

Course Outline



Tel: +44 (0) 118 979 4000 Fax: +44 (0) 118 979 4000

Email: training@ptr.co.uk Web: www.ptr.co.uk

Oracle Database Audit & Security

Course Description:

The course works on the principle that "if you have done it you will understand it". Therefore do expect this course to involve you a great deal in discussions, workshops and especially examination of the system hands on. By the end of the course you will be familiar with Oracle's client interface, the SQL*PLUS monitor and with simple SQL queries. In particular, you will come to understand the technical language surrounding Oracle and will gain immediate credibility talking to the experts you will inevitably have to work with. Furthermore, by understanding the technology, the descriptions of risk will become immediately understood.

This hands-on course is intended for auditors and security specialists who are aware their businesses use Oracle based products, but do not understand the database platform and therefore the risks it may carry. You will learn how Oracle is built and a concept of what the various categories of user do on the database and the risks they carry.

Hands on labs will show you how to scan the system for objects, especially sensitive tables. And to find out who can do what to them. Further more, in this age of web technology, the concept of the authenticated user accessing parts of your data is passing away. It could be anyone!

Covers Oracle 9i, 10g and 11g.

Pre-requisites:

Before coming on the course, delegates should feel confident inputting instructions on a command line and accessing files on a filing system. Some exposure to a database environment is useful.

Course Content:

- **INTRODUCTION TO AUDIT & SECURITY**

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- **AUDIT & SECURITY**
 - Security
 - Audit
 - Checklist-Based Auditing
 - Risk-Based Auditing
 - Audit Plan
 - DISA Database STIG
 - NIST

- **THE BIG PICTURE**
 - Access Control
 - Intrusion Prevention
 - Intrusion Detection
 - Secure Data Storage
 - Secure Data Access

- **INTRODUCTION TO ORACLE**

- **WHAT IS ORACLE?**
 - Security Considerations
 - Audit Considerations

- **ORACLE BASIC ARCHITECTURE**

- **THE PHYSICAL DATABASE**
 - The Parameter File
 - The Control File
 - The Password File
 - The Network Configuration Files
 - The listener.ora File
 - The tnsnames.ora File
 - The sqlnet.ora File

- **THE INSTANCE**
 - Licensing
 - Oracle Services
 - The Listener Service
 - The File System Locations
 - The Registry Keys

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Registered Office: Grenville Court Britwell Road Burnham Bucks SL1 8DF Company Registered No: 2442290 – VAT registration No:532 1929 56

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- **THE INSTANCE**
 - Environment Variables
 - Restricting Access to an Oracle Database
 - Client Connectivity
 - The tnsnames.ora File
 - The Listener Service
 - The listener.ora File
 - The sqlnet.ora File
 - Listener Security
 - Setup Valid Node Checking
 - Encrypting Connections to Oracle
 - Secure Sockets Layer
 - Hardware Security Modules (HSM)
 - Internet Protocol Security (IPSec)
 - Instance & Database Metadata
 - Dynamic Views
 - PFILE

- **THE LOGICAL DATABASE ARCHITECTURE**
 - Database Objects
 - Ownership
 - Schemas
 - Oracle Language Settings

- **THE MANAGEMENT TOOLS**
 - Enterprise Manager
 - sqlplus
 - sqlldr
 - exp & imp
 - rman
 - expdp & impdp

- **ORACLE LOGS**
 - The Alert Log
 - Trace Files
 - User Session Tracing

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- **ORACLE SECURITY COMPLIANCE**
- **ORACLE CONFIGURATION**
 - Enterprise Manager
 - Sqlplus
 - Oracle Network Manager
 - Database Configuration Assistant
 - Instance Wide Security Settings
 - Initialization Parameters
- **STORAGE MANAGEMENT**
 - Configuration .ora Files
 - Alert Log & Trace Files
 - ORACLE_HOME Directory
 - Admin Directory
 - The diag directory
 - Data Files
 - Tablespaces
 - The Redo Logs
 - Storage Fault Tolerance
 - Archive Destinations
 - Backup Images
 - Importing And Exporting Data
 - sqlplus
 - sqlldr
 - Imp & exp
 - expdp & impdp
 - Back Ups and Restores
 - Redo Log Architecture
 - Controlfile Backup
 - Recovery manager (RMAN)
 - Security Consideration for Backup & Restore

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- **USER SECURITY**
 - Schemas
 - Default User Accounts
 - The SYS User
 - The SYSTEM User
 - The SYSOPER Role
 - The SYSDBA Role
 - Connecting as SYSDBA or SYSOPER
 - Operating System Authentication
 - Oracle Password Authentication
 - Granting SYSOPER and SYSDBA privileges to Other Users
 - Creating User Accounts
 - Global Authentication
 - N-Tier Authentication
 - Proxy Authentication
 - Database Roles
 - Oracle System Privileges
 - Statement Privileges
 - GRANT & REVOKE Statements

- **PROFILES**
 - Password Complexity Function
 - Changing Passwords
 - Sample UTLPWDMG.SQL Script

- **VIRTUAL PRIVATE DATABASE**
 - DBMS_RLS Procedures
 - Restricting Access Through SQL
 - The SYS_CONTEXT Function
 - Restricting Access Through Fine Grained Access Control

- **ORACLE LABEL SECURITY**
 - Oracle Label Security Policies
 - Data Labels
 - User Labels

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- **ORACLE LABEL SECURITY**
 - Security Clearance Components
 - User Privileges
 - Enforcement Options
 - Default Row Level

- **ORACLE ENCRYPTION**
 - Oracle Internet Directory
 - Information Security
 - Transparent Data Encryption
 - Backing Up Encryption Keys & Wallets
 - Tablespace Encryption

- **HARDWARE SECURITY MODULES (HSM)**
 - Implementing Hardware Security Modules
- **ENCRYPTION PACKAGES**
 - DBMS_OBFUSCATION_TOOLKIT
 - DBMS_CRYPTO

- **ORACLE SECURITY PRODUCTS AND FEATURES**
- **HIGH AVAILABILITY**

- **APPLICATION DEVELOPMENT**
 - Stored Program Privileges
 - Sql Injection

- **ORACLE AUDITING**
 - Data Dictionary Views
 - The Audit Statement
 - The Audit Data Dictionary Views
 - DML Triggers
 - Event Triggers
 - Fine Grained Auditing
 - Other Auditing Techniques

- **THREATS & VULNERABILITIES**
 - Process Threats And Vulnerabilities
 - Platform Threats And Vulnerabilities
 - Authentication Threats And Vulnerabilities

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- **THREATS & VULNERABILITIES**
- Programming Threats And Vulnerabilities
- Data Access Threats And Vulnerabilities

Course Duration:

3 Days