

Course overview:

Oracle9i Architecture for Developers

(D028eng)



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Overview and objectives

This 2-day course is a special adaptation of the database architecture module normally presented to database administrators but customized for the benefit of developers. With a series of in-depth lectures developers are acquainted with the internal architecture of the Oracle database, including memory structures, data file structures, block and row internals. The objective is to provide developers with the skills needed to properly build and tune applications for optimum performance compatible with the architecture of the Oracle database. On course completion, students will be able to:

- Explain the database memory structures, including the SGA and the shared pool
- Explain the configurations possible for Oracle instances
- Explain the structure of tablespaces, data files, extents, blocks and rows
- Explain the structure of tables and indexes
- Explain the role of redo log files, redo log buffers and rollback segments

Who should attend?

This course has been developed for Oracle developers. Students are recommended to have attended the following courses or have the equivalent knowledge and experience:

- Introduction To Oracle9i SQL
- Introduction To Oracle9i Advanced SQL

Oracle database server architecture

- Oracle Enterprise Manager (OEM) • OEM Console • Application architectures • 2-Tier Traditional Client/Server • 3-Tier Traditional Client/Server • 3-Tier Traditional Intranet or Internet • The Oracle database server • How Does A SQL Statement Execute? • What is the data dictionary? • Database users and schemas • SYS Schema Illustrated • OEM Security Manager, Users • Data Dictionary, DBA_USERS

Understanding database objects

- Which database objects exist? • OEM Schema Manager, Schema Objects • Data Dictionary, DBA_OBJECTS • OEM Schema Manager, Tables (General tab) • Data Dictionary, DBA_TABLES • Data Dictionary, USER_TAB_COLUMNS • OEM Schema Manager, Tables (Constraints tab) • Data Dictionary, DBA_CONSTRAINTS • Data Dictionary, DBA_CONS_COLUMNS • OEM Schema Manager, Sequences • Data Dictionary, DBA_SEQUENCES

Instance and user memory structures

- IFILE Parameter • OEM Instance Manager, Initialization Parameters • Single Instance • Concurrent Instances And Databases, Same Server • Multiple Instances For One Database, Same Server • Oracle Real Application Clusters • Multiple Instances For One Database, Clustered Servers • SYSTEM GLOBAL AREA (SGA) • How The Java Pool Is Used • Parameters Which Determine SGA Size • About Oraclei Buffer Cache & Subcaches • SGA Size

Instance and user processes

- Which processes are executing? • Instance background processes • Instance Background System Processes Illustrated • DBWR & LGWR Processes • Checkpoints and CKPT Process • SMON & PMON Processes • ARCH Process • OEM Instance Manager, Background Process List • Oracle JServer Instance • Oracle JServer Instance Illustrated • SQL execution • PGA & Instance • Data Dictionary, V\$SESSION • OEM Instance Manager, Sessions

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Data files, data segments

- Which files are used by the database? • Data files and the physical storage hierarchy • Understanding tablespaces • Understanding data files • Understanding segments • Understanding E_DERST • Understanding database blocks • PCTFREE/PCTUSED • Understanding the row structure • UNDERSTANDING R_D • ROWID_TO_RESTRICTED() • ROWID_TO_EXTENDED()

Data files, non-data segments

- The non-data S_TA • Indexes and index segments • Bitmap Vs B-Tree Index Scenario • DBA_INDEXES • DBA_IND_COLUMNS • TEMPORARY SEGMENTS, ROLLBACK SEGMENTS • DBA_SEGMENTS, DBA_ROLLBACK_ • V\$ROLLNAME and V\$ROLLSTAT

Non-data files

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