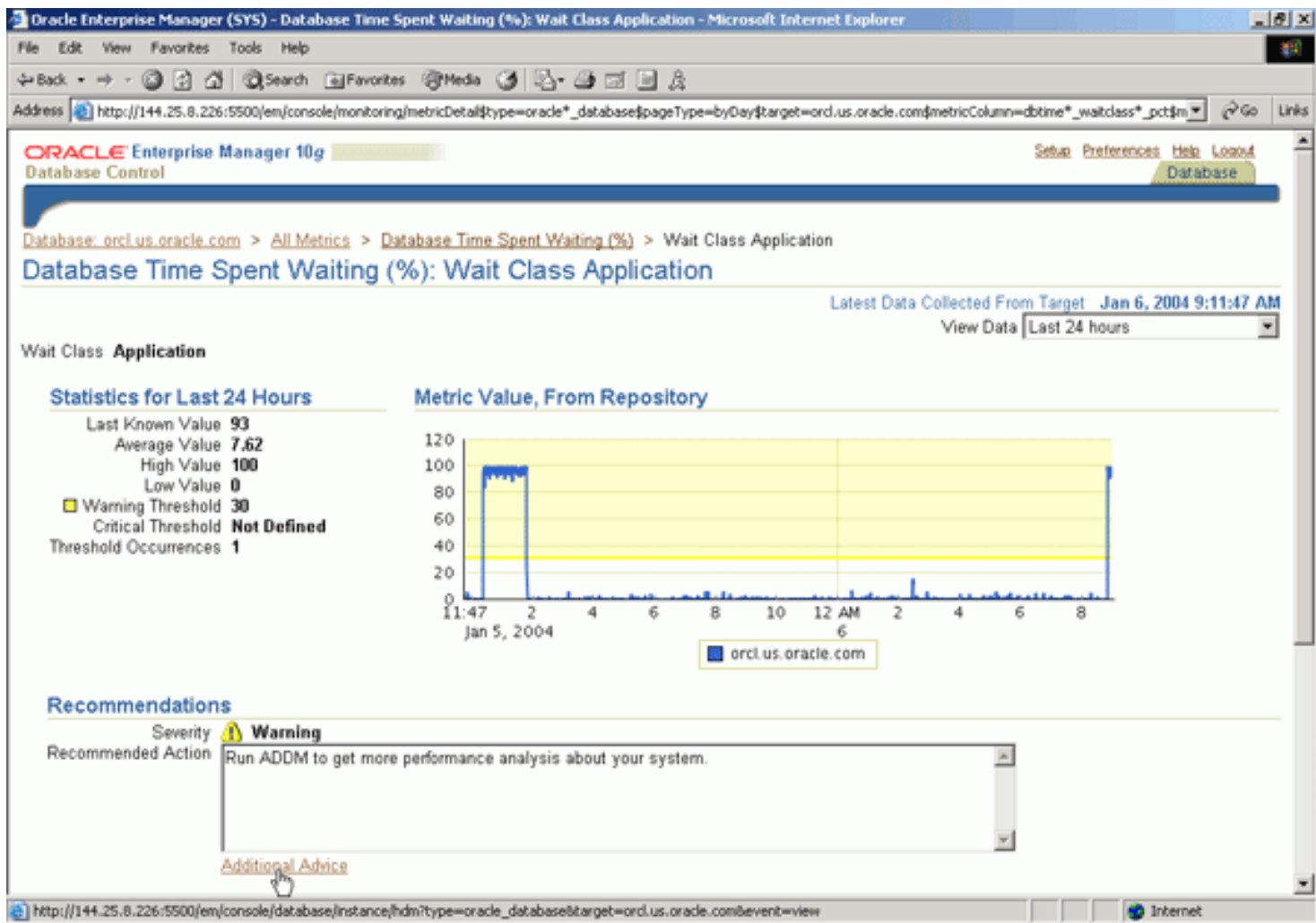
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When a performance finding is encountered, you can use ADDM to resolve it. Perform the following:

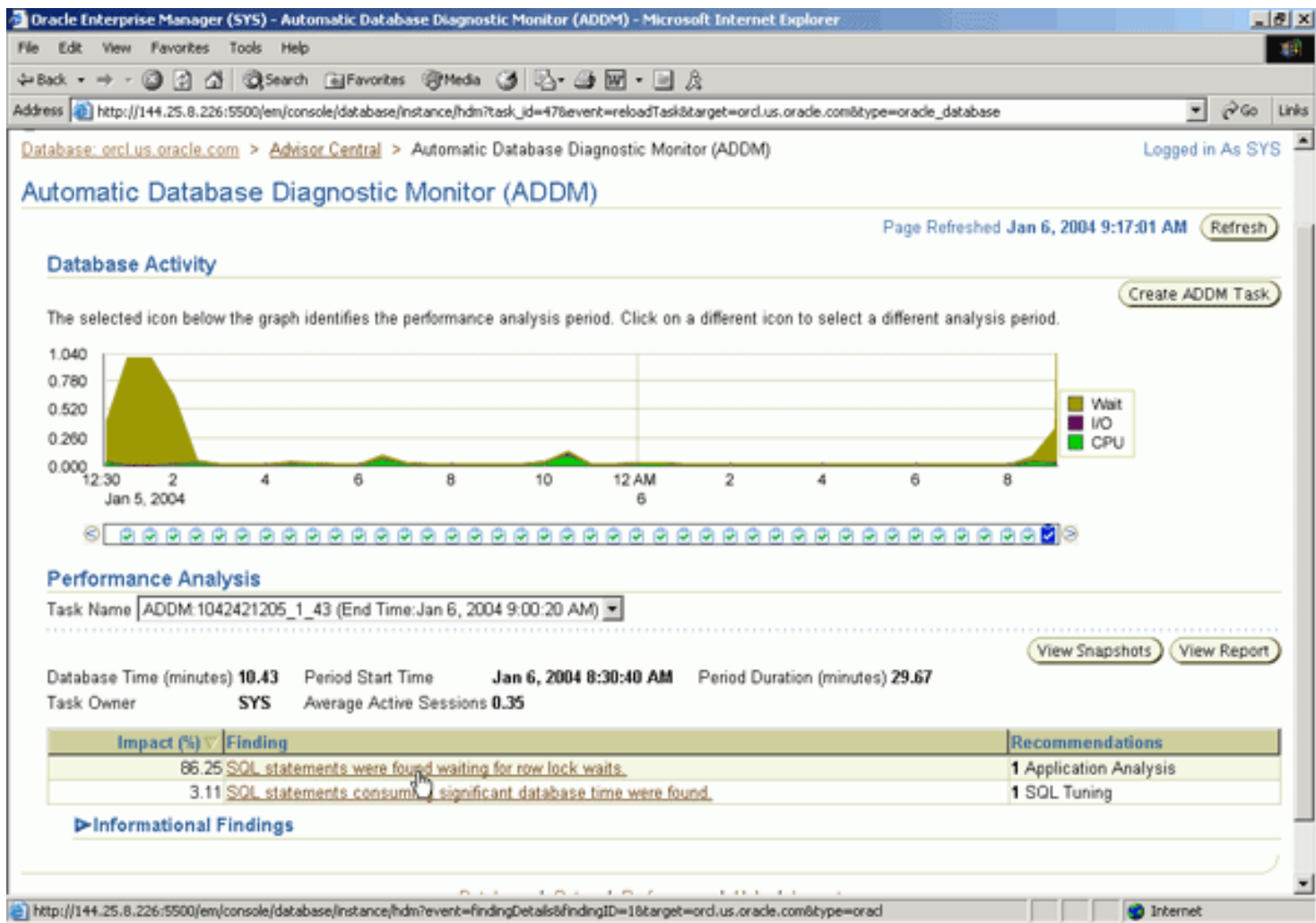
1. Click on the Alert **Database Time Spent Waiting** .



2. You notice that the recommended action is to run ADDM to get more performance analysis about your system. Click **Additional Advice** .



3. Make sure the snapshot you took is selected from the list. Notice that **SQL statements were found waiting for row lock waits** impacting your system for more than 86% of your database time. Click on this finding in the list.



4. You see the action that needs to be taken to resolve the performance issue. Click on **View Rationale**.

Oracle Enterprise Manager (SYS) - Performance Finding Details - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://144.25.8.226:5500/em/console/database/instance/hdm?event=findingDetails&findingID=1&target=orcl.us.oracle.com&type=oracle_database&task_id=47 Go Links

ORACLE Enterprise Manager 10g Database Control Setup Preferences Help Logout

Database: orcl.us.oracle.com > Advisor Central > Automatic Database Diagnostic Monitor (ADDM) > Performance Finding Details Logged in As SYS

Performance Finding Details

Database Time (minutes) **10.43** Period Start Time **Jan 6, 2004 8:30:40 AM** Period Duration (minutes) **29.67**
 Task Owner **SYS** Task Name **ADDM:1042421205_1_43** Average Active Sessions **0.35**

Finding **SQL statements were found waiting for row lock waits.**
 Impact (minutes) **8.99**
 Impact (%) **86.25**

Recommendations

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

Details	Category	Benefit (%)
Hide	Application Analysis	86.25
Action Trace the cause of row contention in the application logic. Use given blocked SQL to identify the database objects involved. Investigate application logic involving DML on these objects.		
View Rationale		

Findings Path

[Expand All](#) | [Collapse All](#)

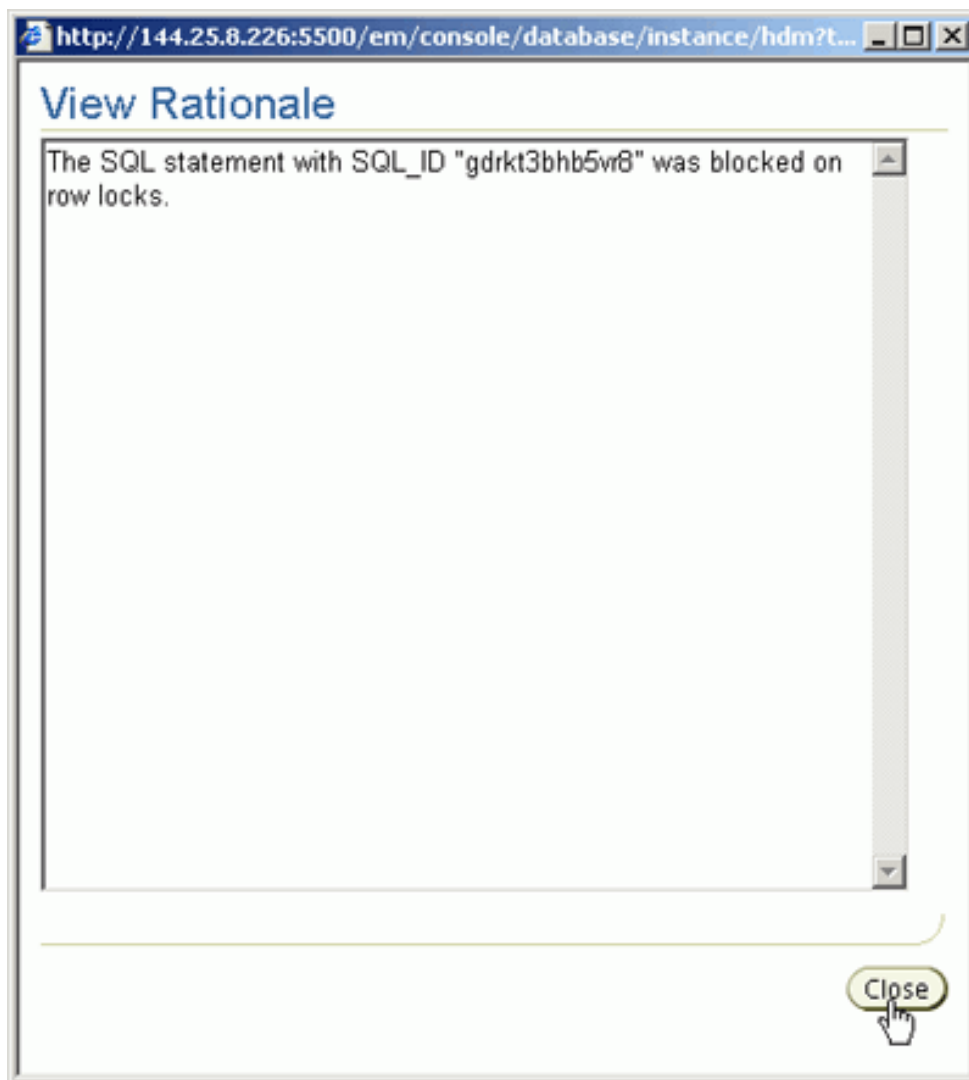
Findings	Impact (%)	Additional Information
SQL statements were found waiting for row lock waits.	86.25	
Wait class "Application" was consuming significant database time.	86.26	

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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/hdm?event=findingDetails&findingID=1&target=orcl.us.oracle.com&type=orad> Internet

- You see the particular SQL ID that is causing the problem. Click **Close**.



6. To resolve the performance finding, click the **Database** breadcrumb.

Oracle Enterprise Manager (SYS) - Performance Finding Details - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://144.25.8.226:5500/em/console/database/instance/hdm?event=findingDetails&findingID=1&target=orcl.us.oracle.com&type=oracle_database&task_id=47# Go Links

ORACLE Enterprise Manager 10g Database Control Setup Preferences Help Logout

Database: orcl.us.oracle.com > Advisor Central > Automatic Database Diagnostic Monitor (ADDM) > Performance Finding Details Logged in As SYS

Performance Finding Details

Database Time (minutes) **10.43** Period Start Time **Jan 6, 2004 8:30:40 AM** Period Duration (minutes) **29.67**
 Task Owner **SYS** Task Name **ADDM:1042421205_1_43** Average Active Sessions **0.35**

Finding **SQL statements were found waiting for row lock waits.**
 Impact (minutes) **8.99**
 Impact (%) **86.25**

Recommendations

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

Details	Category	Benefit (%)
Hide	Application Analysis	86.25

Action **Trace the cause of row contention in the application logic. Use given blocked SQL to identify the database objects involved. Investigate application logic involving DML on these objects.**

[View](#)
[Rationale](#)

Findings Path

[Expand All](#) | [Collapse All](#)

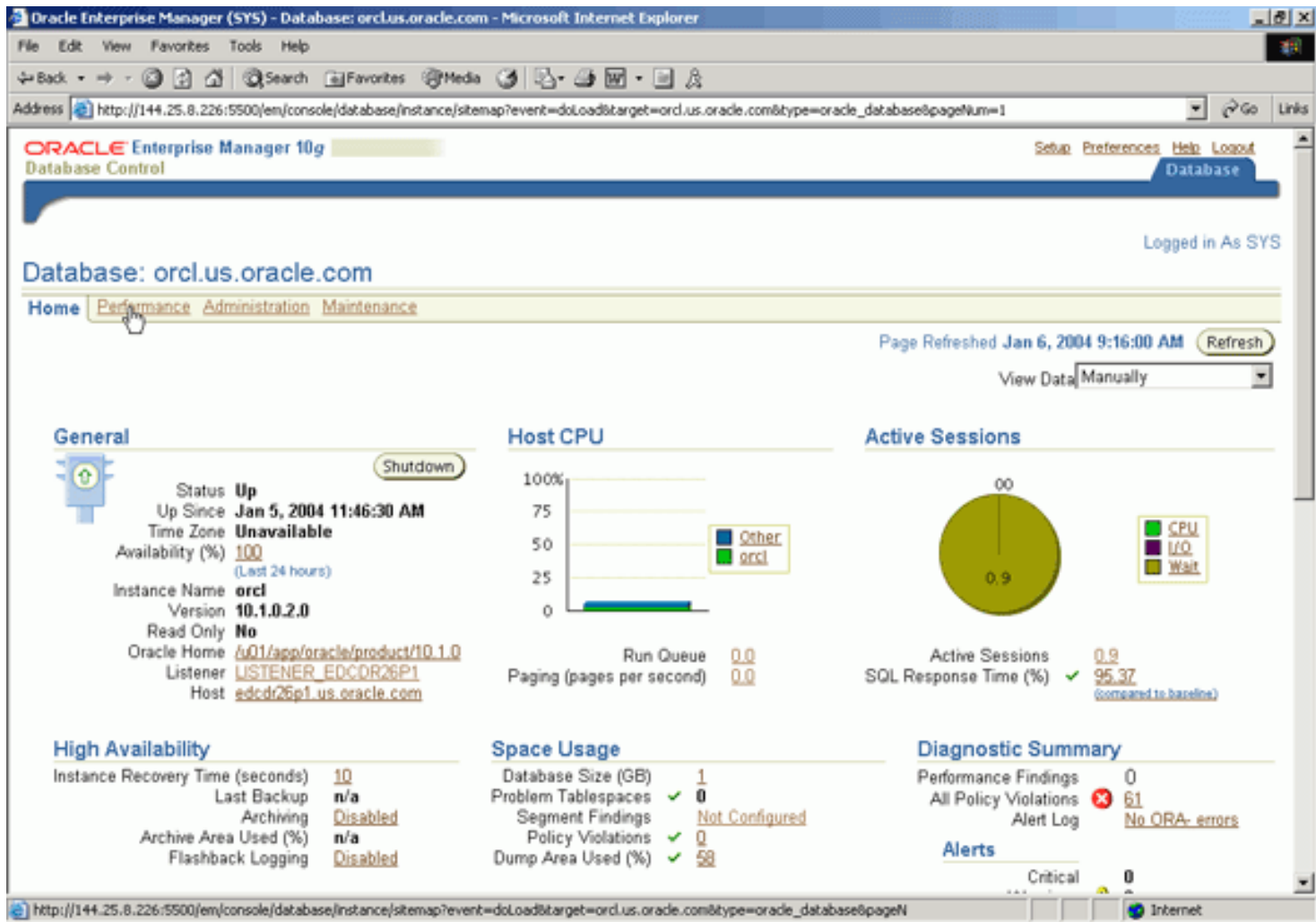
Findings	Impact (%)	Additional Information
SQL statements were found waiting for row lock waits.	86.25	
Wait class "Application" was consuming significant database time.	86.26	

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

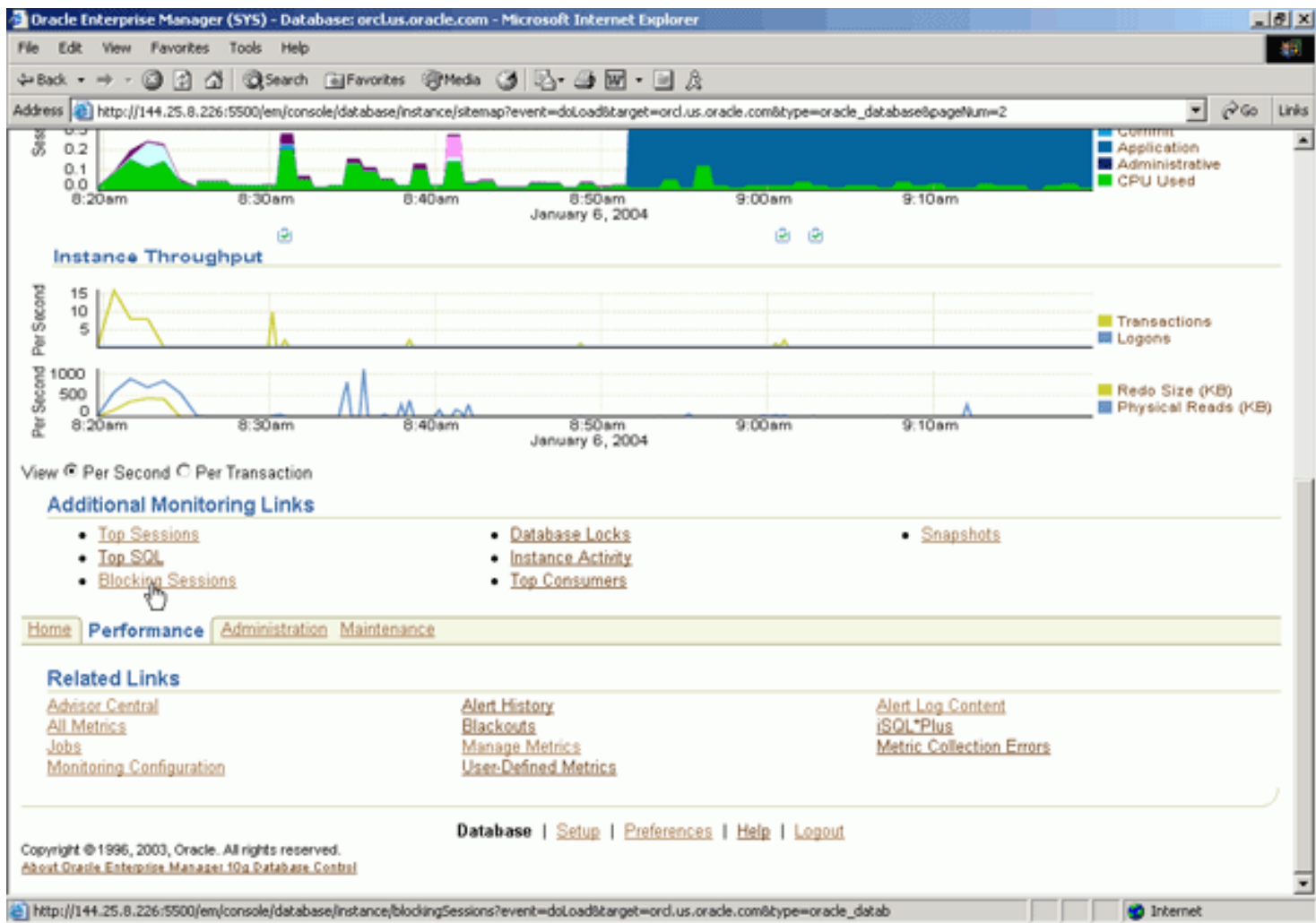
Database | Setup | Preferences | Help | Logout

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

- Click the **Performance** tab.



8. Scroll down and select **Blocking Sessions** under Additional Monitoring Links.



9. Make sure the highest level HR is selected and click **Kill Session**.

Oracle Enterprise Manager (SYS) - Blocking Sessions - Microsoft Internet Explorer

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

ORACLE Enterprise Manager 10g Database Control

Database: [orcl.us.oracle.com](#) > Blocking Sessions

Page Refreshed Jan 6, 2004 9:20:08 AM

View Session Kill Session

Expand All | Collapse All

Select	Username	Sessions Blocked	Session ID	Session Serial Number	SQL Hash Value	Wait Class	Wait Event	P1	P2	P3	Seconds in Wait
<input type="checkbox"/>	Blocking Sessions										
<input type="checkbox"/>	HR	1	136	4550		Idle	SQL*Net message from client	1650815232	1	0	1788
<input type="checkbox"/>	HR	0	133	6331	gdrk13bht5v6	Application	enq: TX - row lock contention	1415053318	327727	164	1742

Related Links

[Sessions Waiting](#)
[Database Locks](#)

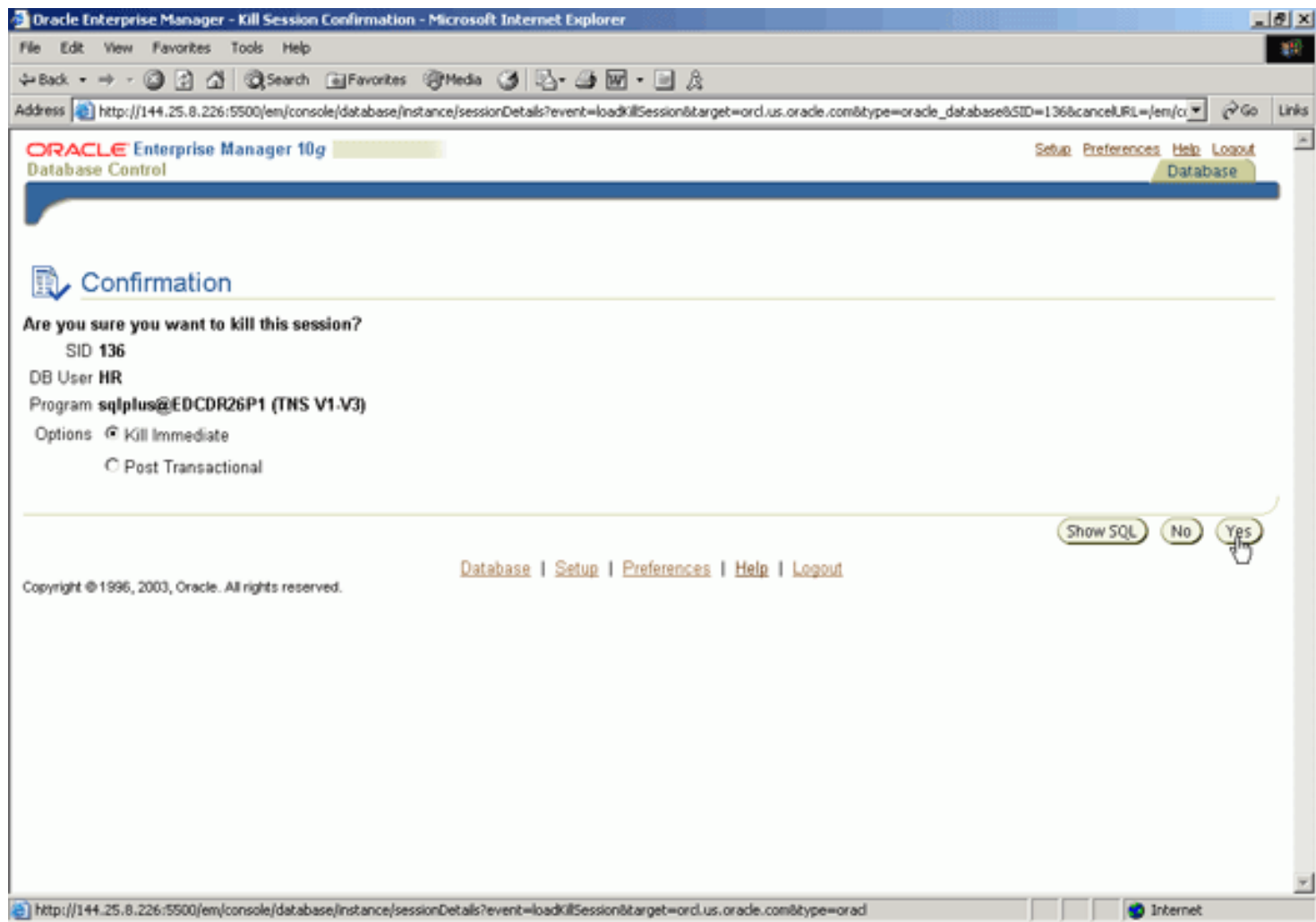
Database | Setup | Preferences | Help | Logout

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Address: http://144.25.8.226:5500/em/console/database/instance/blockingSessions?event=doLoad&target=orcl.us.oracle.com&type=oracle_datab

Click **Yes** to kill the session.

10.



The session has been killed. Click the **Database** breadcrumb then click the **Home** tab.

11.

Oracle Enterprise Manager (SYS) - Blocking Sessions - Microsoft Internet Explorer

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

ORACLE Enterprise Manager 10g Database Control

Database: [orcl.us.oracle.com](#) > Blocking Sessions

Page Refreshed Jan 6, 2004 9:21:24 AM

Logged in As SYS

Select Username	Sessions Blocked	Session ID	Session Serial Number	SQL Hash Value	Wait Class	Wait Event	P1	P2	P3	Seconds in Wait
No sessions found to be currently blocking other sessions.										

Related Links

[Sessions Waiting](#)
[Database Locks](#)

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

Database | Setup | Preferences | Help | Logout

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

Notice the alert has disappeared.

12.

