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Preface

This document, which is part of the Program Documentation under the terms of your Oracle licensing agreement, is intended to help you understand the features, functionality, and options available for Oracle Programs. If you have a question about your licensing needs, please contact your Oracle sales representative, contact the License Management Services representative at <http://www.oracle.com/us/corporate/license-management-services/index.html>, or refer to the resources listed in "Related Documents" on page 2-vi for more information.

Oracle Database 12c is available in multiple editions, each suitable for different development and deployment scenarios.

Oracle also offers several database options and packs that enhance the capabilities of Oracle Database for specific application requirements. *Oracle Database Licensing Information* provides information on these optional database products.

This Preface contains these topics:

- [Audience](#)
- [Documentation Accessibility](#)
- [Related Documents](#)
- [Conventions](#)

Audience

This book is intended for all purchasers of Oracle Database 12c.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc>.

Access to Oracle Support

Oracle customers have access to electronic support through My Oracle Support. For information, visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info> or visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs> if you are hearing impaired.

Related Documents

For more information, see these Oracle resources:

- *Oracle Database New Features Guide* for information on the features new to this release of Oracle Database
- The Software Investment Guide, available at:
<http://www.oracle.com/us/corporate/pricing/index.html>

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Oracle Database Editions

This chapter describes Oracle Database editions and the features available with those editions. It contains the following sections:

- [The Oracle Database Product Family](#)
- [Feature Availability by Edition](#)
- [Features Specific to Oracle Engineered Systems and Oracle Storage](#)
- [Features Specific to the Windows Platform](#)
- [Special-Use Licensing](#)
- [Restricted-Use Licensing](#)
- [Changes in Product Licensing](#)

The Oracle Database Product Family

Oracle Database is available in the following editions, each suitable for different development and deployment scenarios. Oracle also offers several database options, packs, and other products that enhance the capabilities of Oracle Database for specific purposes. This section describes the Oracle Database editions. The database options and associated products are described in [Chapter 2, "Options and Packs"](#).

Oracle Database Standard Edition 2 Oracle Database Standard Edition 2 delivers unprecedented ease of use, power, and performance for workgroup, department-level, and Web applications.

Note: Oracle Database Standard Edition 2 is available starting with Oracle Database 12c Release 1 (12.1.0.2). For 12.1.0.1, Oracle Database Standard Edition One and Oracle Database Standard Edition are available.

Oracle Database Enterprise Edition Oracle Database Enterprise Edition provides the performance, availability, scalability, and security required for mission-critical applications such as high-volume online transaction processing (OLTP) applications, query-intensive data warehouses, and demanding Internet applications. Oracle Database Enterprise Edition contains all of the components of Oracle Database, and can be further enhanced with the purchase of the options and packs described in [Chapter 2, "Options and Packs"](#).

Oracle Database Express Edition Oracle Database Express Edition (Oracle Database XE) is an entry-level edition of Oracle Database that is quick to download, simple to install and manage, and is free to develop, deploy, and distribute. Oracle Database XE makes it easy to upgrade to the other editions of Oracle without costly and complex

migrations. Oracle Database XE can be installed on any size machine with any number of CPUs, stores up to 11 GB of user data, using up to 1 GB of memory, and using only one CPU on the host machine. Support is provided by an online forum. The current version of Oracle Database XE is Oracle Database 11g Release 2.

Oracle Database Personal Edition Oracle Database Personal Edition supports single-user development and deployment environments that require full compatibility with Oracle Database Standard Edition One, Oracle Database Standard Edition, and Oracle Database Enterprise Edition. Personal Edition includes all of the components that are included with Enterprise Edition, as well as all of the options that are available with Enterprise Edition, with the exception of the Oracle Real Application Clusters option, which cannot be used with Personal Edition. Personal Edition is available on Windows and Linux platforms only. The Management Packs are not included in Personal Edition.

Feature Availability by Edition

Table 1–1 lists feature availability for Oracle Database Standard Edition One (SE1), Standard Edition (SE), Standard Edition 2 (SE2), and Enterprise Edition (EE). The Y value in a column means that the feature is available in the specified release; N means that it is unavailable. This table can help you understand the difference between the editions and determine whether you require Enterprise Edition (or Personal Edition for a single-user environment).

Note that Oracle Database XE is a separate product from the rest of the Oracle Database product family. The features available with Oracle Database XE are documented in *Oracle Database Express Edition Licensing Information*, which is installed along with the product itself. The current version of Oracle Database XE is Oracle Database 11g Release 2.

Note: Oracle Database Standard Edition 2 (SE2) is available starting with Oracle Database 12c Release 1 (12.1.0.2). For 12.1.0.1, Oracle Database Standard Edition One (SE1) and Oracle Database Standard Edition (SE) are available.

Table 1–1 Feature Availability for Oracle Database Editions

Feature/Option	SE1	SE/SE2	EE	Notes
Consolidation				
Multitenant	N	N	Y	Extra cost option for up to 252 pluggable databases. The multitenant architecture with one user-created pluggable database (single tenant) is available in all editions.
Snapshots and Cloning				
Storage Snapshot Optimization	N	N	Y	Requires the Advanced Compression option
High Availability				
Application Continuity	N	N	Y	Requires the Active Data Guard option or the Real Application Clusters option

Table 1–1 (Cont.) Feature Availability for Oracle Database Editions

Feature/Option	SE1	SE/SE2	EE	Notes
Oracle Fail Safe	Y	Y	Y	Windows only
Oracle RAC One Node	N	N	Y	Extra cost option
Oracle Data Guard—Redo Apply	N	N	Y	
Oracle Data Guard—Far Sync Standby	N	N	Y	Requires the Active Data Guard option
Oracle Data Guard—SQL Apply	N	N	Y	
Oracle Data Guard—Snapshot Standby	N	N	Y	
Oracle Data Guard—Real-Time Cascading Standbys	N	N	Y	Requires the Active Data Guard option
Oracle Active Data Guard	N	N	Y	Extra cost option
Rolling Upgrades—Patch Set, Database, and Operating System	N	N	Y	
Rolling Upgrade Using Active Data Guard	N	N	Y	Requires the Active Data Guard option
Online index rebuild	N	N	Y	
Online index-organized table organization	N	N	Y	ALTER TABLE ... MOVE ONLINE operations
Online table redefinition	N	N	Y	Using the DBMS_REDEFINITION package
Duplexed backup sets	N	N	Y	
Block change tracking for fast incremental backup	N	N	Y	
Unused block compression in backups	N	N	Y	
Block-level media recovery	N	N	Y	
Lost Write Protection	N	N	Y	
Automatic Block Repair	N	N	Y	Requires the Active Data Guard option
Parallel backup and recovery	N	N	Y	
Tablespace point-in-time recovery	N	N	Y	
Trial recovery	N	N	Y	
Fast-start fault recovery	N	N	Y	
Flashback Table	N	N	Y	
Flashback Database	N	N	Y	
Flashback Transaction	N	N	Y	
Flashback Transaction Query	N	N	Y	
Optimization for Flashback Data Archive	N	N	Y	Basic Flashback Data Archive is in all editions. Optimization for Flashback Data Archive requires EE and the Advanced Compression option.
Online Datafile Move	N	N	Y	
Transaction Guard	N	N	Y	
Cross-platform Backup and Recovery	N	N	Y	

Table 1–1 (Cont.) Feature Availability for Oracle Database Editions

Feature/Option	SE1	SE/SE2	EE	Notes
Global Data Services	N	N	Y	Requires the Active Data Guard option
Recovering tables and table partitions from RMAN backups	N	N	Y	
Scalability				
Oracle Real Application Clusters	N	Y	Y	Extra cost with EE, included with SE and SE2
Automatic Workload Management	N	Y	Y	Requires the Real Application Clusters option
Quality of Service Management	N	N	Y	Requires the Real Application Clusters option
Performance				
Client Side Query Cache	N	N	Y	
Query Results Cache	N	N	Y	
PL/SQL Function Result Cache	N	N	Y	
TimesTen Application-Tier Database Cache	N	N	Y	Extra cost option
Database Smart Flash Cache	N	N	Y	Solaris and Oracle Linux only
Support for Oracle Exadata Storage Server Software	N	N	Y	
Adaptive Execution Plans	N	N	Y	
Concurrent Execution of UNION and UNION ALL Branches	N	N	Y	
In-Memory Column Store (Note 1)	N	N	Y	Requires the Database In-Memory option
Fault Tolerant In-Memory Column Store (Note 1)	N	N	Y	Requires the Database In-Memory option, the Real Application Clusters option, and Exadata or Supercluster
In-Memory Aggregation (Note 1)	N	N	Y	Requires the Database In-Memory option
Attribute Clustering (Note 1)	N	N	Y	
Zone Maps (Note 1)	N	N	Y	Requires the Partitioning option, and Exadata or Supercluster

Table 1–1 (Cont.) Feature Availability for Oracle Database Editions

Feature/Option	SE1	SE/SE2	EE	Notes
Security				
Oracle Advanced Security	N	N	Y	Extra cost option
Oracle Database Vault	N	N	Y	Extra cost option
Oracle Label Security	N	N	Y	Extra cost option
Enterprise User Security	N	N	Y	Enterprise User Security is an EE feature for directory-based management of database users. It requires a corresponding Oracle Identity Management Directory Services Plus to be licensed. Usage of Enterprise User Security with Oracle Database strong authentication (PKI, Kerberos) no longer requires Oracle Advanced Security to be licensed.
Fine-grained Auditing	N	N	Y	
Privilege Analysis	N	N	Y	Requires the Database Vault option
Real Application Security	N	N	Y	
Redaction	N	N	Y	Requires Oracle Advanced Security
Secure External Password Store	N	N	Y	
Transparent Sensitive Data Protection	N	N	Y	
Virtual Private Database	N	N	Y	
Development Platform				
SQLJ	Y	Y	Y	Requires Oracle Programmer
Oracle Developer Tools for Visual Studio .NET	Y	Y	Y	Windows only
Microsoft Distributed Transaction Coordinator support	Y	Y	Y	Windows only
Active Directory integration	Y	Y	Y	Windows only
Native .NET Data Provider—ODP.NET	Y	Y	Y	Windows only
.NET Stored Procedures	Y	Y	Y	Windows only

Table 1–1 (Cont.) Feature Availability for Oracle Database Editions

Feature/Option	SE1	SE/SE2	EE	Notes
Manageability				
Oracle Cloud Management Pack for Oracle Database	N	N	Y	Extra cost option
Oracle Data Masking and Subsetting Pack for Oracle and Non-Oracle Databases	N	N	Y	Extra cost option
Oracle Database Lifecycle Management Pack for Oracle Database	N	N	Y	Extra cost option
Oracle Diagnostics Pack	N	N	Y	Extra cost option
Oracle Tuning Pack	N	N	Y	Extra cost option, also requires Oracle Diagnostics Pack
Oracle Real Application Testing	N	N	Y	Extra cost option
Database Resource Manager	N	N	Y	CPU resource management is available on all platforms; I/O resource management requires Exadata or Supercluster storage
Instance Caging	N	N	Y	
SQL Plan Management	N	N	Y	
Rapid Home Provisioning (Note 1)	N	N	Y	When deployed across multiple clusters, requires Lifecycle Management Pack on targets

Table 1–1 (Cont.) Feature Availability for Oracle Database Editions

Feature/Option	SE1	SE/SE2	EE	Notes
VLDB, Data Warehousing, Business Intelligence				
Oracle Partitioning	N	N	Y	Extra cost option
Oracle OLAP	N	N	Y	Extra cost option
Oracle Advanced Analytics	N	N	Y	Extra cost option
Oracle Advanced Compression	N	N	Y	Extra cost option
Advanced Index Compression (Note 1)	N	N	Y	Requires the Advanced Compression option
Prefix Compression (also called Key Compression)	N	N	Y	
Hybrid Columnar Compression	N	N	Y	Requires Exadata, Supercluster, ZFS, Axiom, or FS1 storage
Hybrid Columnar Compression Row-Level Locking (Note 1)	N	N	Y	Requires the Advanced Compression option, and Exadata, Supercluster, ZFS, or FS1 storage
Exadata Flash Cache Compression	N	N	Y	Requires the Advanced Compression option, and Exadata or Supercluster
Heat Map	N	N	Y	Requires the Advanced Compression option
Automatic Data Optimization	N	N	Y	Requires the Advanced Compression option
Basic Table Compression	N	N	Y	
Deferred Segment Creation	N	N	Y	
Bitmapped index, bitmapped join index, and bitmap plan conversions	N	N	Y	
Parallel query/DML	N	N	Y	
Parallel statistics gathering	N	N	Y	
Parallel index build/scans	N	N	Y	
Parallel Data Pump Export/Import	N	N	Y	
In-memory Parallel Execution	N	N	Y	
Parallel Statement Queuing	N	N	Y	
Parallel capture and apply via XStream	N	N	Y	
Transportable tablespaces, including cross-platform and full transportable export and import	N	N	Y	Import of transportable tablespaces supported into SE, SE1, SE2, and EE
Summary management—Materialized View Query Rewrite	N	N	Y	

Table 1–1 (Cont.) Feature Availability for Oracle Database Editions

Feature/Option	SE1	SE/SE2	EE	Notes
Integration				
Basic Replication	Y	Y	Y	SE/SE1/SE2: read-only, updateable materialized view
Advanced Replication	N	N	Y	Multi-master replication
Oracle Streams	Y	Y	Y	SE/SE1/SE2: no capture from redo
Database Gateways	Y	Y	Y	Separate product license
Messaging Gateway	N	N	Y	
Sharded Queues	N	N	Y	Requires the Partitioning option
Networking				
Oracle Connection Manager	N	N	Y	Available via a custom install of the Oracle Database client, usually installed on a separate machine See " Oracle Connection Manager " on page 1-11 for more information
Infiniband Support	N	N	Y	
Network Compression	N	N	Y	Requires the Advanced Compression option
Network Encryption (SSL/TLS)	Y	Y	Y	
Spatial and Graph Data				
Oracle Spatial and Graph	N	N	Y	Extra cost option
Graph and Semantic Technologies (RDF/OWL)	N	N	Y	Requires the Spatial and Graph option and the Partitioning option
Parallel spatial index builds	N	N	Y	
Multimaster replication of SDO_GEOMETRY objects	N	N	Y	Single master/materialized view replication for SDO_GEOMETRY objects is supported with both Standard Edition, Standard Edition 2, and Enterprise Edition
Partitioned spatial indexes	N	N	Y	Requires the Partitioning option

Note 1: This feature is available starting with Oracle Database 12c Release 1 (12.1.0.2).

Features Specific to Oracle Engineered Systems and Oracle Storage

[Table 1–2](#) lists feature availability for Oracle Engineered Systems and Oracle Storage.

Note: Transparent features (such as smart scans and storage indexes) are not listed.

Table 1–2 Feature Availability for Oracle Engineered Systems and Oracle Storage

Feature	Exadata	Supercluster	ZFS	Axiom	FS1	Notes
Hybrid Columnar Compression	Y	Y	Y	Y	Y	
Hybrid Columnar Compression Row-Level Locking	Y	Y	Y	N	Y	Requires the Advanced Compression option
Exadata Flash Cache Compression	Y	Y	N	N	N	Requires the Advanced Compression option
Zone Maps	Y	Y	N	N	N	Requires the Partitioning option
Fault Tolerant In-Memory Column Store	Y	Y	N	N	N	Requires the Database In-Memory option and the Real Application Clusters option
I/O Resource Management	Y	Y	N	N	N	

Features Specific to the Windows Platform

The following features related to application development are available only on Windows platforms:

- Microsoft Transaction Server/COM+ integration
- Oracle OLE DB Provider
- VLM Support
- Native .NET Data Provider - ODP.NET
- Oracle Database Extensions for .NET (.NET Stored Procedures)
- Oracle Developer Tools for Visual Studio
- Oracle Providers for ASP.NET

Special-Use Licensing

The following sections describe special-use licensing:

- [Infrastructure Repository Databases](#)
- [Data Guard Far Sync](#)
- [Global Data Services](#)
- [Oracle Advanced Security and Enterprise User Security](#)
- [Oracle ASM Cluster File System \(Oracle ACFS\)](#)
- [Oracle Clusterware](#)
- [Oracle Connection Manager](#)
- [Oracle Database Backup Service](#)
- [Oracle Database Express Edition](#)
- [Oracle Database Gateway for ODBC](#)
- [Oracle Database Provider for DRDA](#)
- [Oracle Database Standard Edition and Oracle Real Application Clusters \(Oracle RAC\)](#)

- [Oracle Scheduler](#)
- [Oracle Secure Backup and Oracle Secure Backup Cloud Module](#)
- [Oracle Secure Backup Express](#)
- [Oracle Wallet](#)
- [Support of Real Application Testing in Earlier Releases](#)
- [XStream](#)

Infrastructure Repository Databases

A separate single instance Oracle Database can be installed and used as an infrastructure repository for RMAN, Oracle Enterprise Manager Cloud Control, Automatic Workload Repository (AWR) Warehouse, Global Data Services Catalog, and Grid Infrastructure Management Repository without additional license requirements, provided that all the targets are correctly licensed. It may not be used or deployed for other uses.

The infrastructure repositories for RMAN, Oracle Enterprise Manager Cloud Control, AWR Warehouse, and Global Data Services Catalog can be shared in one database, or deployed in separate databases. Enterprise Edition must be used for the infrastructure repository database(s).

If Oracle RAC is used for the infrastructure database, then Oracle RAC licenses for all servers, and Enterprise Edition licenses for all but the first server, are required.

If Data Guard is used for the infrastructure database, then an Enterprise Edition license for the standby server is required.

Data Guard Far Sync

The far sync instance can be installed and used on a server different from the server where the Oracle Database is installed and used. It is not necessary to obtain a separate license for the server running the far sync instance.

Global Data Services

The GSM listener can be installed and used on a server different from the server where the Oracle Database is installed and used. It is not necessary to obtain a separate license for the server running the GSM listener.

Oracle Advanced Security and Enterprise User Security

If you wish to use Enterprise User Security in Oracle Database Enterprise Edition, you no longer need to license the Oracle Advanced Security Option for Kerberos and PKI based authentication. It does require a corresponding Oracle Identity Management Directory Services Plus to be licensed.

Any Oracle Advanced Security licenses purchased on or before January 31, 2004, have restricted use of the Oracle Internet Directory (OID) component of Oracle Directory Services Plus to support enterprise user security.

Oracle ASM Cluster File System (Oracle ACFS)

Refer to following table for the license requirements that apply to the Oracle ACFS features:

Oracle ACFS Features	Oracle Database Files	Non-Oracle Database Files
All Oracle ACFS features other than those listed below	Free	Free
ACFS Snapshot	Requires Oracle Database Enterprise Edition*	Free
ACFS Encryption	Not available (use Oracle Transparent Data Encryption, part of the Oracle Advanced Security option*)	Free
ACFS Security	Not available (use Oracle Database Vault*)	Free
ACFS Replication	Not available (use Oracle Data Guard*)	Free
ACFS Auditing	Not available (use Oracle Audit Vault*)	Free
ACFS Tagging	Free	Free

Oracle will provide support services for Oracle ACFS only if the server it operates on also operates an Oracle product, which may include Oracle Linux or Oracle Solaris, which is under an Oracle support contract.

* Requires appropriate full-use licenses to these products or components.

Oracle Clusterware

Oracle Clusterware provides cluster membership and high availability monitoring and failover. Oracle Clusterware may be used to protect any application (restarting or failing over the application in the event of a failure) on any server, free of charge. Oracle will provide support for Clusterware only if the server is running an Oracle product, which may include Oracle Linux or Oracle Solaris, that is also under Oracle support.

Oracle Connection Manager

Oracle Connection Manager can be installed and used on a machine different from the machine where the Oracle Database is installed and used. It is not necessary to obtain a separate license for the machine running Oracle Connection Manager.

Oracle Database Backup Service

Oracle Database Backup Service includes use of two optimizations at no additional cost. These optimizations are normally available only with the purchase of the Oracle Advanced Security Option or the Oracle Advanced Compression Option. This Oracle Database Backup Service special-use licensing includes:

- RMAN backup encryption
- All RMAN backup compression algorithms

To use additional features of the Oracle Advanced Security Option or the Oracle Advanced Compression Option, you must license those options separately. In addition, the Oracle Advanced Security Option must be licensed when performing RMAN encrypted backups directly to disk.

Oracle Database Express Edition

Oracle Database Express Edition may be used for free, for the purposes of developing, prototyping and running applications. It can also be used for free to provide demonstrations and training. It may also be distributed for free with any applications.

However, any use of the Oracle Database Express Edition is subject to the following limitations:

1. Express Edition is limited to a single instance on any server.
2. Express Edition may be installed on a multiple CPU server, but may only be executed on one processor in any server.
3. Express Edition may be used only to support up to 11 GB of user data (not including Express Edition system data).
4. Express Edition may use up to 1 GB RAM of available memory.

The Oracle technical support organization will not provide technical support, phone support, or updates for Oracle Database Express Edition.

Oracle Database Gateway for ODBC

Oracle Database Gateway for ODBC can be installed and used on a machine different from the machine where the Oracle Database is installed and used. It is not necessary to obtain a separate license for the machine running Oracle Gateway for ODBC.

Oracle Database Provider for DRDA

Oracle Database Provider for DRDA can be installed and used on a machine different from the machine where the Oracle Database is installed and used. It is not necessary to obtain a separate license for the machine running Oracle Database Provider for DRDA.

Oracle Database Standard Edition and Oracle Real Application Clusters (Oracle RAC)

When used with Oracle Real Application Clusters in a clustered server environment, Oracle Database Standard Edition requires the use of Oracle Clusterware. Third-party clusterware management solutions are not supported.

The license restrictions for Standard Edition must be adhered to. The maximum number of CPUs defined is for the entire cluster; it is not a per node maximum.

Oracle Automatic Storage Management is required for creating and managing all Oracle database file types. Raw volumes, partitions, or third-party cluster file systems are not supported for storing Oracle database files with Oracle Standard Edition and Oracle RAC. Refer to *Oracle Automatic Storage Management Administrator's Guide* for a comprehensive list of all database file types.

ASM Cluster File System (ACFS) or a local OS file system must be used to store all non-database files. No Oracle-maintained copies of any non-database files can exist in any other locations, with the following exceptions:

1. Customers who want to manually script maintenance of a standby database can create a second copy of their archive logs outside of Oracle ASM on a local file system only, designated by the `LOG_ARCHIVE_DEST_n` parameter.
2. RMAN backups of files can reside on either a local or network mounted file system.

No other cluster software can be installed on the system, including OCFS, OCFS2, third-party clusterware, third-party cluster volume managers, and third-party cluster file systems.

Oracle Scheduler

Oracle Scheduler is a database feature that provides job scheduling functionality. Execution of jobs on machines where the Oracle database is installed is included with the Oracle Database license. For enterprise scheduling, the execution of jobs on remote machines where no Oracle database is installed is licensed as part of System Monitoring Plug-in for Hosts.

Oracle Secure Backup and Oracle Secure Backup Cloud Module

For backup of Oracle Database Enterprise Edition, Oracle Secure Backup includes restricted-use licenses for:

- RMAN backup encryption to tape or Amazon S3
- RMAN backup compression leveraging LOW, MEDIUM, BASIC or HIGH algorithms

The Oracle Secure Backup special-use licenses apply to RMAN backup encryption, which is a component of the Oracle Advanced Security Option, and RMAN backup compression levels, which are components of the Oracle Advanced Compression Option. To use additional features of the Oracle Advanced Security Option or the Oracle Advanced Compression Option, you must license those options separately. In addition, the Oracle Advanced Security Option must be licensed when performing RMAN encrypted backups directly to disk whether or not Oracle Secure Backup is the media manager.

Oracle Secure Backup Express

Oracle Secure Backup Express is bundled with the Oracle Database. Support for Oracle Secure Backup Express is provided exclusively through a free Oracle Discussion Forum monitored by Oracle employees as well as community experts.

Oracle Secure Backup Express can back up an Oracle database as well as Oracle home files and other file system data requiring tape protection.

For more information, refer to *Oracle Secure Backup Licensing Information*.

Oracle Wallet

An Oracle Wallet is a PKCS#12 container used to store authentication and encryption keys. The Oracle database secure external password store feature stores passwords in an Oracle Wallet for password-based authentication to the Oracle database. The Oracle Wallet may also be used to store credentials for PKI authentication to the Oracle Database, configuration of network encryption (SSL/TLS), and Oracle Advanced Security transparent data encryption (TDE) master encryption keys. Strong authentication services (Kerberos, PKI, and RADIUS) and network encryption (native network encryption and SSL/TLS) are no longer part of Oracle Advanced Security and are available in all licensed editions of all supported releases of the Oracle database.

Support of Real Application Testing in Earlier Releases

The full functionality of Oracle Real Application Testing is available only on Oracle Database 11g Release 1 or higher. Partial functionality of Oracle Real Application Testing is available to customers wishing to upgrade from Oracle9i Database Release 2 or Oracle Database 10g.

The functionality available on Oracle9i Database Release 2 is as follows:

- **Database Replay:** Only the Workload Capture feature is supported, and the captured workload may only be replayed only on Oracle Database 11g. This

feature can be used only to facilitate upgrades from Oracle 9i Database Release 2 to Oracle Database 11g or higher.

The functionality available on Oracle Database 10g Release 2 is as follows:

- **Database Replay:** Only the Workload Capture feature is supported, and the captured workload may be replayed only on Oracle Database 11g. This feature can be used only to facilitate upgrades from Oracle Database 10g Release 2 to Oracle Database 11g.
- **SQL Performance Analyzer:** Only the Remote SQL Test Execute and SQL Capture into SQL Tuning Set features are supported. These features can be used only to facilitate upgrades from Oracle 9i Database Release 2 and Oracle Database 10g Release 1 to Oracle Database 10g Release 2 or higher. When upgrading to Oracle Database 10g Release 2 from earlier releases (Oracle 9i Database or Oracle Database 10g Release 1), Oracle Database 11g is needed to remotely execute SQL on the target database (that is, Oracle Database 10g Release 2). Real Application Testing licensing is required for both systems, Oracle Database 10g Release 2 and Oracle Database 11g.

XStream

XStream provides application programming interfaces (APIs) that enable client applications to receive real-time data changes from an Oracle database (using XStream Out APIs) and to send real-time data changes to an Oracle database (using XStream In APIs). These data changes can be shared between Oracle databases and other systems, such as filesystems and non-Oracle databases. XStream is licensed via the Oracle GoldenGate product. You must purchase a license for this product before using the XStream APIs. Please contact your Oracle sales representative for additional information.

Restricted-Use Licensing

The following restricted-use licenses are included with Oracle Database 12c in the editions indicated:

- A restricted-use license for Oracle Identity Management Directory Services Plus component Oracle Internet Directory (OID) is included with all editions (except for Oracle Database Express Edition) if users use the Directory Naming feature to configure Oracle Net Services. OID may not be used or deployed for other uses.
- A restricted-use license for Oracle Application Server Containers for J2EE (OC4J) is included with all editions (except for Oracle Database Express Edition). This embedded version is provided solely to support Oracle Enterprise Manager (Database and Cloud Control), Advanced Queuing Servlet, Ultra Search, Application Express, and Warehouse Builder, and may not be used or deployed for other purposes.
- A restricted-use license for Oracle HTTP Server is included with all editions (except for Oracle Database Express Edition) when the HTTP Server is running on the same server as the database. Running Oracle HTTP server on a different server requires that other server be licensed to use the HTTP server, either through an Oracle Database license or an Oracle Application Server license.
- A restricted-use license for Oracle Application Express Listener is included with all editions (except for Oracle Database Express Edition) solely to support connectivity to Oracle Application Express, which may be installed in the Oracle Database. Running Oracle Application Express Listener on a different server does not require that that server be licensed to use the Oracle Database.

- Restricted-use licenses of Load Testing Accelerator for Oracle Database, Oracle Load Testing, and Oracle Load Testing Controller are included with Oracle Real Application Testing for use for Oracle Database testing and may not be used for application testing.

Changes in Product Licensing

Oracle Warehouse Builder Enterprise ETL Option

The following features, previously licensed with the Oracle Warehouse Builder ETL Option, are no longer licensed with the Oracle Database. Instead, they are licensed via the Oracle Data Integrator Enterprise Edition:

- Slowing Changing Dimensions (SCD) Type 2 and 3
- XML Files as a target
- Transportable ETL modules, multiple configurations, and pluggable mappings
- Operators for pluggable mapping, pluggable mapping input signature, pluggable mapping output signature
- Design Environment Support for RAC
- Target load ordering
- Seeded spatial and streams transformations
- Process Flow Activity templates
- Process Flow variables support
- Process Flow looping activities such as For Loop and While Loop
- Process Flow Route and Notification activities
- Metadata lineage and impact analysis
- Metadata change propagation
- Schedulable Mappings and Process Flows
- Metadata Extensibility
- Deployment to Discoverer EUL
- Deployment to Oracle BI Beans catalog

Options and Packs

This chapter describes the separately licensed Oracle Database options, management packs, and other products you can purchase to enhance the capabilities of Oracle Database in specific application environments. This chapter contains the following sections:

- [Oracle Database Options](#)
- [Oracle Management Packs](#)
- [Checking for Database Option and Management Pack Usage](#)
- [Other Oracle Products](#)

You may not use the options, packs, or products described below without separately purchased licenses. The fact that these options, packs, or products may be included in product CDs or downloads or described in documentation that you receive does not authorize you to use them without purchasing appropriate licenses.

Oracle Database Options

All the Oracle Database options can be purchased with Oracle Database Enterprise Edition. Oracle Real Application Clusters (Oracle RAC) is included with Oracle Database Standard Edition. You cannot purchase any options with Oracle Database Standard Edition One or Oracle Express Edition. The Personal Edition includes all options except Oracle RAC at no additional cost.

This section describes the following database options:

- [Oracle Active Data Guard](#)
- [Oracle Advanced Analytics](#)
- [Oracle Advanced Compression](#)
- [Oracle Advanced Security](#)
- [Oracle Database In-Memory](#)
- [Oracle Database Vault](#)
- [Oracle Label Security](#)
- [Oracle Multitenant](#)
- [Oracle On-Line Analytical Processing \(OLAP\)](#)
- [Oracle Partitioning](#)
- [Oracle RAC One Node](#)

- [Oracle Real Application Clusters \(Oracle RAC\)](#)
- [Oracle Real Application Testing](#)
- [Oracle Spatial and Graph](#)
- [Oracle TimesTen Application-Tier Database Cache](#)

Oracle Active Data Guard

Oracle Active Data Guard increases performance, availability, data protection, and return on investment wherever Data Guard is used for real-time data protection and availability. An Oracle Active Data Guard standby database can be used to offload a primary database of reporting, ad-hoc queries, data extracts, and backups, making it a very effective way to insulate interactive users and critical business tasks on the production system from the overhead of long-running operations. Oracle Active Data Guard provides read-only access to a physical standby database while it is synchronized with a primary database, enabling minimal latency between reporting and production data. Unlike other replication methods, Active Data Guard is very simple to use, transparently supports all datatypes, and offers very high performance with complete read consistency at the reporting database. Oracle Active Data Guard automatically repairs physical corruption on either the primary or standby database, increasing availability and maintaining data protection at all times. Oracle Active Data Guard 12c reduces downtime for Oracle Database upgrades and other database maintenance while avoiding error-prone manual procedures. Oracle Active Data Guard 12c Far Sync enables zero data loss disaster protection (DR) across any distance without impacting database performance. Oracle Active Data Guard 12c also includes Global Data Services to extend the concepts of automated service failover and workload management to globally distributed systems, and Application Continuity to provide transparent failover of in-flight transactions in Data Guard configurations that do not use Oracle Real Application Cluster (Oracle RAC).

The Active Data Guard option contains the following features:

- Physical Standby with Real-time Query
- Fast Incremental Backup on Physical Standby
- Automatic Block Repair
- Active Data Guard Far Sync
- Global Data Services
- Real-Time Cascade
- Application Continuity
- Rolling Upgrade using Active Data Guard

If a physical standby database in a Data Guard configuration has any of the above features enabled, then the Active Data Guard option must be licensed for every such physical standby, and also for the primary database.

Oracle Advanced Analytics

Oracle Advanced Analytics empowers data and business analysts to extract knowledge, discover new insights and make predictions—working directly with large data volumes in the Oracle Database. Oracle Advanced Analytics provides a combination of powerful in-database algorithms and open source R algorithms. Analytic capabilities are accessible via SQL and R languages, and through the SQL Developer extension or open-source R clients. Together, these features enhance the

database with a comprehensive range of analytical functionality for data mining, text mining and predictive analytics, summary and descriptive statistics, exploratory data analysis and graphics, comparative statistics, correlations, univariate and multivariate statistics, and advanced numerical computations.

Oracle Advanced Analytics comprises the following features:

- In-database data mining algorithms:
 - Model build (accessed via the `DBMS_DATA_MINING` package)
 - Data transformations (accessed via the `DBMS_DATA_MINING_TRANSFORM` package)
 - Model scoring (accessed via SQL Scoring functions)
 - Predictive Analytics (accessed via the `DBMS_PREDICTIVE_ANALYTICS` package)
- Oracle R Enterprise (integration with open-source R)
 - The Oracle R Enterprise R transparency layer: The transparency layer allows an R user to directly interact with database-resident data using R language constructs.
 - The Oracle R Enterprise statistics engine, a collection of statistical functions and procedures.
 - Embedded R: ORE can launch multiple R servers while the database manages data flows to enable parallel R processes running independently.
 - All Oracle R Enterprise functionality is invoked using the ORE package.

Oracle Advanced Compression

Oracle Advanced Compression provides comprehensive data compression and Information Lifecycle Management (ILM) capabilities for all types of data: structured/unstructured, backup, network, archive, and Data Guard Redo Transport traffic. To facilitate automated ILM, Heat Map and Automatic Data Optimization enable organizations to maintain system-generated data usage statistics, at the row and segment levels, and to set policies that implement data compression/movement automatically.

The Oracle Advanced Compression option contains the following features:

- Advanced Row Compression
- Advanced LOB Compression
- Advanced LOB Deduplication
- RMAN Backup Compression (`RMAN DEFAULT COMPRESS` does not require the Advanced Compression option)
- Data Pump Data Compression (`COMPRESSION=METADATA_ONLY` does not require the Advanced Compression option)
- Heat Map
- Automatic Data Optimization
- Data Guard Redo Transport Compression
- Advanced Network Compression
- Optimization for Flashback Data Archive History Tables
- Storage Snapshot Optimization

- Online Move Partition (to any compressed format)
- Exadata Flash Cache Compression: This feature can be enabled only on Exadata storage servers, and all database processors that access the Exadata storage servers must be licensed for Oracle Advanced Compression.
- Advanced Index Compression
- Hybrid Columnar Compression Row-Level Locking (Requires Exadata, Supercluster, ZFS, or FS1 storage)

Oracle Advanced Security

Oracle Advanced Security helps you protect sensitive information and comply with various privacy and compliance regulations including breach notification laws and the Payment Card Industry Data Security Standard (PCI-DSS) by enabling encryption inside the database that is transparent to applications and enabling redaction of sensitive data before it leaves the database.

Oracle Advanced Security provides two primary security features: Transparent Data Encryption and Data Redaction. Data Redaction is new in Oracle Advanced Security with the release of Oracle Database 12c and provides the ability to redact sensitive information such as credit card data and social security numbers before the information leaves the database and is displayed by applications. Transparent Data Encryption provides encryption of data stored in the database, exported from the database using DataPump, or disk-based backups using Oracle RMAN.

Oracle Advanced Security includes the following features:

- Transparent Data Encryption (TDE) for tablespaces and columns (including Oracle SecureFiles)
- DataPump Export File encryption
- RMAN backup encryption to disk
- TDE master key storage in an Oracle Wallet or external Hardware Security Module
- Data Redaction of sensitive data returned to applications
 - Full, Partial, Regular Expression, and Random techniques

Network encryption (native network encryption and SSL/TLS) and strong authentication services (Kerberos, PKI, and RADIUS) are no longer part of Oracle Advanced Security and are available in all licensed editions of all supported releases of the Oracle database.

Oracle Advanced Security includes a restricted-use license for the following Oracle Enterprise Manager features:

- Application Data Models (previously called Data Discovery and Modeling)
- Sensitive Column Types and Sensitive Data Discovery
- Application Accelerators

If you want to use the Oracle Enterprise Manager features listed above not solely for the purposes of Oracle Advanced Security, then you must purchase a full-use license for Oracle Data Masking and Subsetting Pack.

Oracle Database In-Memory

Oracle Database In-Memory allows any existing Oracle Database-compatible application to automatically and transparently take advantage of columnar in-memory processing, without additional programming or application changes.

Oracle Database In-Memory includes the following features:

- In-Memory Column Store
- Fault Tolerant In-Memory Column Store (Requires Exadata or Supercluster)
- In-Memory Aggregation

Note: The Oracle Database In-Memory option is available starting with Oracle Database 12c Release 1 (12.1.0.2).

Oracle Database Vault

Oracle Database Vault lets you control who, when, and where the database and application data can be accessed—helping protect your business against the most common security threats that target privileged user accounts or attempt to bypass applications. Enforcing separation of duties, even among administrators, Oracle Database Vault additionally serves as a powerful preventive control to help comply with today's stringent compliance and privacy requirements.

Oracle Database Vault option includes the following features:

- Realms
- Mandatory Realms
- Command Rules
- Privilege Analysis

Oracle Database Vault includes a restricted-use license for the following Oracle Enterprise Management features:

- Application Data Models (previously called Data Discovery and Modeling)
- Sensitive Column Types and Sensitive Data Discovery
- Application Accelerators

If you want to use the Oracle Enterprise Management features listed above not solely for the purposes of Oracle Database Vault, then you must purchase a full-use license for Oracle Data Masking and Subsetting Pack.

Oracle Label Security

Oracle Label Security provides sophisticated and flexible security based on row labels for fine-grained access control. This option employs labeling concepts used by government, defense, and commercial organizations to protect sensitive information and provide data separation. Oracle Identity Management Directory Services Plus, can be licensed separately to enable centralized management of Oracle Label Security policies and authorizations.

The Oracle Label Security option includes the following features:

- Label based access control (LBAC)
- Multi-level security (MLS)

- Label factors for Database Vault (Confidential, Sensitive)
- User label authorizations (Confidential, Sensitive: PII)
- Data labels (Sensitive: PII)

Oracle Label Security includes a restricted-use license for the following Oracle Enterprise Manager features:

- Application Data Models (previously called Data Discovery and Modeling)
- Sensitive Column Types and Sensitive Data Discovery
- Application Accelerators

If you want to use the Oracle Enterprise Manager features listed above not solely for the purposes of Oracle Label Security, then you must purchase a full-use license for Oracle Data Masking and Subsetting Pack.

Oracle Multitenant

Multitenant is the capability that enables an Oracle database to function as a multitenant container database (CDB) that includes one or more pluggable databases (PDBs). A PDB is a portable collection of schemas, schema objects, and nonschema objects that appears to an Oracle client as a non-CDB. All Oracle databases before Oracle Database 12c were non-CDBs. Multitenant brings these benefits:

- Very fast provisioning of a new database or of a copy of an existing database. Very fast redeployment, by unplug and plug, of an existing database to a new platform.
- Patch or upgrade the Oracle Database version for many databases quickly, and for the human cost of doing it once. Patch or upgrade by unplugging a PDB and plugging it into a different CDB at a later version.
- Consolidate many more PDBs onto a single platform than you can monolithic databases.

Oracle Multitenant includes the following feature:

- The ability to have up to 252 PDBs per multitenant container database

The multitenant architecture with one user-created pluggable database (single tenant) is available in all editions without the Multitenant Option.

Oracle On-Line Analytical Processing (OLAP)

The OLAP option to Oracle Database is a full-featured OLAP server embedded in Oracle Database Enterprise Edition. Oracle OLAP cube datatypes improve business intelligence tools and applications by providing excellent query performance, rich analysis, and fast incremental updates of data sets. OLAP cubes are easily queried by SQL-based business intelligence tools through cube-organized materialized views and OLAP cube views. Cube-organized materialized views provide an alternative summary management solution to table-based materialized views. As with a table-based materialized view, an OLAP cube is accessed by SQL-based tools transparently using the automatic SQL query rewrite feature of the materialized views. SQL-based tools can access both summary data and rich analytic content directly through OLAP cube views. Multidimensional OLAP tools can provide a full-dimensional OLAP experience using the Oracle OLAP multidimensional API to cubes. A single OLAP cube can service each of these types of applications.

The Oracle OLAP option includes the following features:

- OLAP Cube Definition, Storage, and Querying

- OLAP API and Metadata
- OLAP Cube Materialized Views
- Analytic Workspaces
- SQL Access to OLAP Cubes

Oracle Partitioning

Oracle Partitioning enhances the data management environment for OLTP, data mart, data warehouse, and content management applications by adding significant manageability, availability, and performance capabilities to large underlying database tables and indexes. Oracle Partitioning lets you store large tables as individually managed smaller pieces, while retaining a single application-level view of the data.

The Oracle Partitioning option includes the following features:

- Table Partitions and Subpartitions
- Global and Local Index Partitions and Subpartitions
- Sharded Queues
- Zone Maps (Available starting with Oracle Database 12c Release 1 (12.1.0.2); Requires Exadata or Supercluster)

Oracle RAC One Node

Oracle RAC One Node is the one-node version of Oracle Real Application Clusters (Oracle RAC). It enables customers to standardize on a single deployment model for all their database needs. Oracle RAC One Node makes the database highly available in the presence of computer hardware failures, software failures, or planned software maintenance events. In the event of failures, the database instance is restarted on an available server in the cluster and the client connections are moved to the new instance. Oracle RAC One Node can be online upgraded to full Oracle RAC (RAC license required) in order to scale to multiple servers.

Oracle RAC One Node includes the following features:

- Database Cold Failover to another node in the cluster in case of server or instance failure
- Online migration of the database instance to another server
- Support for online rolling upgrades of the database, grid infrastructure, and OS homes
- Online upgrade to Oracle Real Application Clusters
- Policy-managed Server Pools
- Quality of Service Management
- Application Continuity

Oracle Real Application Clusters (Oracle RAC)

Oracle Real Application Clusters (Oracle RAC) is a database computing environment that harnesses the processing power of multiple interconnected computers using clustering technology. Oracle RAC enables multiple servers to mount a single databases, providing unlimited scalability and high availability for all applications. Oracle RAC makes the database highly available in the presence of computer

hardware or software failure: in the event any computer in the cluster fails, the database continues to provide service on the surviving computers in the cluster. Oracle RAC provides scalable performance: as demand for database throughput grows, additional computers can be added to the database cluster with no downtime. Oracle RAC also supports a single-system image for ease of management.

Oracle Real Application Clusters includes the following features:

- All the capabilities of Oracle RAC One Node
 - With the exception of "Online migration of the database instance to another server"
- Real Application Clusters scaling to multiple servers
- Connection Load Balancing
- Fast Connection Failover
- Hot Cluster Failover

Oracle Real Application Testing

The Oracle Real Application Testing option comprises a suite of features that help protect database applications from undesirable impact of routine changes such as hardware/software upgrades, configuration changes, platform migrations, and so forth. These features enable comprehensive testing of real-world applications so that any issues resulting from system changes are fully identified and addressed during testing, and unexpected problems encountered when a change is finally made in the production systems are minimized.

The Oracle Real Application Testing option includes the following features:

- Database Replay
- SQL Performance Analyzer (SPA)
- SQL Tuning Sets (STS)

In order to use the features listed above, you must purchase licenses for the Oracle Real Application Testing option, with one exception: SQL Tuning Sets (STS) can be used if you have licensed either Oracle Tuning Pack or Oracle Real Application Testing. Oracle Real Application Testing functionality can be accessed by Enterprise Manager as well as through the database server command-line APIs. The use of either interface requires an Oracle Real Application Testing option license.

In addition, the use of the following reports requires a license of Oracle Diagnostics Pack:

- Capture and Replay ASH Analytics Reports
- Compare Period ADDM Report
- Replay Compare Period Report

Command-Line APIs

The Database Replay feature can also be accessed by way of database server APIs and command-line interfaces:

- `DBMS_WORKLOAD_CAPTURE` package is part of the Oracle Real Application Testing option
- `DBMS_WORKLOAD_REPLAY` package is part of the Oracle Real Application Testing option

The use of the `DBMS_WORKLOAD_REPLAY.COMPARE_PERIOD_REPORT()` function also requires a license of Oracle Diagnostics Pack.

The SQL Performance Analyzer feature can also be accessed by way of database server APIs and command-line interfaces:

- `DBMS_SQLPA` package is part of Oracle Real Application Testing option

SQL Tuning Sets can also be accessed by way of database server APIs and command-line interfaces. The following subprograms, part of the `DBMS_SQLTUNE` package, provide an interface to manage SQL tuning sets and are part of the Oracle Real Application Testing option:

- `ADD_SQLSET_REFERENCE`
- `CAPTURE_CURSOR_CACHE_SQLSET`
- `CREATE_SQLSET`
- `CREATE_STGTAB_SQLSET`
- `DELETE_SQLSET`
- `DROP_SQLSET`
- `LOAD_SQLSET`
- `PACK_STGTAB_SQLSET`
- `REMOVE_SQLSET_REFERENCE`
- `SELECT_CURSOR_CACHE`
- `SELECT_SQLSET`
- `SELECT_WORKLOAD_REPOSITORY`
- `UNPACK_STGTAB_SQLSET`
- `UPDATE_SQLSET`

The Oracle Real Application Testing license is required on both capture and replay systems for Database Replay and is charged by the total number of CPUs on those systems.

Oracle Spatial and Graph

The Oracle Spatial and Graph option includes advanced features for spatial data and analysis and for physical, network, and social graph applications.

Spatial Features

The geospatial data features support complex geographic information systems (GIS) applications, enterprise applications, and location-based services applications, augmenting the Oracle Database Locator feature, which provides storage, analysis, and indexing of 2D location data accessible through SQL and standard programming languages.

These advanced spatial features include:

- `SPATIAL_VECTOR_ACCELERATION` to significantly improve 2D and 3D spatial vector query performance
- Classes in packages other than the `oracle.spatial.geometry` (`sdoapi.jar`) and `oracle.spatial.util` (`sdoutil.jar`) packages of the Spatial Java API
- Linear Referencing System (LRS) support

- GeoRaster Storage, Indexing, and Querying
- Network Data Model
- Topology Data Model
- Spatial analysis and mining subprograms (SDO_SAM package)
- Spatial Routing Engine
- Geocoding Engine
- Spatial Web Services including OpenLS support, including support for geocoding, mapping, business directory (Yellow Pages), and driving directions (routing) services, Web feature service (WFS) support (SDO_WFS_PROCESS and SDO_WFS_LOCK packages), and Catalog services for the Web (CSW) support (SDO_CSW_PROCESS package)
- 3-D Geometry, Surface, Triangulated irregular network (TIN), and Point Cloud Storage, Indexing, and Querying

Note: Oracle Locator, a feature of Oracle Database 12c, includes the spatial vector geometry type, spatial indexing and operators, and a limited set of spatial functions. The list of functions included in Locator can be found in Appendix B of *Oracle Spatial and Graph Developer's Guide*.

Graph Features

The graph database features include two graph models:

- A network data model (NDM) graph to model and analyze link-node graphs to represent physical and logical networks used in transportation, utilities and telco
- A semantic RDF graph to model and analyze data represented as triples for social network, linked data, and other semantic applications

The Network Data Model graph features include:

- A storage model to represent graphs and networks in link and node tables
- Java APIs to perform analysis in memory
- Numerous graph analysis functions including shortest path, within cost, nearest neighbors, traveling salesman, spanning tree, and more
- Explicit storage and connectivity of the graph with link- and node-level attributes
- Support for directed and undirected graphs with or without cost

The RDF Semantic Graph features include:

- Graph relationships represented as triples in compressed, partitioned tables
- Indexing, querying, and ontology management
- RDFS, OWL, and user-defined inferencing (parallel, batch, and incremental)
- Support for SPARQL 1.1 and mixed SPARQL and SQL queries
- Enhanced Open Source Tools including Jena, Sesame, Joseki Web Services

Note: The RDF Semantic Graph features require the Oracle Partitioning option.

Oracle TimesTen Application-Tier Database Cache

Oracle TimesTen Application-Tier Database Cache enables you to improve application transaction response time by caching a performance critical subset of tables from an Oracle Database to the application tier. Applications perform read/write operations on the cache tables using standard SQL with automatic persistence, transactional consistency, and data synchronization with the Oracle database.

Oracle TimesTen Application-Tier Database Cache includes the following features:

- Data access using PL/SQL, JDBC, ODBC, ttClasses, OCI, and Pro*C/C++ interfaces
- Transaction Log API (XLA) for change notification
- Multi-node Cache Grid
- Automatic data synchronization with the Oracle database
- Transactional replication between the in-memory cache databases
- Automated failure detection and database failovers
- TimesTen Extension for Oracle SQL Developer
- TimesTen Plug-in for Oracle Enterprise Manager

Oracle Management Packs

The sections that follow describe the Oracle management packs. The management packs can be purchased only with Enterprise Edition. The features in these packs are accessible through Oracle Enterprise Manager, Desktop Widgets, and APIs provided with Oracle Database software.

This section describes the following management packs:

- [Oracle Cloud Management Pack for Oracle Database](#)
- [Oracle Data Masking and Subsetting Pack for Oracle and Non-Oracle Databases](#)
- [Oracle Database Lifecycle Management Pack for Oracle Database](#)
- [Oracle Diagnostics Pack](#)
- [Oracle Tuning Pack](#)

Oracle Cloud Management Pack for Oracle Database

Oracle Cloud Management Pack for Oracle Database helps to set up a Database Cloud and operate the Database as a Service model.

Features

Some of the features provided by this pack are:

- Database-as-a-Service comprising self-service database provisioning on physical or virtual infrastructure
- DBaaS Rapid Start Kit allowing users to set up and configure Enterprise Manager Cloud Control 12c in under a minute.
- Pluggable Database-as-a-Service (PDBaaS) providing self-service provisioning on a pool of multitenant container databases (CDBs).

- Support shared server, shared cluster, and shared database (Schema-as-a-Service) deployment models
- Virtual assembly provisioning. For example, if there is an assembly topology of three VMs (two WebLogic Server-managed servers and one database), you will need both packs to cover the respective tiers.
- Snap Clone, a fast, storage efficient way of cloning Oracle databases
- Full clones using RMAN backups
- Role based access and resource control through quotas and retirement policies
- Schedule- and performance-based resource management policies
- Metering and chargeback based on fixed cost, utilization metrics and configuration parameters of the database
- Programmatic access to the Self-Service Portal
- Blueprint driven orchestration of cloud operations

Prerequisites

Oracle Cloud Management Pack for Oracle Database requires [Oracle Database Lifecycle Management Pack for Oracle Database](#).

Licensed Links

Starting on the Enterprise Summary home page, the following licensed pages and links of this pack apply:

- Click the **Enterprise** menu. Select **Cloud**, then **Infrastructure Home**.
- Click the **Enterprise** menu. Select **Cloud**, then **Infrastructure Request Dashboard**.
- Click the **Enterprise** menu. Select **Cloud**, then **Infrastructure Policies**.
- Click the **Enterprise** menu. Select **Cloud**, then **Middleware and Database Home**.
- Click the **Enterprise** menu. Select **Cloud**, then **Middleware and Database Request Dashboard**.
- Click the **Enterprise** menu. Select **Cloud**, then **Self Service Portal**.
- Click the **Enterprise** menu. Select **Cloud**, then **Service Instances**.
- Click the **Enterprise** menu. Select **Chargeback**.
- Click the **Enterprise** menu. Select **Provisioning and Patching**, then **Database Provisioning**. In the Database Provisioning page, in the Related Links section of the left menu pane, click **Provision Pluggable Databases**. Next, from the PDB Operations section, select **Create New Pluggable Databases**. Click **Launch**, and from Pluggable Database Creation Options, select **Clone an Existing PDB -> Snap Clone**.
- On the Multitenant container database's home page, from the Oracle Database menu, select **Provisioning**, then **Provision Pluggable Database**. Next, from the PDB Operations section, select **Create New Pluggable Databases**. Click **Launch**, and from Pluggable Database Creation Options, select **Clone an Existing PDB -> Snap Clone**.
- Click the **Setup** menu. Select **Cloud**. Select **Infrastructure**.
- Click the **Setup** menu. Select **Cloud**. Select **Database**.

- Click the **Setup** menu. Select **Provisioning and Patching**, then **Storage Registration**.

Licensed APIs

API	Description
Assembly Operations	Any POST/GET/PUT/DELETE on /em/cloud/iaas URI space for Resources Assembly Template and Assembly Instance
DBaaS Operations	Any POST/GET/PUT/DELETE on /em/cloud/dbaas URI space
DBaaS Setup Operations	Any POST/GET/PUT/DELETE on /em/websvcs/restful/extws/cloudservices/admin/cfw/v1 URI space.

Licensed Command Line Interface Verbs

The following Enterprise Manager Command Line Interface (CLI) verbs are licensed as part of Oracle Cloud Management Pack for Oracle Database. These verbs operate on a database pool.

Licensed Command Line Interface (CLI) Verbs

add_pool_members	get_pool_capacity_summary_data
create_charge_item	get_pool_constraints
create_dbaas_quota	get_pool_criteria
create_dbprofile	get_pool_detail
create_pool	get_pool_instance_data
create_service_template	get_pool_target_type
delete_charge_item	get_pools
delete_dbaas_quota	get_service_template
delete_pool	list_charge_item_candidates
delete_service_template	remove_pool_members
get_dbaas_quota	update_dbaas_quota
get_dbaas_request_settings	update_dbaas_request_settings
get_metering_data	update_pool
get_pool_capacity_data	

Licensed Views and Tables

The following objects within the repository schema are licensed under Oracle Cloud Management Pack for Oracle Database:

- Tables starting with EMCT_CBA
- Views starting with EMCT\$CBA
- The views:
 - GP_EMCT_CBA_TARGET_CHARGE
 - MGMT\$EMCT_CBA_CHARGE_DAILY

- MGMT\$EMCT_CBA_CHARGE_HOURLY

Licensed Chargeback Reports

The following BI Publisher reports are licensed under Oracle Cloud Management Pack for Oracle Middleware. Also, any report created using the "create-like" feature of BI publisher referring the following reports, falls under this license.

- Charge Trend Report
- Charge Summary Report
- Usage Trend Report
- Usage Summary Report

Oracle Data Masking and Subsetting Pack for Oracle and Non-Oracle Databases

Oracle Data Masking and Subsetting Pack facilitates the creation of production like data for non-production environments by replacing production data with fictitious yet realistic values. Generation of the fictitious data can be performed during export or on a separate staging server. The Subsetting functionality provides the ability to mask a portion of the original data. Subsetting can also be used without masking to extract a portion of the original data

Features

Oracle Data Masking and Subsetting Pack includes the following components and features:

- Application Data Modeling
- Data Masking Formats Library
- Data Masking Definitions
- Data Subsetting Definitions
- Application Data Modeling, Data Masking and Subsetting Enterprise Manager Command Line Interface (CLI) verbs
- Application Data Modeling accelerator for select versions of Oracle E-Business Suite
- Application Data Modeling accelerator for select versions of Oracle Fusion Applications
- Data Masking templates for select versions of Oracle Fusion Applications
- Data Masking templates for select versions of Oracle E-Business Suite

Oracle Data Masking and Subsetting Pack for non-Oracle Databases includes the following restricted-use licenses:

- Database Gateway for APPC
- Database Gateway for DRDA
- Database Gateway for Informix
- Database Gateway for SQLServer
- Database Gateway for Sybase
- Database Gateway for Teradata

If you want to use the Oracle Database Gateways listed above not solely for the purposes of Oracle Data Masking and Subsetting Pack, then you must purchase full-use licenses for the Oracle Database Gateways. When using Oracle Data Masking and Subsetting Pack for non-Oracle databases, the Oracle Database Gateways stage the data in a separately licensed Oracle database. Oracle Data Masking and Subsetting functionality cannot be executed directly against the non-Oracle database.

Oracle Data Masking and Subsetting Pack must be licensed for:

1. The source database server, i.e., the databases from which the data originates.
2. The staging database server on which masking and subsetting operations are executed.

Licensed Links

The following are the licensed pages and links for Oracle Data Masking and Subsetting Pack within Oracle Enterprise Manager.

Licensed Page/Link	How to Access
Application Data Models	<p>From the Enterprise Summary home page, click the Enterprise menu, then Quality Management, then Application Data Models.</p> <p>From the Oracle database or cluster database target home page, click the Security menu, then Application Data Models.</p> <p>All features, functions, links, buttons, and drill-downs on these menus are licensed as part of the Oracle Data Masking and Subsetting Pack.</p>
Data Masking Definitions	<p>From the Enterprise Summary home page, click the Enterprise menu, then Quality Management, then Data Masking Definitions.</p> <p>From the Oracle database or cluster database target home page, click the Security menu, then Data Masking Definitions.</p> <p>All features, functions, links, buttons, and drill-downs on these menus are licensed as part of the Oracle Data Masking and Subsetting Pack.</p>
Data Masking Formats	<p>From the Enterprise Summary home page, click the Enterprise menu, then Quality Management, then Data Masking Formats.</p> <p>All features, functions, links, buttons, and drill-downs on these menus are licensed as part of the Oracle Data Masking and Subsetting Pack.</p>
Data Subset Definitions	<p>From the Enterprise Summary home page, click the Enterprise menu, then Quality Management, then Data Subset Definitions.</p> <p>From the Oracle database or cluster database target home page, click the Schema menu, then Data Subsetting.</p> <p>All features, functions, links, buttons, and drill-downs on these menus are licensed as part of the Oracle Data Masking and Subsetting Pack.</p>

Note:

1. Oracle Data Masking and Subsetting Pack incorporates the previous Oracle Data Masking Pack and Oracle Test Data Management Pack.
2. Application Data Modeling was previously called Data Discovery and Modeling.

Oracle Database Lifecycle Management Pack for Oracle Database

The Database Lifecycle Management Pack is a comprehensive solution that helps database, system, and application administrators automate the processes required to manage the Oracle Database Lifecycle. It eliminates manual and time consuming tasks related to discovery, initial provisioning, patching, configuration management, and

ongoing change management. In addition, the Database Lifecycle Management pack provides compliance frameworks for reporting and management of industry and regulatory compliance standards.

The Database Lifecycle Management covers the entire lifecycle of the databases, including:

- Discovery and Inventory tracking: the ability to discover your assets and track them.
- Initial provisioning: the ability to rollout databases in minutes.
- Ongoing Change Management: end-to-end management of patches, upgrades, schema and data changes.
- Configuration Management: track inventory, configuration drift, and detailed configuration search.
- Compliance Management: reporting and management of industry and regulatory compliance standards.

The Database Lifecycle Management pack is also a prerequisite for the Cloud Management Pack for Oracle Database.

Features

The Database Lifecycle Management Pack for Oracle Database includes the following features, which you can use after purchasing a license:

- Change Activity Plans
- Client system analyzer
- Compliance
- Configuration Collection Extensibility
- Configuration Compare
- Configuration History
- Configuration Instance Browser
- Configuration Save
- Configuration Search
- Configuration Topology
- Copy Objects
- Database Patching
- Database Provisioning
- Database Upgrade
- Disaster Recovery via Site Guard
- Enterprise Data Governance
- File Synchronization
- Notifications
- Pluggable Database (PDB) Clone
- PDB Create/Plug/Unplug (Multiple target operations or performed using a customized deployment procedure.)

- PDB Migrate
- RAC Scale Back
- RAC Scale Out
- Real-time configuration change detection
- Real-time schema change detection
- Schema and Data Comparisons
- Schema and Data Synchronization
- Schema Change Plans
- Schema Comparisons
- User Defined Deployment Procedures (UDDP)

Licensed Parameters

The `init.ora` parameter `ENABLE_DDL_LOGGING` is licensed as part of the Database Lifecycle Management Pack when set to `TRUE`. When set to `TRUE`, the database reports schema changes in real time into the database alert log under the message group `schema_ddl`. The default setting is `FALSE`.

Licensed Links

The following Licensed Links, features and functions apply only to the Oracle Database target and the associated host an Oracle Database is deployed on. For management on non-Oracle Database targets, you must purchase the appropriate management pack.

The following are the licensed pages and links for the Database Lifecycle Management Pack for Oracle Database:

Licensed Page/Link	How to Access
Database Provisioning Procedures	<p>From the Enterprise Manager home page, click the Enterprise menu, Provisioning and Patching, then Procedure Library. All Procedures that Clone and Provision a Database are licensed with the Database Lifecycle Management Pack.</p> <p>From the Enterprise Manager home page, click the Enterprise menu, Provisioning and Patching, then Database Provisioning. All features, functions, links, buttons, and drill-downs on this menu are licensed as part of the Database Lifecycle Management Pack.</p> <p>From the Oracle database or cluster database target home page, click the Oracle Database menu, then Provisioning. All features, functions, links, buttons, and drill-downs on this menu are licensed as part of the Database Lifecycle Management Pack.</p>
Database Upgrade	<p>From the Enterprise Manager home page, click the Enterprise menu, Provisioning and Patching, then Procedure Library. All Procedures that Upgrade a Database are licensed with the Database Lifecycle Management Pack.</p> <p>From the Oracle database or cluster database target home page, click the Oracle Database menu, then Provisioning. All features, functions, links, buttons, and drill-downs on this menu are licensed as part of the Database Lifecycle Management Pack.</p>
User Defined Deployment Procedures (UDDP)	<p>From the Enterprise Manager home page, click the Enterprise menu, Provisioning and Patching, then Procedure Library. On the Provisioning Library page, from the list of actions, the Create New option is licensed as part of the Database Lifecycle Management Pack.</p>

Licensed Page/Link	How to Access
RAC Scale Out and Scale Back	<p>From the Enterprise Manager home page, click the Enterprise menu, Provisioning and Patching, then Procedure Library. All Procedures that Extend or Scale a database or RAC are licensed with the Database Lifecycle Management Pack.</p> <p>From the Enterprise Manager home page, click the Enterprise menu, Provisioning and Patching, then Database Provisioning. All features, functions, links, buttons, and drill-downs on this menu are licensed as part of the Database Lifecycle Management Pack.</p> <p>From the Oracle cluster database target home page, click the Oracle Database menu, then Provisioning. All features, functions, links, buttons, and drill-downs on this menu are licensed as part of the Database Lifecycle Management Pack.</p>
Database Patching	From the Enterprise Manager home page, click the Enterprise menu, Provisioning and Patching , then Procedure Library . All Procedures that patch a database, Clusterware or Real Application Clusters are licensed with the Database Lifecycle Management Pack.
Offline Patching	From the Enterprise Manager home page, click the Setup menu, Provisioning and Patching , then Offline Patching . From the Online and Offline Setting tab, the Connection, Offline setting is licensed with the Database Lifecycle Management Pack.
Configuration Instance Browser	<p>From the Enterprise Manager home page, click on Targets, Databases, and select a Database. From the database home page, click on Oracle Database, Configuration. All features, functions, links, buttons, and drill-downs on this menu, excluding Topology, are licensed as part of the Database Lifecycle Management Pack.</p> <p>If the Target Home Page is accessed directly or by other paths:</p> <p>From the database home page, click on Oracle Database, Configuration. All features, functions, links, buttons, and drill-downs on this menu, excluding Topology, are licensed as part of the Database Lifecycle Management Pack.</p>
Configuration Search	From the Enterprise Manager home page, click the Enterprise menu, then Configuration and Search . All features, functions, links, buttons, and drill-downs on this page are licensed as part of the Database Lifecycle Management Pack.
Configuration History	From the Enterprise Manager home page, click the Enterprise menu, then Configuration and History . All features, functions, links, buttons, and drill-downs on this page are licensed as part of the Database Lifecycle Management Pack.
Configuration Compare	From the Enterprise Manager home page, click the Enterprise menu, then Configuration and Compare . All features, functions, links, buttons, and drill-downs on this page are licensed as part of the Database Lifecycle Management Pack.
Configuration Save	From the Enterprise Manager home page, click the Enterprise menu, then Configuration and Save . All features, functions, links, buttons, and drill-downs on this page are licensed as part of the Database Lifecycle Management Pack.
Configuration Topology	<p>From the Target Home Page, click on Oracle Database, Configuration, Topology. In the View Dropdown, Used By is licensed as part of the Database Lifecycle Management Pack.</p> <p>From the Target Home Page, click on Oracle Database, Configuration, Topology, Customization. All features, functions, links, buttons, and drill-downs on this menu are licensed as part of the Database Lifecycle Management Pack.</p> <p>If the Target Home Page is accessed directly or by other paths:</p> <ul style="list-style-type: none"> ▪ From the Target Home Page, click on Oracle Database, Configuration, Topology. In the View drop-down, Used By is licensed as part of the Database Lifecycle Management Pack. ▪ From the Target Home Page, click on Oracle Database, Configuration, Topology, Customization. All features, functions, links, buttons, and drill-downs on this menu are licensed as part of the Database Lifecycle Management Pack.

Licensed Page/Link	How to Access
Configuration Collection Extensibility	From the Enterprise Manager home page, click the Enterprise menu, then Configuration and Custom . All features, functions, links, buttons, and drill-downs on this page are licensed as part of the Database Lifecycle Management Pack.
File Synchronization	When viewing comparison results differences as described in the Configuration Compare feature, select the configuration specification in the tree on the left. Select Enable File Synchronization . All features, functions, links, buttons, and drill-downs on this page are licensed as part of the Database Lifecycle Management Pack for Oracle Database.
Schema Comparison	<p>From the Enterprise Manager home page, click on Targets, Databases, and then select a Database. From the database home page, click on Schema, Change Management. All features, functions, links, buttons, and drill-downs on this menu are licensed as part of the Database Lifecycle Management Pack.</p> <p>If the Target Home Page is accessed directly or by other paths:</p> <p>From the database home page, click on Schema, Change Management. All features, functions, links, buttons, and drill-downs on this menu are licensed as part of the Database Lifecycle Management Pack.</p>
Schema and Data Comparisons	<p>From the Enterprise Manager home page, click on Targets, Databases, and then select a Database. From the database home page, click on Schema, Change Management. All features, functions, links, buttons, and drill-downs on this menu are licensed as part of the Database Lifecycle Management Pack.</p> <p>If the Target Home Page is accessed directly or by other paths:</p> <p>From the database home page, click on Schema, Change Management. All features, functions, links, buttons, and drill-downs on this menu are licensed as part of the Database Lifecycle Management Pack.</p>
Schema and Data Synchronization	<p>From the Enterprise Manager home page, click on Targets, Databases, and then select a Database. From the database home page, click on Schema, Change Management. All features, functions, links, buttons, and drill-downs on this menu are licensed as part of the Database Lifecycle Management Pack.</p> <p>If the Target Home Page is accessed directly or by other paths:</p> <p>From the database home page, click on Schema, Change Management. All features, functions, links, buttons, and drill-downs on this menu are licensed as part of the Database Lifecycle Management Pack.</p>
Copy Objects	<p>From the Enterprise Manager home page, click on Targets, Databases, and then select a Database. From the database home page, click on Schema, Change Management. All features, functions, links, buttons, and drill-downs on this menu are licensed as part of the Database Lifecycle Management Pack.</p> <p>If the Target Home Page is accessed directly or by other paths:</p> <p>From the database home page, click on Schema, Change Management. All features, functions, links, buttons, and drill-downs on this menu are licensed as part of the Database Lifecycle Management Pack.</p>
Real-Time Schema Change Detection	<p>From the Enterprise Manager home page, click on Targets, Databases, and then select a Database. From the database home page, click on Schema, Change Management. All features, functions, links, buttons, and drill-downs on this menu are licensed as part of the Database Lifecycle Management Pack.</p> <p>If the Target Home Page is accessed directly or by other paths:</p> <p>From the database home page, click on Schema, Change Management. All features, functions, links, buttons, and drill-downs on this menu are licensed as part of the Database Lifecycle Management Pack.</p>
Real-time Configuration Change Detection and Compliance	From the Enterprise Manager home page, click the Enterprise menu and Compliance . All features, functions, links, buttons, and drill-downs associated with the Library, Results and Real-Time Observations pages are licensed as part of the Database Lifecycle Management Pack.

Licensed Reports

The following reports are part of the Database Lifecycle Management Pack for Oracle Database. All reports in each of these sections are licensed as part of this pack. To access the reports go to the Enterprise Manager home page, click the Reports, Information Publisher Reports or BI Publisher Enterprise Reports.

The following reporting areas, reports, and sub-reports under Information Publisher Reports are licensed as part of the Database Lifecycle Management Pack:

- Compliance
- Deployment and Configuration
- Sample Host reports, Configuration Reports
- Security

The following reporting areas, reports and sub-reports under BI Publisher Enterprise Reports are licensed as part of the Database Lifecycle Management Pack:

- Compliance
- Deployment and Configuration
- Sample Host reports, Configuration Reports
- Security

Additional Licensed Features

With the purchase of the Database Lifecycle Management Pack for Oracle Database, you also are entitled to the features described in the following sections. These features are restricted to the Oracle Database targets in the Oracle Database Home and the Platform (hardware and operating system) for the CPUs you have licensed.

- Application Configuration Console
- The `oplan` Utility (The basic OPlan feature is free for everyone that has an Oracle Support contract. Use of OPlan metadata to drive orchestration logic from either Enterprise Manager or custom/third-party scripts is part of the Database Lifecycle Management Pack for Oracle Database.)
- Migrate to ASM
- Self Update

Licensed Command Line Interface Verbs

The following Enterprise Manager Command Line Interface (CLI) verbs are licensed as part of the Database Lifecycle Management Pack:

Licensed Command Line Interface (CLI) Verbs

<code>associate_cs_targets</code>	<code>get_oms_config_property</code>
<code>clone_database</code>	<code>get_procedure_types</code>
<code>config_compare</code>	<code>get_procedure_xml</code>
<code>config_db_service_target</code>	<code>get_procedures</code>
<code>configure_log_archive_locations</code>	<code>get_retry_argument</code>
<code>confirm_instance</code>	<code>get_saved_configs</code>
<code>create_database</code>	<code>ignore_instance</code>

Licensed Command Line Interface (CLI) Verbs

describe_instance	import_compliance_object
describe_procedure_input	list_oms_config_properties
disable_config_history	remove_cs_target_association
enable_config_history	reschedule_instance
export_compliance_group	resume_instance
export_compliance_standard_rule	run_config_search
export_facet	save_procedure
export_standard	set_config_history_retention_period
fix_compliance_state	stop_instance
get_config_searches	submit_procedure
get_config_templates	suspend_instance
get_executions	update_and_retry_step
get_instance_data	update_procedure_input
get_instance_status	upgrade_database
get_instances	

Licensed Repository Views

The following repository views are part of the Database Lifecycle Management Pack for Oracle Database:

Compliance Views

MGMT\$CCC_ALL_OBS_BUNDLES	MGMT\$CS_HA_INFO
MGMT\$CCC_ALL_OBSERVATIONS	MGMT\$CS_HIERARCHY
MGMT\$CCC_DIAG_ANALYTICS	MGMT\$CS_KEYWORD
MGMT\$CCC_DIAG_QUEUEBACKLOG	MGMT\$CS_RQS_HIERARCHY
MGMT\$COMPLIANCE_STANDARD	MGMT\$CS_RULE_ATTRS
MGMT\$COMPLIANCE_STANDARD_GROUP	MGMT\$CS_RULE_EVAL_SUMMARY
MGMT\$COMPLIANCE_STANDARD_RULE	MGMT\$CS_RULEFOLDER
MGMT\$COMPOSITE_CS_EVAL_SUMMARY	MGMT\$CS_TARGET_ASSOC
MGMT\$CS_ASM_DISKGRP_SETTINGS	MGMT\$CS_TGT_ASSOC_TXF_REQ
MGMT\$CS_DB_CONTROL_FILE_COUNT	MGMT\$CSG_HIERARCHY
MGMT\$CS_DB_INIT_PARAMS	MGMT\$CSG_SUBGROUP
MGMT\$CS_DB_RBS_IN_SYSTEM	MGMT\$CSR_CURRENT_VIOLATION
MGMT\$CS_DB_REC_SEG_SETTINGS	MGMT\$CSR_TARGET_ASSOC
MGMT\$CS_DB_REC_TS_SETTINGS	MGMT\$CSR_VIOLATION_CONTEXT
MGMT\$CS_DB_REC_USER_SETTINGS	MGMT\$CSRF_TARGET_ASSOC
MGMT\$CS_DB_REDO_LOG_COUNT	MGMT\$EM_CS_RULE_EVENT_ERROR
MGMT\$CS_DB_REDO_LOGS	MGMT\$EM_RULE_VIOL_CTXT_DEF

Compliance Views

MGMT\$CS_DB_TABLESPACES	MGMT\$ICS_TARGET_ASSOC
MGMT\$CS_DB_TBSP_SEGSPACE_MGMT	MGMT\$REPO_RULE_CHK_DETAILS
MGMT\$CS_EVAL_SUMMARY	MGMT\$REPOSITORY_RULE_BIND_VARS
MGMT\$CS_FEATURE_USAGE	MGMT\$REPOSITORY_RULE_PARAMS
MGMT\$CS_GROUP_EVAL_SUMMARY	MGMT\$RULE_KEYWORD
MGMT\$CS_GROUP_KEYWORD	

Provisioning and Patching Views

EM\$PROV_APPTYPES	EM\$PROVAPP_TAG_PROPERTIES
EM\$PROVAPP_METADATA	EM\$PROVAPP_TAGS
EM\$PROVAPP_METADATA_VERSION	MGMT\$PA_RECOM_METRIC_SOURCE

Patching Views

GC\$EM_PC_PLAN_PATCHES	MGMT\$ARU_PRODUCT_RELEASE_MAP
GC\$EM_PC_PLANS	MGMT\$ARU_PRODUCTS
GC\$EM_PC_PLAN_TARGETS	MGMT\$ARU_RELEASES
GC_PC_EXECUTION_INSTANCES	MGMT\$ARU_TARGETS
GC_PC_PLAN_ANALYSIS_RS	MGMT\$PA_AFFTED_HOST_GUID_OH
GC_PC_PLAN_REMEDY	MGMT\$PA_AFFTED_HOST_OH
GC_PC_PLAN_REMEDY_DETAILS	MGMT\$PA_AFFTED_TARGETS
GC_PC_PLAN_USERS	MGMT\$PA_FINAL_PATCH_LIST
GC_PC_TARGETS	MGMT\$PA_TARGET_MAPPING
MGMT\$APPLIED_PATCHES	MGMT\$PR_APPL_PATCHES_TO_OH
MGMT\$APPLIED_PATCHSETS	MGMT\$PR_APPL_PATCHES_TO_OH_TGT
MGMT\$ARU_FAMILY_PRODUCT_MAP	MGMT\$PR_HOME_INFO
MGMT\$ARU_LANGUAGES	MGMT\$PR_HOMES_AFFECTED_COUNT
MGMT\$ARU_PATCH_RECOMMENDATIONS	MGMT\$RECOM_METRIC_SOURCE
MGMT\$ARU_PLATFORMS	

Configuration Views

GC\$ECM_COMP_PROPERTIES	MGMT\$DB_INIT_PARAMS
GC\$ECM_CONFIG_SUMMARY	MGMT\$DB_LICENSE
GC\$ECM_CURR_CONFIG	MGMT\$DB_OPTIONS
GC\$ECM_CURR_CONFIG_FLAT_MEMS	MGMT\$DB_REDOLOGS
GC\$ECM_CURR_CONFIG_SNAPSHOTS	MGMT\$DB_ROLLBACK_SEGS
GC\$ECM_CURR_TARGET_SNAPSHOTS	MGMT\$DB_SGA
GC\$ECM_DATA_RETENTION_TIME	MGMT\$DB_TABLESPACES

Configuration Views

GC\$ECM_GEN_SNAPSHOT	MGMT\$DB_TABLESPACES_ALL
GC\$ECM_SAVED_CONFIG	MGMT\$ECM_CMP_JOB_LAST_RESULTS
GC\$ECM_SAVED_CONFIG_FLAT_MEMS	MGMT\$ECM_CMP_JOBS
GC\$ECM_SAVED_CONFIG_SNAPSHOTS	MGMT\$ECM_CMP_RPT_CCS_DS
GC\$ECM_SAVED_CONFIG_TARGETS	MGMT\$ECM_CMP_RPT_CCS_DS_DTLS
GC\$ECM_SAVED_TARGET_SNAPSHOTS	MGMT\$ECM_CMP_RPT_CCS_PD_ALL
MGMT\$CCS_DATA	MGMT\$ECM_CMP_RPT_CCS_PD_DIFFS
MGMT\$CCS_DATA_SOURCE	MGMT\$ECM_CMP_RPT_CI_DIFFS
MGMT\$CCS_DATA_SOURCE_VISIBLE	MGMT\$ECM_CMP_VISIBLE_CONFIGS
MGMT\$CCS_DATA_VISIBLE	MGMT\$ECM_CURRENT_SNAPSHOTS
MGMT\$DB_CONTROLFILES	MGMT\$ECM_VISIBLE_SNAPSHOTS
MGMT\$DB_DATAFILES	MGMT\$SERVICETAG_INSTANCES
MGMT\$DB_DBNINSTANCEINFO	MGMT\$SERVICETAG_REGISTRY
MGMT\$DB_FEATUREUSAGE	MGMT\$UNPATCHABLE_DB_TARGETS

Oracle Home Patching Views

MGMT\$APPLIED_PATCHES	MGMT\$OH_DEP_HOMES
MGMT\$APPLIED_PATCHSETS	MGMT\$OH_FILE
MGMT\$APPL_PATCH_AND_PATCHSET	MGMT\$OH_HOME_INFO
MGMT\$CPF_ADVISORY_INFO	MGMT\$OH_INSTALLED_TARGETS
MGMT\$CPF_HOMES_INFO	MGMT\$OH_INV_SUMMARY
MGMT\$CPF_PATCH_INFO	MGMT\$OH_PATCH
MGMT\$EM_HOMES_PLATFORM	MGMT\$OH_PATCHED_COMPONENT
MGMT\$HOMES_AFFECTED	MGMT\$OH_PATCHED_FILE
MGMT\$OH_CLONE_PROPERTIES	MGMT\$OH_PATCH_FIXED_BUG
MGMT\$OH_COMP_DEP_RULE	MGMT\$OH_PATCHSET
MGMT\$OH_COMP_INST_TYPE	MGMT\$OH_VERSIONED_PATCHV
MGMT\$OH_COMPONENT	MGMT\$PATCH_ADVISORIES
MGMT\$OH_CRS_NODES	

Security Views

MGMT\$ESA_ALL_PRIVS_REPORT	MGMT\$ESA_EXMPT_ACCESS_REPORT
MGMT\$ESA_ANY_DICT_REPORT	MGMT\$ESA_KEY_OBJECTS_REPORT
MGMT\$ESA_ANY_PRIV_REPORT	MGMT\$ESA_OH_OWNERSHIP_REPORT
MGMT\$ESA_AUDIT_SYSTEM_REPORT	MGMT\$ESA_OH_PERMISSION_REPORT
MGMT\$ESA_BECOME_USER_REPORT	MGMT\$ESA_POWER_PRIV_REPORT
MGMT\$ESA_CATALOG_REPORT	MGMT\$ESA_PUB_PRIV_REPORT

Security Views

MGMT\$ESA_CONN_PRIV_REPORT	MGMT\$ESA_SYS_PUB_PKG_REPORT
MGMT\$ESA_CREATE_PRIV_REPORT	MGMT\$ESA_TABSP_OWNERS_REPORT
MGMT\$ESA_DBA_GROUP_REPORT	MGMT\$ESA_TRC_AUD_PERM_REPORT
MGMT\$ESA_DBA_ROLE_REPORT	MGMT\$ESA_WITH_ADMIN_REPORT
MGMT\$ESA_DIRECT_PRIV_REPORT	MGMT\$ESA_WITH_GRANT_REPORT

Client Configuration Views

MGMT\$CSA_COLLECTIONS	MGMT\$CSA_HOST_OS_COMPONENTS
MGMT\$CSA_FAILED	MGMT\$CSA_HOST_OS_FILESYSTEMS
MGMT\$CSA_HOST_COOKIES	MGMT\$CSA_HOST_OS_PROPERTIES
MGMT\$CSA_HOST_CPUS	MGMT\$CSA_HOST_RULES
MGMT\$CSA_HOST_CUSTOM	MGMT\$CSA_HOST_SW
MGMT\$CSA_HOST_IOCARDS	MGMT\$ECM_CONFIG_HISTORY
MGMT\$CSA_HOST_NICS	

Oracle Diagnostics Pack

Oracle Diagnostics Pack provides automatic performance diagnostic and advanced system monitoring functionality.

Features

Oracle Diagnostics Pack includes the following features:

- Performance monitoring and diagnostics (database and host)
- Automatic Workload Repository (AWR)
- AWR Warehouse
- Automatic Database Diagnostic Monitor (ADDM)
- Compare Period ADDM
- Real Time ADDM
- Active Session History (ASH)
- ASH analytics
- Performance Hub
- Exadata Cell Grid Administration
- Exadata Cell Grid Performance
- Exadata Cell Group Health Overview page
- Exadata Resource Utilization
- Blackouts
- Notifications
- Metric and Alert/Event history
- User-Defined Metrics and Metric Extensions

- Management Connectors
- Dynamic metric baselines and Adaptive metric thresholds
- Monitoring templates and Template Collections
- Replay Compare Period Report
- Supporting functionality to perform per stream bottleneck detection and per component top wait event analysis

In order to use the features listed above, you must purchase licenses for Oracle Diagnostics Pack. A new initialization parameter, `CONTROL_MANAGEMENT_PACK_ACCESS`, controls access to Oracle Diagnostics Pack and Oracle Tuning Pack. This parameter can be set to one of three values:

- `DIAGNOSTIC+TUNING`: Oracle Diagnostics Pack and Oracle Tuning Pack functionality is enabled in the database server.
- `DIAGNOSTIC`: Only Oracle Diagnostics Pack functionality is enabled in the server.
- `NONE`: Oracle Diagnostics Pack and Oracle Tuning Pack functionality is disabled in the database server.

Any and all methods of accessing Oracle Diagnostics Pack functionality, whether through Enterprise Manager Console, Desktop Widgets, command-line APIs, or direct access to the underlying data, requires an Oracle Diagnostics Pack license.

Licensed Links

To determine which links in Enterprise Manager are part of Oracle Diagnostics Pack, click the **Setup** link on the top right-hand part of the Enterprise Manager Home page.

- When you click the **Setup** link, the navigation bar contains the **Management Pack Access** link. Click this link.
- This will take you to the **Management Pack Access** page, which allows you to grant and remove access from all the management packs.
 - For Enterprise Manager Database Control, click the **Remove Access** radio button for the Diagnostics Pack and click **Apply**.
 - For Enterprise Manager Cloud Control, click the appropriate check box for the Diagnostics Pack and click **Apply**.

This procedure disables all the links and tabs associated with Oracle Diagnostics Pack in Enterprise Manager. All the disabled links and tabs are part of Oracle Diagnostics Pack and therefore require a pack license.

Licensed Command-Line APIs

Oracle Diagnostics Pack features can also be accessed by way of database server APIs and command-line interfaces:

- The `DBMS_WORKLOAD_REPOSITORY` package is part of this pack.
- The `DBMS_ADDM` package is part of this pack.
- The `DBMS_ADVISOR` package is part of this pack if you specify `ADDM` as the value of the `advisor_name` parameter, or if you specify for the value of the `task_name` parameter any value starting with the `ADDM` prefix.
- The `DBMS_WORKLOAD_REPLAY.COMPARE_PERIOD_REPORT` function is part of this pack.
- The `V$ACTIVE_SESSION_HISTORY` dynamic performance view and its underlying table, `X$ASH`, are part of this pack.

- The DBA_STREAMS_TP_PATH_BOTTLENECK view is part of this pack.
- All views beginning with DBA_ADDM_ are part of this pack.
- Some data in DBA_STREAMS_TP_COMPONENT_STAT requires Oracle Diagnostics Pack. The following filter clause to any query on DBA_STREAMS_TP_COMPONENT_STAT shows Diagnostics-Pack-dependent data:

```
where STATISTIC_UNIT = 'PERCENT'
```

For example, the following query shows Diagnostics-Pack-dependent data only:

```
SELECT * FROM DBA_STREAMS_TP_COMPONENT_STAT
       where STATISTIC_UNIT = 'PERCENT';
```

- All data dictionary views beginning with the prefix DBA_HIST_ are part of this pack, along with their underlying tables. The only exception are the views: DBA_HIST_SNAPSHOT, DBA_HIST_DATABASE_INSTANCE, DBA_HIST_SNAP_ERROR, DBA_HIST_SEG_STAT, DBA_HIST_SEG_STAT_OBJ, and DBA_HIST_UNDOSTAT. They can be used without the Oracle Diagnostics Pack license.
- All data dictionary views with the prefix DBA_ADVISOR_ are part of this pack if queries to these views return rows with the value ADDM in the ADVISOR_NAME column or a value of ADDM* in the TASK_NAME column or the corresponding TASK_ID.
- The following reports found in the /rdbms/admin/ directory of the Oracle home directory are part of this pack: awrrpt.sql, awrrpti.sql, awrgrpt.sql, awrgrpti.sql, awrgdrpt.sql, awrgdrpi.sql, addmrpt.sql, addmrpti.sql, ashrpt.sql, ashrpti.sql, awrddrpt.sql, awrddrpi.sql, awrsqrpi.sql, awrsqrpt.sql, awrextr.sql, awrload.sql, awrinfo.sql, spawrio.sql, and spawrrac.sql.

Licensed Repository Views

- **Monitoring Views**
 - MGMT\$ALERT_ANNOTATIONS
 - MGMT\$ALERT_CURRENT
 - MGMT\$ALERT_HISTORY
 - MGMT\$ALERT_NOTIF_LOG
 - MGMT\$AVAILABILITY_CURRENT
 - MGMT\$AVAILABILITY_HISTORY
 - MGMT\$BLACKOUT_HISTORY
 - MGMT\$BLACKOUTS
 - MGMT\$METRIC_COLLECTIONS
 - MGMT\$ALERT_CURRENT
 - MGMT\$METRIC_DAILY
 - MGMT\$METRIC_DETAILS
 - MGMT\$METRIC_HOURLY
 - MGMT\$TARGET_METRIC_COLLECTIONS
 - MGMT\$TARGET_METRIC_SETTINGS

- **Template Views**
 - MGMT\$TEMPLATES
 - MGMT\$TEMPLATE_METRIC_COLLECTION
 - MGMT\$TEMPLATE_METRIC_SETTINGS
 - MGMT\$TEMPLATE_POLICY_SETTINGS

Oracle Tuning Pack

Oracle Tuning Pack provides database administrators with expert performance management for the Oracle environment, including SQL tuning and storage optimizations. Oracle Diagnostics Pack is a prerequisite product to Oracle Tuning Pack. Therefore, to use Oracle Tuning Pack, you must also have Oracle Diagnostics Pack.

Features

Oracle Tuning Pack includes the following features:

- SQL Access Advisor
- SQL Tuning Advisor
- Oracle Database In-Memory Advisor
- Automatic SQL Tuning
- SQL Tuning Sets
- SQL Profiles
- Real-time SQL and PL/SQL Monitoring
- Real-time Database Operations Monitoring
- Reorganize objects

In order to use the features listed above, you must purchase licenses for Oracle Tuning Pack, with one exception: SQL Tuning Sets can be used if you have licensed either Oracle Tuning Pack or Oracle Real Application Testing. A new initialization parameter, `CONTROL_MANAGEMENT_PACK_ACCESS`, is introduced to control access to Oracle Diagnostics Pack and Oracle Tuning Pack in the database server. This parameter can be set to one of three values:

- `DIAGNOSTIC+TUNING`: Oracle Diagnostics Pack and Oracle Tuning Pack functionality is enabled in the database server.
- `DIAGNOSTIC`: Only Oracle Diagnostics Pack functionality is enabled in the server.
- `NONE`: Oracle Diagnostics Pack and Oracle Tuning Pack functionality is disabled in the database server.

Any and all methods of accessing Oracle Tuning Pack functionality, whether through Enterprise Manager Console, Desktop Widgets, command-line APIs, or direct access to the underlying data, requires an Oracle Tuning Pack license.

Licensed Links

To determine which links in Enterprise Manager are part of Oracle Tuning Pack, click the **Setup** link on the top right-hand part of the Enterprise Manager Home page.

- When you click the **Setup** link, the navigation bar contains the **Management Pack Access** link. Click this link.

- This will take you to the Management Pack Access page, which allows you to grant and remove access from all the management packs.
 - For Enterprise Manager Database Control, click the **Remove Access** radio button for the Tuning Pack and click **Apply**.
 - For Enterprise Manager Cloud Control, click the appropriate check box for the Tuning Pack and click **Apply**.

This procedure disables all the links and tabs associated with Oracle Tuning Pack in Enterprise Manager. All the disabled links and tabs are part of Oracle Tuning Pack and therefore require a pack license.

Licensed Command-Line APIs

Oracle Tuning Pack features can also be accessed by way of database server APIs and command-line interfaces:

- `DBMS_ADVISOR`, when the value of the `advisor_name` parameter is either `SQL Tuning Advisor` or `SQL Access Advisor`.
- `DBMS_SQLTUNE`
- `V$SQL_MONITOR`
- `V$SQL_PLAN_MONITOR`
- The following report found in the `/rdbms/admin/` directory of the Oracle home directory is part of this pack: `sqltrpt.sql`.

Checking for Database Option and Management Pack Usage

Oracle provides the following scripts that enable you to check database option and management pack usage on your database:

- **`option_usage.sql`** - Displays database option and management pack usage
- **`used_options_details.sql`** - Lists the features used by each database option and management pack

You can obtain the scripts from My Oracle Support as follows:

1. Use a Web browser to view the My Oracle Support Web site:

<https://support.oracle.com>

2. Log in to My Oracle Support.

If you are not a My Oracle Support registered user, then click **Register** and follow the registration instructions.

3. Search for Document ID 1317265.1, or access it directly at the following URL:

<https://support.oracle.com/CSP/main/article?cmd=show&type=NOT&id=1317265.1>

You can manually run the scripts on an individual database or use Oracle Enterprise Manager Job System to automatically run the scripts on multiple databases. Refer to *Oracle Enterprise Manager Cloud Control Administrator's Guide* for information on Oracle Enterprise Manager Job System.

Note: The above reports will provide you an overview of the licensable Database Options and Enterprise Management Packs that were identified as used by your organization. This is to be used for informational purposes only and this does not represent your license entitlement or requirement. Please contact the License Management Services representative at <http://www.oracle.com/us/corporate/license-management-services/index.html> to understand your license requirements.

Other Oracle Products

In addition to the options and packs described in this chapter, Oracle provides the following additional products for specific customer environments:

- [Oracle Database Mobile Server](#)
- [Oracle Programmer](#)
- [Oracle Secure Backup](#)

Oracle Database Mobile Server

Oracle Database Mobile Server is a powerful tool for controlling networks of mobile or embedded devices from a centralized management console. It provides a secure, scalable method for connecting applications running locally on mobile or embedded devices to an Oracle enterprise backend. The synchronization system is robust and fault tolerant. It is able to successfully synchronize over unreliable or intermittently available networks. Oracle Database Mobile Server provides management for applications, users, and devices. It runs on a variety of application server platforms, including Oracle WebLogic, Oracle Glassfish, and Apache TomEE.

On the client device side, it is designed to work with Oracle Berkeley DB as a data store, providing efficient, reliable, and secure data management running locally on mobile and embedded devices. It is also compatible with SQLite, a widely used open source data store. Database Mobile Server supports many popular device platforms including Oracle Java, Linux, Windows (laptop as well as mobile/CE), and Android.

Oracle Programmer

Oracle Programmer is a separate Oracle product that provides a programmatic interface to any edition of Oracle Database for application programmers. Programmer provides a rich set of interfaces for developers who build enterprise applications that access and manipulate Oracle Database. This product is licensed separately from the Oracle Database products. Oracle Programmer is a family of the following products:

- Embedded SQL-style interfaces: Pro*C/C++, Pro*COBOL, Pro*Fortran, SQL*Module for Ada, SQLJ
- Utilities to generate host-language bindings from database schemas: Object Type Translator and JPub

Oracle Secure Backup

Oracle Secure Backup is a centralized tape backup management solution providing high performance, heterogeneous data protection in distributed UNIX, Linux, Windows, and Network Attached Storage (NAS) environments. Protecting file-system and Oracle Database data, Oracle Secure Backup provides a complete tape backup

solution for your IT environment. In addition to tape backup, Oracle Secure Backup delivers an integrated Oracle Database backup to third-party cloud (Internet) storage, through the Oracle Secure Backup Cloud Module.

Oracle Secure Backup offers the following two tape management editions, each suitable for different development and deployment scenarios:

- **Oracle Secure Backup** is ideally suited for distributed environments consisting of multiple servers with advanced data protection requirements such as encryption, rotation of tapes between multiple locations, and protection of NAS devices.
- **Oracle Secure Backup Express** edition provides reliable data protection for single-server Oracle Database environments. Oracle Secure Backup Express is available free with the Oracle Database and is the same core product as Oracle Secure Backup. The Express edition is limited to a single host with one direct-attached tape drive and has some restrictions on advanced feature usage. Refer to the *Oracle Secure Backup Licensing Information* for additional information.

The Oracle Secure Backup Cloud Module provides Oracle Database backup to cloud storage using Recovery Manager (RMAN) and is independent of the Oracle Secure Backup tape management editions. The Oracle Secure Backup Cloud Module can be used as a complement or replacement for the Oracle Secure Backup tape management solution or other third-party media-management products.

A

Third-Party Licenses

This appendix contains the following section:

- [Third-Party Product Licensing for Oracle Database](#)

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Streaming API for XML (JSR-173) Specification

Reference Implementation

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`zlib.h` -- interface of the 'zlib' general purpose compression library version 1.1.3, July 9th, 1998

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The data format used by the zlib library is described by RFCs (Request for Comments) 1950 to 1952 in the files <ftp://ds.internic.net/rfc/rfc1950.txt> (zlib format), [rfc1951.txt](ftp://ds.internic.net/rfc/rfc1951.txt) (deflate format) and [rfc1952.txt](ftp://ds.internic.net/rfc/rfc1952.txt) (gzip format).

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888      8 888 .d88' Y888..8P
888      8 888oo088P' `8888'
888      8 888 .8PY888.
`88.     .8' 888      d8' `888b
`YbodP'   o888o      o888o o88888o

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gdal/frmts/gtiff/tif_float.c

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gdal/frmts/pcraster/libcsf

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gdal/ogr/ogrsf_frmts/dxf/intronurbs.cpp

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Based upon the plugin by Tzury Bar Yochay:

<http://github.com/tzuryby/hotkeys>

Original idea by:

Binny V A, http://www.openjs.com/scripts/events/keyboard_shortcuts/

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jQuery validation plug-in 1.7

<http://bassistance.de/jquery-plugins/jquery-plugin-validation/>
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\$Id: jquery.validate.js 6403 2009-06-17 14:27:16Z joern.zaefferer \$

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kerberos

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```
lib/gssapi/generic/gssapi_err_generic.et
lib/gssapi/mechglue/g_accept_sec_context.c
lib/gssapi/mechglue/g_acquire_cred.c
lib/gssapi/mechglue/g_canon_name.c
lib/gssapi/mechglue/g_compare_name.c
lib/gssapi/mechglue/g_context_time.c
lib/gssapi/mechglue/g_delete_sec_context.c
```

lib/gssapi/mechglue/g_dsp_name.c
lib/gssapi/mechglue/g_dsp_status.c
lib/gssapi/mechglue/g_dup_name.c
lib/gssapi/mechglue/g_exp_sec_context.c
lib/gssapi/mechglue/g_export_name.c
lib/gssapi/mechglue/g_glue.c
lib/gssapi/mechglue/g_imp_name.c
lib/gssapi/mechglue/g_imp_sec_context.c
lib/gssapi/mechglue/g_init_sec_context.c
lib/gssapi/mechglue/g_initialize.c
lib/gssapi/mechglue/g_inquire_context.c
lib/gssapi/mechglue/g_inquire_cred.c
lib/gssapi/mechglue/g_inquire_names.c
lib/gssapi/mechglue/g_process_context.c
lib/gssapi/mechglue/g_rel_buffer.c
lib/gssapi/mechglue/g_rel_cred.c
lib/gssapi/mechglue/g_rel_name.c
lib/gssapi/mechglue/g_rel_oid_set.c
lib/gssapi/mechglue/g_seal.c
lib/gssapi/mechglue/g_sign.c
lib/gssapi/mechglue/g_store_cred.c
lib/gssapi/mechglue/g_unseal.c
lib/gssapi/mechglue/g_userok.c
lib/gssapi/mechglue/g_utils.c
lib/gssapi/mechglue/g_verify.c
lib/gssapi/mechglue/gssd_pname_to_uid.c
lib/gssapi/mechglue/mglueP.h
lib/gssapi/mechglue/oid_ops.c
lib/gssapi/spnego/gssapiP_spnego.h
lib/gssapi/spnego/spnego_mech.c

and the initial implementation of incremental propagation, including the following new or changed files:

include/iprop_hdr.h
kadmin/server/ipropd_svc.c
lib/kdb/iprop.x
lib/kdb/kdb_convert.c
lib/kdb/kdb_log.c
lib/kdb/kdb_log.h
lib/krb5/error_tables/kdb5_err.et
slave/kpropd_rpc.c
slave/kproplog.c

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unzip

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