

13

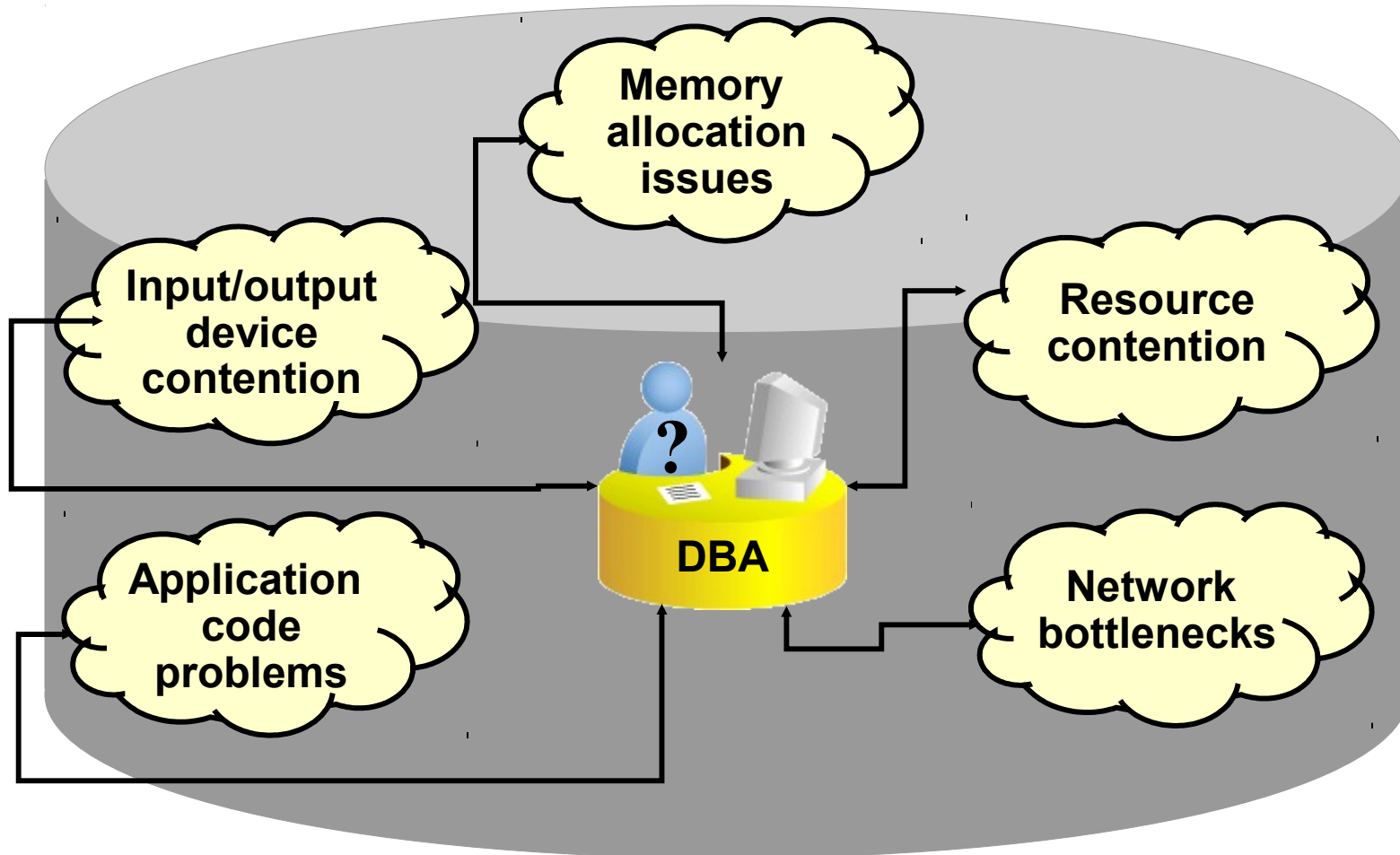
Performance Management

Objectives

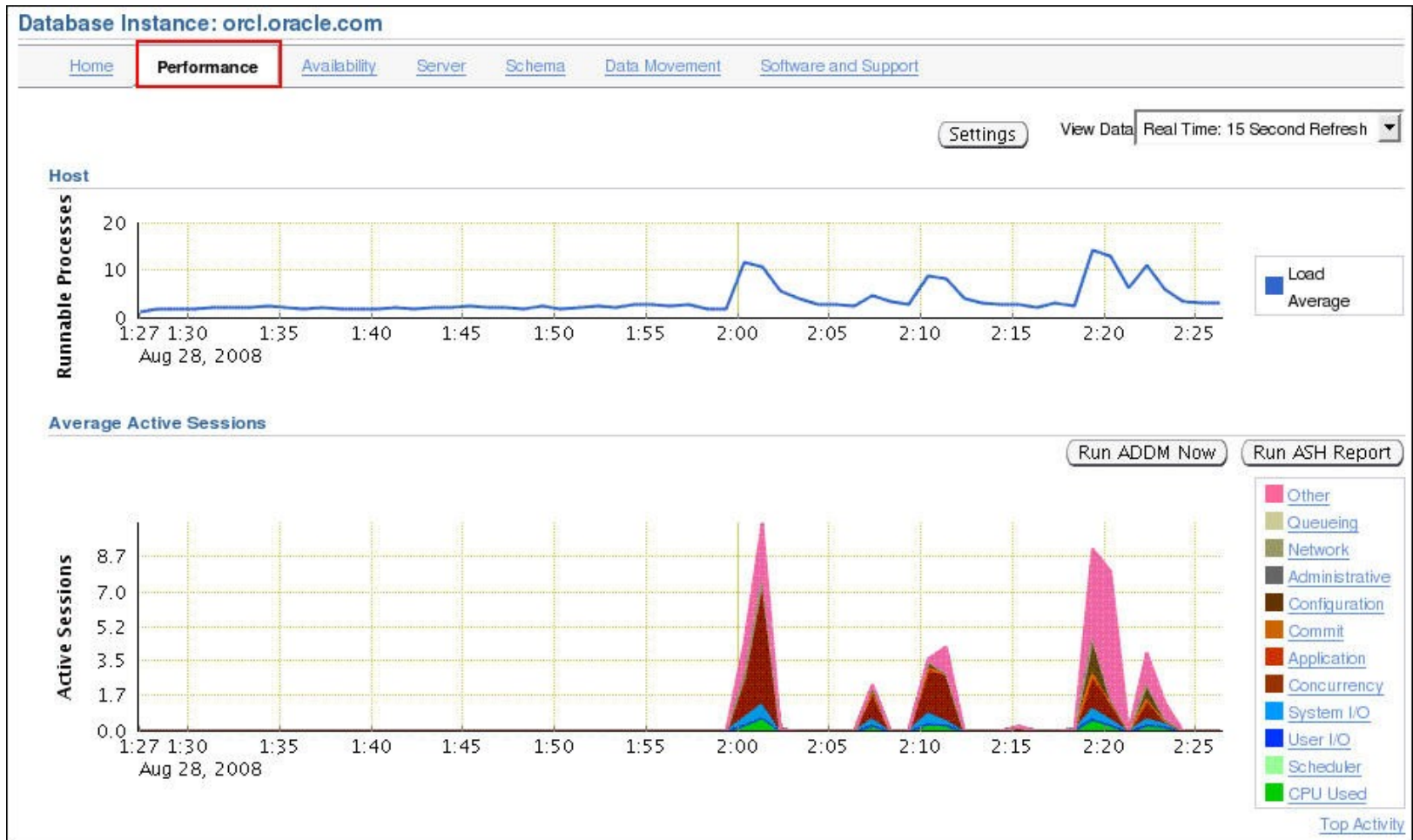
After completing this lesson, you should be able to:

- Use Enterprise Manager to monitor performance
- Use Automatic Memory Management (AMM)
- Use the Memory Advisor to size memory buffers
- View performance-related dynamic views
- Troubleshoot invalid and unusable objects

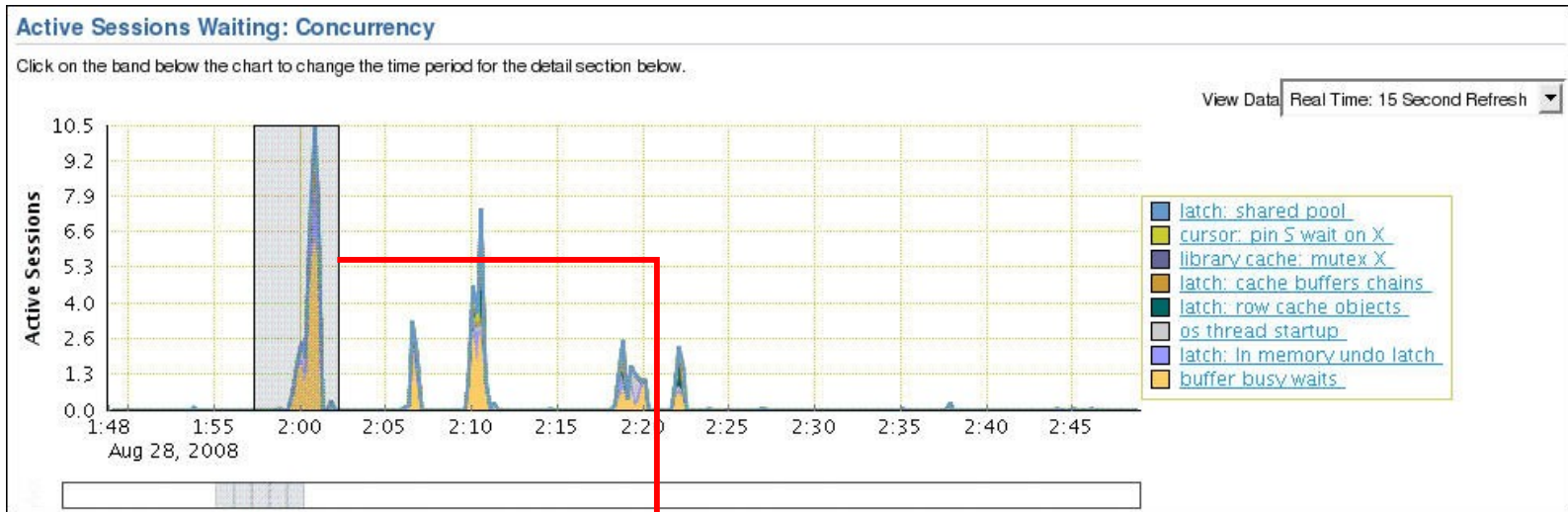
Performance Monitoring



Enterprise Manager Performance Page



Drilling Down to a Particular Wait Category



Detail for Selected 5 Minute Interval

Start Time: Aug 28, 2008 1:57:23 PM MDT

Run ASH Report

Top SQL: Concurrency

Actions: [Schedule SQL Tuning Advisor](#) [Go](#)

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

Select	Activity (%)	SQL ID	SQL Type
<input type="checkbox"/>	99.52	3csh3q3mjhmrzh	INSERT
<input type="checkbox"/>	.48	0k8um5gm428v	PL/SQL EXECUTE

Total Sample Count: 416

Top Sessions: Concurrency

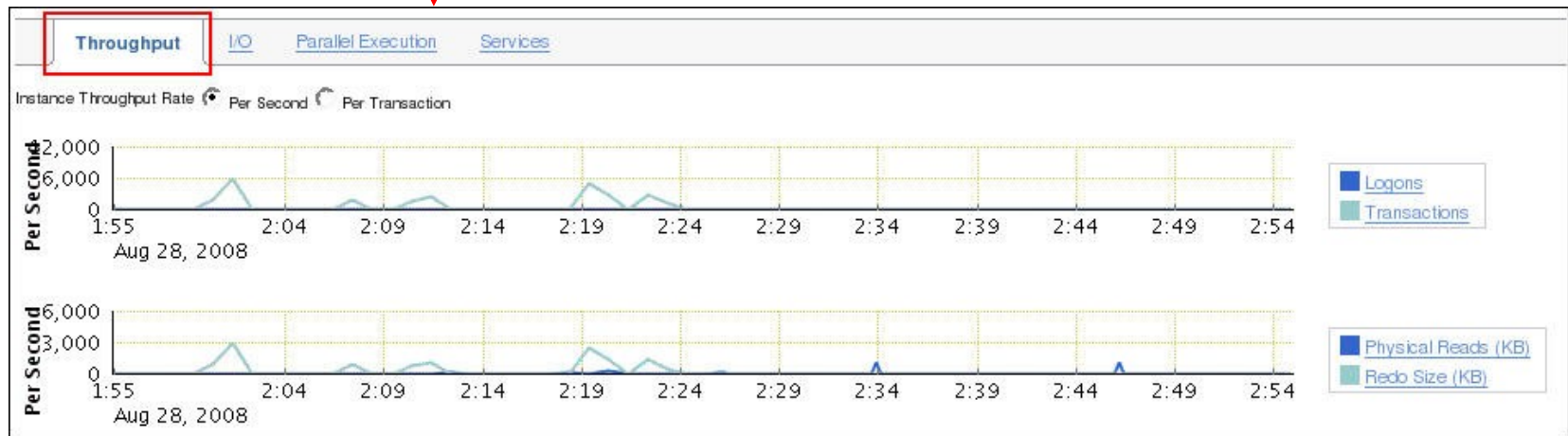
View: [Top Sessions](#)

Activity (%)	Session ID	User Name	Program
6.84	111	SPCT	sqlplus@edrsr12p1.us.oracle.com (TNS V1-V3)
6.84	131	SYS	oracle@edrsr12p1.us.oracle.com (CJQ0)
5.23	127	SPCT	sqlplus@edrsr12p1.us.oracle.com (TNS V1-V3)
5.23	116	SPCT	sqlplus@edrsr12p1.us.oracle.com (TNS V1-V3)
5.03	114	SPCT	sqlplus@edrsr12p1.us.oracle.com (TNS V1-V3)

Performance Page: Throughput



Scroll down on the Performance page.



Performance Monitoring: Top Sessions

Top Consumers

Collected From Jul 31, 2009 8:40:17 AM GMT+07:00 To Jul 31, 2009 8:40:32 AM GMT+07:00

OverviewTop ServicesTop ModulesTop ActionsTop ClientsTop Sessions

Show Active SQLCustomize

Kill SessionViewDisable SQL TraceEnable SQL Trace

Select	SID	DB User	CPU (1/100 sec)	PGA Memory (bytes)	Physical Reads	Logical Reads	Hard Parses	Total Parses	Disk Sorts	Status	Program	Module	OS PID	Machine	OS User	SQL Trace
<input checked="" type="radio"/>	36	INVENTORY	1	1540712	20	228	0	0	0	ACTIVE	sqlplus@edrsr12p1.us.oracle.com (TNS V1-V3)	SQL*Plus	18269	edrsr12p1.us.oracle.com	oracle	DISABLED
<input type="radio"/>	59	DBSNMP	12	7168500	0	56	0	10	0	ACTIVE	emagent@edrsr12p1.us.oracle.com (TNS V1-V3)	emagent_SQL_oracle_database	9753	edrsr12p1.us.oracle.com	oracle	DISABLED
<input type="radio"/>	42	CJQ0	0	1794548	0	6	0	0	0	ACTIVE	oracle@edrsr12p1.us.oracle.com (CJQ0)		13001	edrsr12p1.us.oracle.com	oracle	DISABLED
<input type="radio"/>	41	DBSNMP	0	2384372	0	3	0	2	0	ACTIVE	emagent@edrsr12p1.us.oracle.com (TNS V1-V3)	emagent_AQMetrics	13286	edrsr12p1.us.oracle.com	oracle	DISABLED
<input type="radio"/>	29	SYSMAN	0	2843124	0	1	0	5	0	ACTIVE	OMS	OEM.DefaultPool	12965	edrsr12p1.us.oracle.com	oracle	DISABLED
<input type="radio"/>	49	DBSNMP	14	1532404	0	0	0	2	0	ACTIVE	OMS	Realtime Connection	18390	edrsr12p1.us.oracle.com	oracle	DISABLED
<input type="radio"/>	34	SYSMAN	0	2384372	0	0	0	0	0	ACTIVE	OMS	OEM.SystemPool	13061	edrsr12p1.us.oracle.com	oracle	DISABLED
<input type="radio"/>	30	SYSMAN	0	3105268	0	0	0	3	0	ACTIVE	OMS	OEM.DefaultPool	12967	edrsr12p1.us.oracle.com	oracle	DISABLED
<input type="radio"/>	18	MMNL	0	1270260	0	0	0	0	0	ACTIVE	oracle@edrsr12p1.us.oracle.com (MMNL)		12861	edrsr12p1.us.oracle.com	oracle	DISABLED
<input type="radio"/>	25	QMNC	0	745972	0	0	0	0	0	ACTIVE	oracle@edrsr12p1.us.oracle.com (QMNC)	STREAMS	12963	edrsr12p1.us.oracle.com	oracle	DISABLED
<input type="radio"/>	57	J001	0	418292	0	0	0	0	0	ACTIVE	oracle@edrsr12p1.us.oracle.com (J001)		18451	edrsr12p1.us.oracle.com	oracle	DISABLED
<input type="radio"/>	43	SMCO	0	418292	0	0	0	0	0	ACTIVE	oracle@edrsr12p1.us.oracle.com (SMCO)	KTSJ	13544	edrsr12p1.us.oracle.com	oracle	DISABLED

Performance Monitoring: Top Services

Overview Top Services Top Modules Top Actions Top Clients Top Sessions					
View Active Services ▼					
Enable SQL Trace Disable SQL Trace View SQL Trace File					
Select All Select None					
Select	Service	Activity (% for the last 5 minutes) ▼	SQL Trace Enabled	Delta Elapsed Time (seconds)	Cumulative Elapsed Time (seconds)
<input type="checkbox"/>	SYS\$USERS	42.9	FALSE	0	227
<input type="checkbox"/>	SYS\$BACKGROUND	35.7	FALSE	0	0
<input type="checkbox"/>	SH	14.3	FALSE	0	2
<input type="checkbox"/>	SERV1	7.1	FALSE	0	2

Delta CPU Time (seconds)	Cumulative CPU Time (seconds)	Delta Physical I/O (blocks)	Cumulative Physical I/O (blocks)
0	0	0	16031
0	137	0	14414
0	1	15	637
0	2	0	12

Managing Memory Components

- Automatic Memory Management (AMM)
 - Enables you to specify total memory allocated to instance (including both SGA and PGA)
- Automatic Shared Memory Management (ASMM):
 - Enables you to specify total SGA memory through one initialization parameter
 - Enables the Oracle server to manage the amount of memory allocated to the shared pool, Java pool, buffer cache, streams pool, and large pool
- Manually setting shared memory management:
 - Sizes the components through multiple individual initialization parameters
 - Uses the appropriate Memory Advisor to make recommendations

Enabling Automatic Memory Management (AMM)



Database Instance: orcl.oracle.com > Advisor Central >

Logged in As S

Memory Advisors

Click Enable to enable Automatic Memory Management.

Page Refreshed August 28, 2008 3:08:57 PM MDT

Refresh

Show SQL

Revert

Apply

When Automatic Memory Management is enabled, the database will automatically set the optimal distribution of memory will change from time to time to accommodate changes in the workload.

Automatic Memory Management **Disabled**

Enable

Memory Advisors

Page Refreshed August 28,

When Automatic Memory Management is enabled, the database will automatically set the optimal distribution of memory will change from time to time to accommodate changes in the workload.

Automatic Memory Management **Enabled** **Disable**

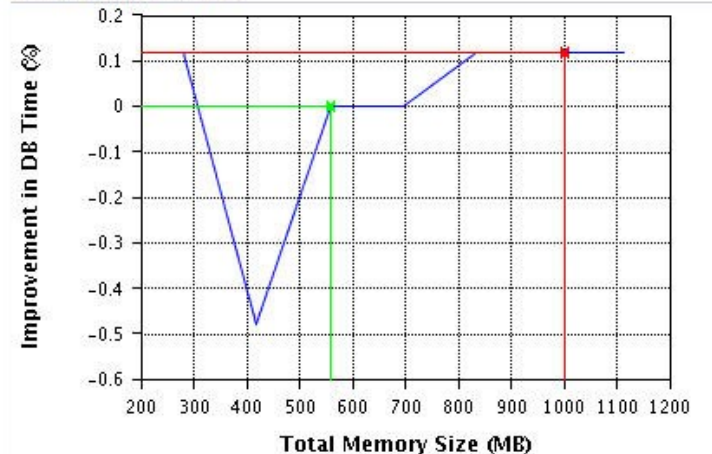
Total Memory Size 556 MB

Maximum Memory Size 1000 MB

Advice

Use the Memory Size Advisor.

Memory Size Advice



■ Percentage improvement in DB Time for various sizes of Total Mem

✱ Total Memory Size

■ Maximum Memory Size

Total Memory Size (MB) 556

You can click on the curve in the graph to set a new value. Total Memory Size cannot be greater than the Maximum Memory Size. First modify the Maximum Memory size (from the parent page) and then select a value of Total Memory up to the Maximum Memory size.

Cancel

OK

ORACLE

Enabling Automatic Shared Memory Management (ASMM)



SGA **PGA**

The System Global Area (SGA) is a group of shared memory structures that contains data and control information for one Oracle database. The SGA is allocated in memory when an Oracle database instance is started.

Automatic Shared Memory Management **Disabled** **Enable**

Click Enable to enable Automatic Shared Memory Management.

Shared Pool	248	MB	Advice
Buffer Cache	136	MB	Advice
Large Pool	4	MB	
Java Pool	12	MB	
Other (MB)	5		

Total SGA (MB) **405** **Calculate**

Shared Pool (61.1%)
Buffer Cache (33.5%)
Large Pool (1%)
Java Pool (3%)
Other (1.4%)

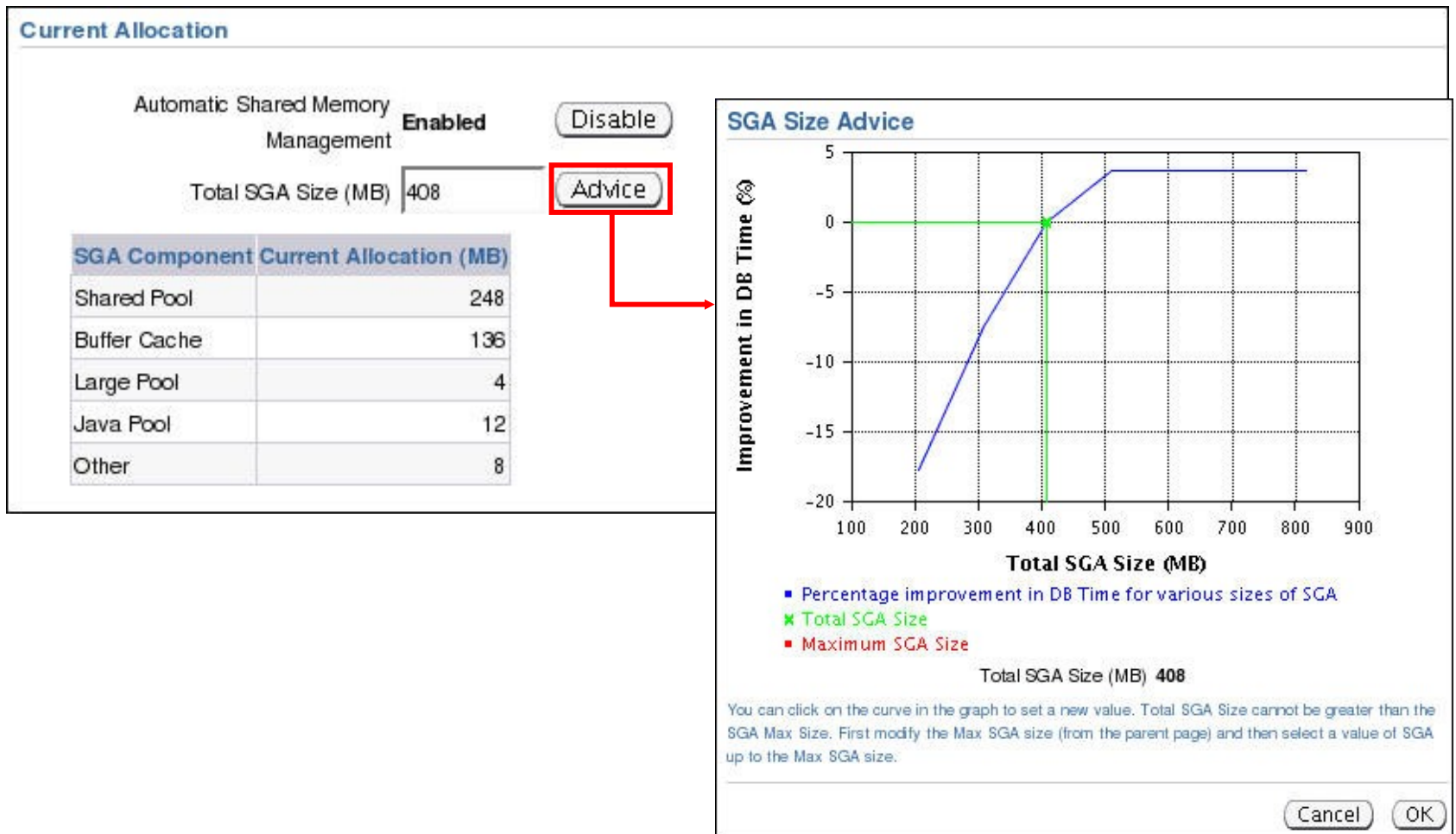
Maximum SGA Size

The Maximum SGA Size specifies the maximum memory that the database may allocate. If you specify the Maximum SGA Size, you can later dynamically change SGA component sizes (provided the total SGA size does not exceed the Maximum SGA Size).

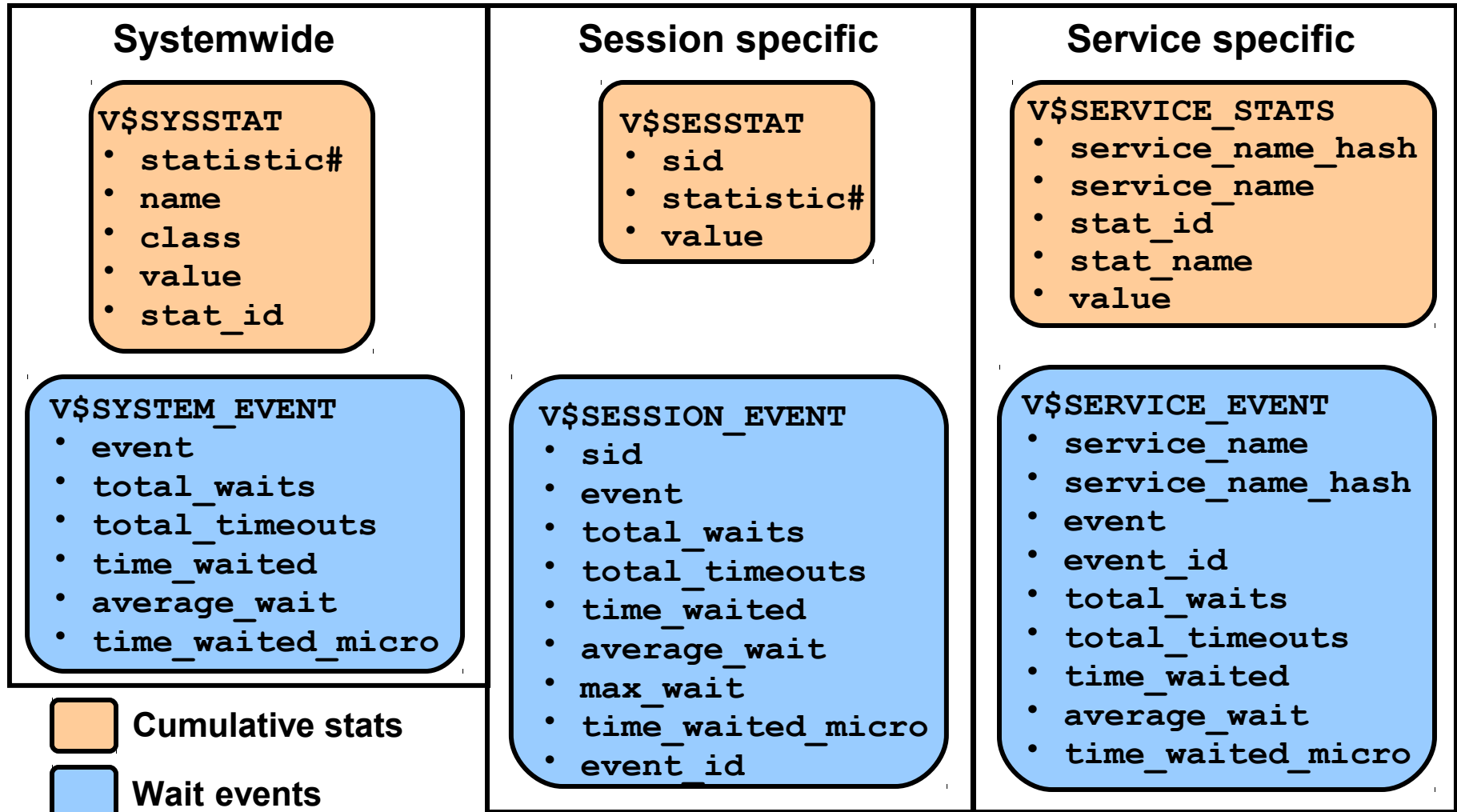
Maximum SGA Size (MB)

The database must be restarted before any changes to this value take effect.

Automatic Shared Memory Advisor



Dynamic Performance Statistics



Troubleshooting and Tuning Views

Instance/Database

V\$DATABASE
V\$INSTANCE
V\$PARAMETER
V\$SPPARAMETER
V\$SYSTEM_PARAMETER
V\$PROCESS
V\$BGPROCESS
V\$PX_PROCESS_SYSSTAT

V\$SYSTEM_EVENT

Memory

V\$BUFFER_POOL_STATISTICS
V\$LIBRARYCACHE
V\$SGAINFO
V\$PGASTAT

Disk

V\$DATAFILE
V\$FILESTAT
V\$LOG
V\$LOG_HISTORY
V\$DBFILE
V\$TEMPFILE
V\$TEMPSEG_USAGE
V\$SEGMENT_STATISTICS

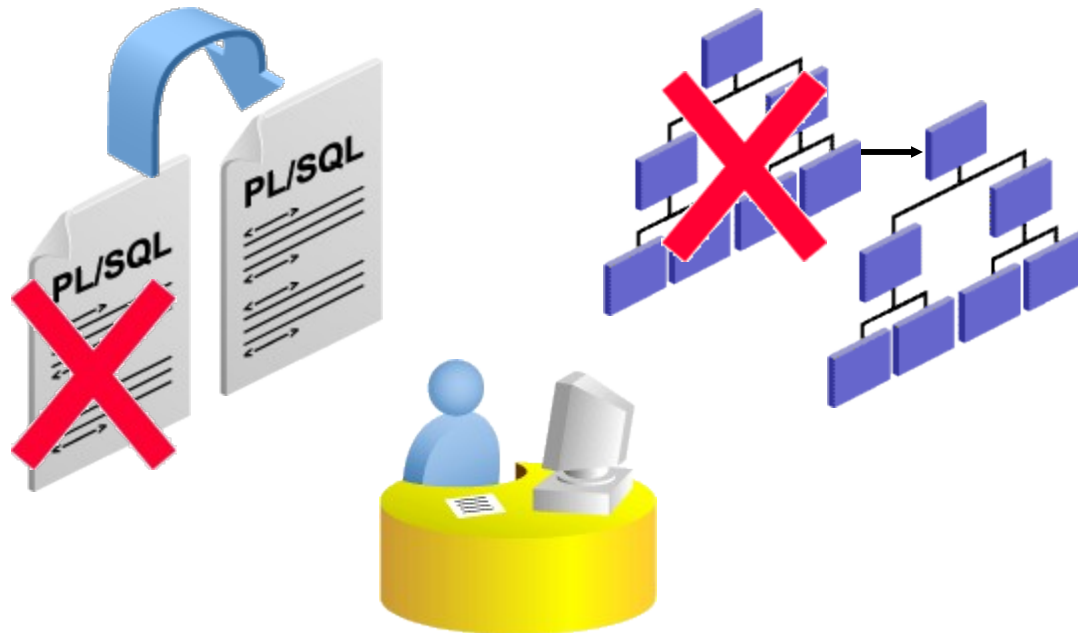
Contention

V\$LOCK
V\$UNDOSTAT
V\$WAITSTAT
V\$LATCH

Invalid and Unusable Objects

Effect on performance:

- PL/SQL code objects are recompiled.
- Indexes are rebuilt.



Quiz

Automatic Memory Management allows the Oracle instance to reallocate memory from the _____ to the SGA .

1. Large Pool
2. Log Buffer
3. PGA
4. Streams Pool

Quiz

SGA_TARGET may not be sized greater than _____ .

1. LOG_BUFFER
2. SGA_MAX_SIZE
3. STREAMS_POOL_SIZE
4. PGA_AGGREGATE_TARGET

Summary

In this lesson, you should have learned how to:

- Use Enterprise Manager to monitor performance
- Use Automatic Memory Management (AMM)
- Use the Memory Advisor to size memory buffers
- View performance-related dynamic views
- Troubleshoot invalid and unusable objects

Practice 13 Overview:

Monitoring and Improving Performance

This practice covers the following topics:

- Detecting and repairing unusable indexes
- Using the Performance page in Enterprise Manager