# Oracle Database 12c/18c/19c Performance Tuning

# **Course information**

Days: 5

Total lessons: 20

Suggested Prerequisites:

Oracle Database : Administrator Workshop I
 Oracle Database : Administrator Workshop II

### Training includes:

- Experienced trainer(s)
- Pre-test and Post-test
- Practices and solutions

#### Public price:

25,000 baht(THB) : 1 person

# In-house price for 5 days:

- 75,000 baht(THB): Economic Class: 1 5 people
  94,000 baht(THB): Small Class: 6 10 people
  120,000 baht(THB): Medium Class: 11 20 people
- 140,000 baht(THB) : Large Class : 21 30 people

All prices exclude VAT 7 %

# **Course details**

# Day 1

Lesson 1: Introduction

Lesson 2 : Basic Tuning Tools

Lesson 3: Using Automatic Workload Repository

Lesson 4: Defining Problems

### Day 2

Lesson 5: Using Metrics and Alerts

Lesson 6: Baselines

Lesson 7: Using AWR-Based Tools Lesson 8: Monitoring an Application

#### Day 3

Lesson 9: Identifying Problem SQL Statements

Lesson 10: Influencing the Optimizer

Lesson 11 : Using SQL Performance Analyzer Lesson 12 : SQL Performance Management

#### Day 4

Lesson 13: Using Database Replay Lesson 14: Tuning the Shared Pool Lesson 15: Tuning the Buffer Cache

Lesson 16: Tuning PGA and Temporary Space

### Day 5

Lesson 17: Automatic Memory Management Lesson 18: Tuning Segment Space Usage

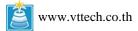
Lesson 19: Tuning I/O

Lesson 20: Performance Tuning Summary

# Lesson details

#### **Lesson 1: Introduction**

- Identify tuning tools
- Utilize a tuning methodology



### **Lesson 2: Basic Tuning Tools**

- View the top wait events to determine the highest wait
- View the time model to diagnose performance issues
- Use dynamic performance views to view statistics and wait events
- Use Enterprise Manager Monitoring
- Identify the key tuning components of the alert logs
- Identify the key tuning components of user trace files

### **Lesson 3: Using Automatic Workload Repository**

- Create and manage AWR snapshots
- Generate AWR reports
- Create Compare Periods reports

### **Lesson 4: Defining Problems**

- Identify performance issues
- Set tuning priorities
- Interpret tuning diagnostics
- Tune for life cycle phase

# **Lesson 5: Using Metrics and Alerts**

- · View metrics by using the metrics history views
- Create metric thresholds
- View alerts

#### Lesson 6: Baselines

- Create AWR baselines
- Enable adaptive thresholds
- Create AWR baselines for future time periods

# Lesson 7: Using AWR-Based Tools

- Describe tuning automatic maintenance tasks
- Generate ADDM reports
- Generate Active Session History (ASH) reports

# **Lesson 8: Monitoring an Application**

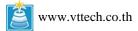
- Configure and manage services
- Use services with client applications
- Use services with the Database Resource Manager
- · Use services with the Scheduler
- Set performance-metric thresholds on services
- · Configure services aggregation and tracing

# **Lesson 9: Identifying Problem SQL Statements**

- Describe SQL statement processing
- Describe the role of the optimizer
- View the SQL statement statistics
- Identify the SQL statements that perform poorly
- Generate and view an execution plan
- Generate a tkprof report
- Generate an optimizer trace

# **Lesson 10: Influencing the Optimizer**

- Describe the optimizer's behavior
- Adjust parameters to influence the optimizer
- · Adjust data structures to influence the optimizer



### **Lesson 11: Using SQL Performance Analyzer**

- Identify the benefits of using SQL Performance Analyzer
- Describe the SQL Performance Analyzer workflow phases
- Use SQL Performance Analyzer to ascertain performance gains following a database change
- Use SQL Performance Analyzer to test the impact of proposed changes

# **Lesson 12: SQL Performance Management**

- Manage changes to optimizer statistics
- Capture SQL profiles
- Use SQL Access Advisor
- Set up SQL Plan Management
- Set up various SQL Plan Management scenarios

# **Lesson 13: Using Database Replay**

- Identify the benefits of using Database Replay
- List the steps involved in Database Replay
- Use Enterprise Manager to record and replay workloads

# **Lesson 14: Tuning the Shared Pool**

- Diagnose and resolve hard-parsing problem
- Diagnose and resolve soft-parsing problem
- Size the shared pool
- Diagnose and resolve shared pool fragmentation
- Keep objects in the shared pool
- Size the reserved area
- Manage the results cache

### **Lesson 15: Tuning the Buffer Cache**

- Describe the buffer cache architecture
- Size the buffer cache
- Resolve common performance issues related to the buffer cache
- Use common diagnostic indicators to suggest a possible solution

# **Lesson 16: Tuning PGA and Temporary Space**

- Diagnose PGA memory issues
- Size the PGA memory
- Diagnose temporary space issues
- Specify temporary tablespace parameters for efficient operation

# **Lesson 17: Automatic Memory Management**

- Use memory advisors to size dynamic memory areas
- Enable Automatic Shared Memory Manager
- Enable Enterprise Manager memory parameters
- · Set minimum size of auto-tuned SGA components
- Use the SGA advisor to set SGA TARGET
- Enable Automatic Memory Management
- Use the Memory Advisor to set overall memory parameters

### **Lesson 18: Tuning Segment Space Usage**

- Tune segment space management
- Use Segment Space Advisor
- Convert to Automatic Segment Space Management
- Tune block space management
- Diagnose and correct row migration
- Diagnose table fragmentation
- Use table compression



# Lesson 19: Tuning I/O

- Diagnose database I/O issues
- Describe the Stripe and Mirror Everything (SAME) concept
- Set filesystemio\_options
- Choose appropriate I/O solutions
- Tune Automatic Storage Management (ASM)

# **Lesson 20: Performance Tuning Summary**

- List best practices identified throughout the course
- Summarize the performance tuning methodology

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