Oracle® Database

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Preface

This Preface contains these topics:

- Audience
- Documentation Accessibility
- Diversity and Inclusion
- Related Documents
- Conventions

Audience

This book is intended for all purchasers of Oracle Database 19c.

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.

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Diversity and Inclusion

Oracle is fully committed to diversity and inclusion. Oracle respects and values having a diverse workforce that increases thought leadership and innovation. As part of our initiative to build a more inclusive culture that positively impacts our employees, customers, and partners, we are working to remove insensitive terms from our products and documentation. We are also mindful of the necessity to maintain compatibility with our customers' existing technologies and the need to ensure continuity of service as Oracle's offerings and industry standards evolve. Because of these technical constraints, our effort to remove insensitive terms is ongoing and will take time and external cooperation.

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
- Oracle Global Pricing and Licensing, available at:

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http://www.oracle.com/us/corporate/pricing/index.html

- Oracle Database licensing guidelines, available at: https://www.oracle.com/assets/databaselicensing-070584.pdf

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.
italic	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.

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Licensing Information

- Introduction
- Oracle Database Offerings
- Permitted Features, Options, and Management Packs by Oracle Database Offering
- Oracle Database Options and Their Permitted Features
- Oracle Management Packs and Their Permitted Features
- Checking for Feature, Option, and Management Pack Usage
- Special License Rights
- Restricted Use Licenses

1.1 Introduction

This Licensing Information document is a part of the product or program documentation under the terms of your Oracle license agreement and is intended to help you understand the program editions, entitlements, restrictions, prerequisites, special license rights, and/or separately licensed third party technology terms associated with the Oracle software program(s) covered by this document (the "Program(s)"). Entitled or restricted use products or components identified in this document that are not provided with the particular Program may be obtained from the Oracle Software Delivery Cloud website (https://edelivery.oracle.com) or from media Oracle may provide. If you have a question about your license rights and obligations, please contact your Oracle sales representative, review the information provided in Oracle's Software Investment Guide (http://www.oracle.com/us/corporate/pricing/software-investment-guide/index.html), and/or contact the applicable Oracle License Management Services representative listed on http://www.oracle.com/us/corporate/license-management-services/index.html.

1.2 Oracle Database Offerings

Table 1-1 Oracle Database Offerings

Oracle Database Offering	License Deployment Options	Abbreviated Name Used in this Guide	Description
Oracle Database Standard Edition 2	On-Premises, OCI*, and ACEs**	**SE2**	Oracle Database Standard Edition 2 includes features necessary to develop workgroup, department-level, and Web applications.

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Table 1-1 (Cont.) Oracle Database Offerings

Oracle Database Offering	License Deployment Options	Abbreviated Name Used in this Guide	Description
Oracle Database Enterprise Edition	On-Premises, OCI*, and ACEs**	**EE**	Oracle Database Enterprise Edition provides performance, availability, scalability, and security for developing applications such as high-volume online transaction processing (OLTP) applications, query-intensive data warehouses, and demanding Internet applications. Oracle Database Enterprise Edition can be enhanced with the purchase of Oracle Database options and Oracle management packs.
Oracle Database Enterprise Edition on Engineered Systems	On-Premises, OCI*, and ACEs**	**EE-ES**	Oracle Database Enterprise Edition software installed on an engineered system (Oracle Exadata Database Machine or Oracle Database Appliance). Includes all of the components of Oracle Database. You can further enhance this offering with the purchase of Oracle Database options and Oracle management packs. The licensing policies for EE-ES vary depending on whether it is installed on Oracle Exadata Database Machine or Oracle Database Appliance. Be sure to make note of these differences, which are documented in the subsequent sections of this guide.
Oracle Database Personal Edition	On-Premises	**PE**	Oracle Database Personal Edition supports single-user development and deployment environments that require full compatibility with Oracle Database Standard Edition 2 and Oracle Database Enterprise Edition. Includes all of the components that are included with Enterprise Edition, as well as all Oracle Database options, with the exception of the Oracle RAC One Node and Oracle Real Application Clusters options, which cannot be used with Personal Edition. Personal Edition is available on Linux and Windows platforms only. Oracle management packs cannot be used with Personal Edition.
Oracle Base Database Service Standard Edition Oracle Base Database Service Cloud@Customer - Standard Edition	OCI*	**BaseDB SE**	Includes Standard Edition 2 software.
Oracle Base Database Service Enterprise Edition Oracle Base Database Service Cloud@Customer - Enterprise Edition	OCI*	**BaseDB EE**	Includes Enterprise Edition software.

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Table 1-1 (Cont.) Oracle Database Offerings

Oracle Database Offering	License Deployment Options	Abbreviated Name Used in this Guide	Description
Oracle Base Database Service Enterprise Edition - High Performance Oracle Base Database Service Cloud@Customer - Enterprise Edition High Performance	OCI*	**BaseDB EE-HP**	Includes Enterprise Edition software plus Oracle AI Database options and Oracle management packs that are appropriate for use with Oracle Base Database Service Enterprise Edition - High Performance or Oracle Base Database Service Cloud@Customer - Enterprise Edition High Performance.
Oracle Base Database Service Enterprise Edition - Extreme Performance Oracle Base Database Service Cloud@Customer - Enterprise Edition Extreme Performance	OCI*	**BaseDB EE-EP**	Includes Enterprise Edition software plus Oracle AI Database options and Oracle management packs that are appropriate for use with Oracle Base Database Service Enterprise Edition - Extreme Performance or Oracle Base Database Service Cloud@Customer - Enterprise Edition Extreme Performance.
Oracle Exadata Database Service on Dedicated Infrastructure Oracle Exadata Database Service on Cloud@Customer	OCI*	**ExaDB**	Includes Enterprise Edition software plus Oracle AI Database options and Oracle management packs that are appropriate for use with Oracle Exadata Database Service on Dedicated Infrastructure or Oracle Exadata Database Service on Cloud@Customer.

* OCI: Oracle Cloud Infrastructure

> **Note**
>
> When using your existing on-premises Oracle Database license with Oracle Cloud Infrastructure (OCI) database services, you are granted the right to use additional features. See Oracle BYOL (Bring Your Own License) in "Special License Rights" for more information.

**ACEs: Authorized Cloud Environments

> **Note**
>
> For the list of Authorized Cloud Environments, see https://www.oracle.com/assets/cloud-licensing-070579.pdf. All other public clouds and environments that are in any way considered an extension of non-Authorized Cloud Environments, such as cloud management, cloud billing, cloud support, cloud automation, cloud images, or cloud monitoring software, are not Authorized Cloud Environments.

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1.3 Permitted Features, Options, and Management Packs by Oracle Database Offering

The tables in this section list Oracle Database features, Oracle Database options, and Oracle management packs, and their availability for each Oracle Database offering. The `Y` value in a column means that the feature, option, or pack is available for a particular offering; `N` means that it is unavailable; `N/A` means that it is not applicable. These tables can help you understand the difference between Oracle Database offerings to determine which one is right for you.

The tables are organized into the following functional categories:

- Consolidation - Table 1-2
- Development Platform - Table 1-3
- High Availability - Table 1-4
- Integration - Table 1-5
- Manageability - Table 1-6
- Networking - Table 1-7
- Performance - Table 1-8
- Scalability - Table 1-9
- Security - Table 1-10
- Snapshots and Cloning - Table 1-11
- Spatial and Graph Data - Table 1-12
- VLDB, Data Warehousing, and Business Intelligence - Table 1-13

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Table 1-2 Consolidation

Feature / Option / Pack	SE2	EE	EE-ES	Base DB SE	Base DB EE	Base DB EE-HP	Base DB EE-EP	ExaDB	Notes
Oracle Multitenant - # of PDBs	3	252	4096	3	3	4096	4096	4096	The number value in each column indicates the maximum number of pluggable databases (PDBs) that can be created for each offering. • For all offerings, if you are not licensed for Oracle Multitenant, then you may have up to 3 user-created PDBs in a given container database at any time. • **EE**: Extra cost option; if you are licensed for Oracle Multitenant, then you can create up to 252 PDBs. • **EE-ES**: Extra cost option; if you are licensed for Oracle Multitenant, then you can create up to 4096 PDBs. • **BaseDB EE-HP**, **BaseDB EE-EP**, and **ExaDB**: License included option: You can create up to 4096 PDBs. BYOL option: Limit is 3 PDBs, unless you purchase the Oracle Multitenant option. **Authorized Cloud Environments:** Use is limited to three pluggable databases per container database. **Note:** For licensing purposes, one non-CDB instance is equivalent to one user-created PDB inside one CDB.
CDB Fleet Management	N	N	Y	N	Y	Y	Y	Y	
PDB Snapshot Carousel	N	N	Y	N	Y	Y	Y	Y	
Refreshable PDB switchover	N	N	Y	Y	Y	Y	Y	Y	

Table 1-3 Development Platform

Feature / Option / Pack	SE2	EE	EE-ES	Base DB SE	Base DB EE	Base DB EE-HP	Base DB EE-EP	ExaDB	Notes
SQLJ	Y	Y	Y	Y	Y	Y	Y	Y	Requires Oracle Programmer

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Table 1-3 (Cont.) Development Platform

Feature / Option / Pack	SE2	EE	EE-ES	Base DB SE	Base DB EE	Base DB EE-HP	Base DB EE-EP	ExaDB	Notes
Oracle Developer Tools for Visual Studio	Y	Y	N/A	N/A	N/A	N/A	N/A	N/A	Windows only
Microsoft Distributed Transaction Coordinator support	Y	Y	N/A	N/A	N/A	N/A	N/A	N/A	Windows only
Native .NET Data Provider—ODP.NET	Y	Y	N/A	N/A	N/A	N/A	N/A	N/A	Windows only
.NET Stored Procedures	Y	Y	N/A	N/A	N/A	N/A	N/A	N/A	Windows only

Table 1-4 High Availability

Feature / Option / Pack	SE2	EE	EE-ES	Base DB SE	Base DB EE	Base DB EE-HP	Base DB EE-EP	ExaDB	Notes
Application Continuity	N	Y	Y	N	N	N	Y	Y	**EE** and **EE-ES**: Requires the Oracle Active Data Guard option, the Oracle RAC One Node option, or the Oracle Real Application Clusters option
Oracle Sharding	N	Y	Y	N	Y	Y	Y	Y	**EE** and **EE-ES**: No limit on the number of either primary shards or standby shards if every shard has an Oracle Active Data Guard, Oracle GoldenGate, or Oracle RAC license. Without an Oracle Active Data Guard, Oracle GoldenGate, or Oracle RAC license, use is limited to three primary shards, with basic Data Guard standbys. **BaseDB EE**, **BaseDB EE-HP**, and **Authorized Cloud Environments**: Use is limited to three primary shards; there is no limit on the number of standby shards. **BaseDB EE-EP** and **ExaDB**: No limit on the number of either primary shards or standby shards.
Oracle Fail Safe	Y	Y	N/A	N/A	N/A	N/A	N/A	N/A	Windows only
Oracle RAC One Node	N	Y	Y	N	N	N	N	N	**EE** and **EE-ES**: Extra cost option
Standard Edition High Availability	Y	N	N	N	N	N	N	N	
Enterprise Edition High Availability	N	N	Y	N	N	N	N	N	**EE-ES**: Available on Oracle Database Appliance. Not available on Exadata.
Oracle Data Guard—Redo Apply	N	Y	Y	N	Y	Y	Y	Y	

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Table 1-4 (Cont.) High Availability

Feature / Option / Pack	SE2	EE	EE-ES	Base DB SE	Base DB EE	Base DB EE-HP	Base DB EE-EP	ExaDB	Notes
Oracle Data Guard—Far Sync Standby	N	Y	Y	N	N	N	Y	Y	**EE** and **EE-ES**: Requires the Oracle Active Data Guard option
Oracle Data Guard—SQL Apply	N	Y	Y	N	Y	Y	Y	Y	
Oracle Data Guard—Snapshot Standby	N	Y	Y	N	Y	Y	Y	Y	
Oracle Data Guard—Real-Time Cascading Standbys	N	Y	Y	N	N	N	Y	Y	**EE** and **EE-ES**: Requires the Oracle Active Data Guard option
Oracle Data Guard—Automatic Correction of Non-logged Blocks at a Data Guard Standby Database	N	N	Y	N	N	N	Y	Y	**EE-ES**: Requires the Oracle Active Data Guard option
Oracle Active Data Guard	N	Y	Y	N	N	N	Y	Y	**EE** and **EE-ES**: Extra cost option; license included with Oracle GoldenGate **CLOUD**: Active Data Guard DML Redirection is only available in OCI
Rolling Upgrades—Patch Set, Database, and Operating System	N	Y	Y	N	Y	Y	Y	Y	
Rolling Upgrade Using Active Data Guard	N	Y	Y	N	N	N	Y	Y	**EE** and **EE-ES**: Requires the Oracle Active Data Guard option
Online index rebuild	N	Y	Y	N	Y	Y	Y	Y	
Online table organization	N	Y	Y	N	Y	Y	Y	Y	`ALTER TABLE ... MOVE ONLINE` operations
Online table redefinition	N	Y	Y	N	Y	Y	Y	Y	Using the `DBMS_REDEFINITION` package
Duplexed backup sets	N	Y	Y	N	Y	Y	Y	Y	
Block change tracking for fast incremental backup	N	Y	Y	N	Y	Y	Y	Y	
Unused block compression in backups	N	Y	Y	N	Y	Y	Y	Y	
Block-level media recovery	N	Y	Y	N	Y	Y	Y	Y	
Lost Write Protection	N	Y	Y	N	Y	Y	Y	Y	
Automatic Block Repair	N	Y	Y	N	N	N	Y	Y	**EE** and **EE-ES**: Requires the Oracle Active Data Guard option
Parallel backup and recovery	N	Y	Y	N	Y	Y	Y	Y	
Tablespace point-in-time recovery	N	Y	Y	N	Y	Y	Y	Y	

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Table 1-4 (Cont.) High Availability

Feature / Option / Pack	SE2	EE	EE-ES	Base DB SE	Base DB EE	Base DB EE-HP	Base DB EE-EP	ExaDB	Notes
Trial recovery	N	Y	Y	N	Y	Y	Y	Y	
Fast-start fault recovery	N	Y	Y	N	Y	Y	Y	Y	
Flashback Table	N	Y	Y	N	Y	Y	Y	Y	
Flashback Database	N	Y	Y	N	Y	Y	Y	Y	
Flashback Transaction	N	Y	Y	N	Y	Y	Y	Y	
Flashback Transaction Query	N	Y	Y	N	Y	Y	Y	Y	
Optimization for Flashback Time Travel (formerly Optimization for Flashback Data Archive)	N	Y	Y	N	N	Y	Y	Y	Basic Flashback Time Travel is in all offerings **EE** and **EE-ES**: Optimization for Flashback Time Travel requires the Oracle Advanced Compression option
Online Datafile Move	N	Y	Y	N	Y	Y	Y	Y	
Transaction Guard	N	Y	Y	N	Y	Y	Y	Y	
Cross-platform Backup and Recovery	N	Y	Y	N	Y	Y	Y	Y	
Global Data Services	N	Y	Y	N	N	N	Y	Y	**EE** and **EE-ES**: Requires the Oracle Active Data Guard option
Recovering tables and table partitions from RMAN backups	N	Y	Y	N	Y	Y	Y	Y	

Table 1-5 Integration

Feature / Option / Pack	SE2	EE	EE-ES	Base DB SE	Base DB EE	Base DB EE-HP	Base DB EE-EP	ExaDB	Notes
Database Gateways	Y	Y	Y	Y	Y	Y	Y	Y	Includes Database Gateway for ODBC All other Database Gateway products require a separate product license
Messaging Gateway	N	Y	Y	N	Y	Y	Y	Y	
AQ Sharded Queues	Y	Y	Y	Y	Y	Y	Y	Y	Includes a restricted use license for Oracle Partitioning. Refer to AQ Sharded Queues in "Restricted Use Licenses" for more information.

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Table 1-6 Manageability

Feature / Option / Pack	SE2	EE	EE-ES	Base DB SE	Base DB EE	Base DB EE-HP	Base DB EE-EP	ExaDB	Notes
Oracle Cloud Management Pack for Oracle Database	N	Y	Y	N	N	Y	Y	Y	**EE** and **EE-ES**: Extra cost option
Oracle Data Masking and Subsetting Pack	N	Y	Y	N	Y	Y	Y	Y	**EE** and **EE-ES**: Extra cost option
Oracle Database Lifecycle Management Pack for Oracle Database	N	Y	Y	N	N	Y	Y	Y	**EE** and **EE-ES**: Extra cost option
Oracle Diagnostics Pack	N	Y	Y	N	Y	Y	Y	Y	**EE** and **EE-ES**: Extra cost option
Oracle Tuning Pack	N	Y	Y	N	Y	Y	Y	Y	**EE** and **EE-ES**: Extra cost option, also requires Oracle Diagnostics Pack
Oracle Real Application Testing	N	Y	Y	N	Y	Y	Y	Y	**EE** and **EE-ES**: Extra cost option
Database Resource Manager	N	Y	Y	N	Y	Y	Y	Y	
I/O Resource Management	N	N	Y	N	N	N	N	Y	**EE-ES**: Available on Exadata. Not available on Oracle Database Appliance.
Instance Caging	Y	Y	Y	Y	Y	Y	Y	Y	

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Table 1-6 (Cont.) Manageability

Feature / Option / Pack	SE2	EE	EE-ES	Base DB SE	Base DB EE	Base DB EE-HP	Base DB EE-EP	ExaDB	Notes
SQL Plan Management	Y	Y	Y	Y	Y	Y	Y	Y	SQL Plan Management does not require a license for Oracle Diagnostics Pack or Oracle Tuning Pack **SE2 and BaseDB SE Summary:** Only one SQL plan baseline per SQL statement is allowed and SQL plan evolution is disabled. **SE2 and BaseDB SE Details:** 1. SQL plan baselines can be created or captured using the following methods: • Auto capture (`OPTIMIZER_CAPTURE_SQL_PLAN_BASELINE=TRUE`) • Manual loading from the cursor cache (`DBMS_SPM.LOAD_PLANS_FROM_CURSOR_CACHE`) • Migration from stored outlines (`DBMS_SPM.MIGRATE_STORED_OUTLINE`) • Import using `DBMS_SPM.UNPACK_STGTAB_BASELINE` 2. All capture and creation methods store only one SQL plan baseline per SQL statement. 3. SQL plan baselines can be exported and imported using `DBMS_SPM.CREATE_STGTAB_BASELINE`, `DBMS_SPM.PACK_STGTAB_BASELINE`, and `DBMS_SPM.UNPACK_STGTAB_BASELINE`. 4. Unused SQL plan baselines are not auto-purged. 5. Alternative SQL execution plans for SQL statements are not added to the SQL plan history. 6. SQL plan baselines can be altered and dropped (`DBMS_SPM.ALTER_SQL_PLAN_BASELINE` and

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Table 1-6 (Cont.) Manageability

Feature / Option / Pack	SE2	EE	EE-ES	Base DB SE	Base DB EE	Base DB EE-HP	Base DB EE-EP	ExaDB	Notes
									DBMS_SPM.DROP_SQL_PLAN_BASELINE). 7. The following DBMS_SPM functions and procedures are not allowed: CONFIGURE, LOAD_PLANS_FROM_AWR, LOAD_PLANS_FROM_SQLSET, and all functions and procedures associated with SQL plan evolution.
Automatic SQL Plan Management	N	Y	Y	N	Y	Y	Y	Y	**Note:** The licensing policy shown here applies to this feature starting with Oracle Database 19c, Release Update 19.22. In earlier versions of Oracle Database 19c, this feature is available only on Exadata on-premises systems and ExaDB.
SQL Tuning Sets	N	Y	Y	N	Y	Y	Y	Y	**EE** and **EE-ES**: SQL Tuning Sets can also be accessed by way of database server APIs and command-line interfaces. Usage of any subprograms in the DBMS_SQLSET package to manage SQL Tuning Sets is part of the EE and EE-ES offerings. In addition, the following subprograms, part of the DBMS_SQLTUNE package, provide an older interface to manage SQL Tuning Sets and are also part of the EE and EE-ES offerings: 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.

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Table 1-6 (Cont.) Manageability

Feature / Option / Pack	SE2	EE	EE-ES	Base DB SE	Base DB EE	Base DB EE-HP	Base DB EE-EP	ExaDB	Notes
Oracle Fleet Patching and Provisioning (formerly Rapid Home Provisioning)	N	Y	Y	N/A	N/A	N/A	N/A	N/A	**EE** and **EE-ES**: When deployed across multiple clusters, each FPP-managed target must be licensed for one of the following: Oracle Database Lifecycle Management Pack, Oracle RAC, or Oracle RAC One Node
LogMiner	Y	Y	Y	Y	Y	Y	Y	Y	LogMiner is available for use with all Oracle Database offerings. However, when LogMiner is used with GoldenGate Supplemental Logging turned on, a license for Oracle GoldenGate is required. Refer to GoldenGate Supplemental Logging in "Special License Rights" for more information.

Table 1-7 Networking

Feature / Option / Pack	SE2	EE	EE-ES	Base DB SE	Base DB EE	Base DB EE-HP	Base DB EE-EP	ExaDB	Notes
RDMA fabric	N	N	Y	N	N	N	N	Y	**EE-ES**: Available on Exadata. Not available on Oracle Database Appliance.
Oracle Connection Manager	N	Y	Y	N	Y	Y	Y	Y	Available via a custom install of the Oracle Database client, usually installed on a separate machine or compute instance
Network Compression	N	Y	Y	N	N	Y	Y	Y	**EE** and **EE-ES**: Requires the Oracle Advanced Compression option

Table 1-8 Performance

Feature / Option / Pack	SE2	EE	EE-ES	Base DB SE	Base DB EE	Base DB EE-HP	Base DB EE-EP	ExaDB	Notes
Automatic Indexing	N	N	Y	N	N	N	N	Y	**EE-ES**: Available on Exadata. Not available on Oracle Database Appliance.
SQL Quarantine	N	N	Y	N	N	N	N	Y	**EE-ES**: Available on Exadata. Not available on Oracle Database Appliance.
Real-Time Statistics	N	N	Y	N	N	N	N	Y	**EE-ES**: Available on Exadata. Not available on Oracle Database Appliance.

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Table 1-8 (Cont.) Performance

Feature / Option / Pack	SE2	EE	EE-ES	Base DB SE	Base DB EE	Base DB EE-HP	Base DB EE-EP	ExaDB	Notes
High-Frequency Automatic Optimizer Statistics Collection	N	N	Y	N	N	N	N	Y	**EE-ES**: Available on Exadata. Not available on Oracle Database Appliance.
Client Side Query Cache	N	Y	Y	N	Y	Y	Y	Y	
Query Results Cache	N	Y	Y	N	Y	Y	Y	Y	
PL/SQL Function Result Cache	N	Y	Y	N	Y	Y	Y	Y	
Oracle TimesTen Application-Tier Database Cache	N	Y	Y	N	N	N	N	N	**EE** and **EE-ES**: Extra cost option
Database Smart Flash Cache	N	Y	Y	N/A	N/A	N/A	N/A	N/A	**EE**: Solaris and Oracle Linux only **EE-ES**: Available on Oracle Database Appliance. Not available on Exadata
Support for Oracle Exadata Storage Server Software	N	N	Y	N	N	N	N	Y	**EE-ES**: Available on Exadata. Not available on Oracle Database Appliance.
Adaptive Execution Plans	N	Y	Y	N	Y	Y	Y	Y	
Concurrent Execution of `UNION` and `UNION ALL` Branches	N	Y	Y	N	Y	Y	Y	Y	
Oracle Database In-Memory	N	Y	Y	N	N	N	Y	Y	**EE** and **EE-ES**: Extra cost option
In-Memory Column Cache on Storage Servers	N	N	Y	N	N	N	N	Y	**EE-ES**: Available on Exadata and requires the Oracle Database In-Memory option. Not available on Oracle Database Appliance. Requires Exadata or Supercluster
In-Memory Column Store on Active Data Guard standby	N	N	Y	N	N	N	N	Y	**EE-ES**: Available on Exadata and requires the Oracle Database In-Memory option and the Oracle Active Data Guard option. Not available on Oracle Database Appliance.
Fault Tolerant In-Memory Column Store	N	N	Y	N	N	N	N	Y	**EE-ES**: Available on Exadata and Oracle Database Appliance. Requires the Oracle Database In-Memory option and the Oracle Real Application Clusters option. Requires Exadata, Supercluster, or Infiniband-based Oracle Database Appliance
Automatic In-Memory	N	Y	Y	N	N	N	Y	Y	**EE** and **EE-ES**: Requires the Oracle Database In-Memory option

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Table 1-8 (Cont.) Performance

Feature / Option / Pack	SE2	EE	EE-ES	Base DB SE	Base DB EE	Base DB EE-HP	Base DB EE-EP	ExaDB	Notes
In-Memory Column Store support for External Tables	N	Y	Y	N	N	N	Y	Y	**EE** and **EE-ES**: Requires the Oracle Database In-Memory option **Note:** The licensing policy shown here applies to this feature starting with Oracle Database 19c, Release Update 19.12. In earlier versions of Oracle Database 19c, this feature is available only on Exadata on-premises systems (requires the Oracle Database In-Memory option) and ExaDB.
In-Memory Aggregation	N	Y	Y	N	N	N	Y	Y	**EE** and **EE-ES**: Requires the Oracle Database In-Memory option
Database In-Memory Base Level	N	Y	Y	N	N	N	Y	Y	Allows you to experiment with Oracle Database In-Memory features without purchasing the Oracle Database In-Memory option. The following restrictions apply: • The size of the In-Memory area (`INMEMORY_SIZE`) cannot exceed 16 GB for a CDB. In an Oracle RAC environment, the size is limited to 16 GB for each instance. • The compression level for all objects and columns is automatically and transparently set to `QUERY LOW`. • The Automatic In-Memory feature is disabled. • In-Memory Column Store feature tracking is tracked for "In-Memory Base Level" rather than "In-Memory Column Store." • The CellMemory feature is disabled for Oracle Exadata. **CLOUD**: Only available in OCI
Memoptimized Rowstore	N	Y	Y	N	Y	Y	Y	Y	**Note:** The licensing policy shown here applies to this feature starting with Oracle Database 19c, Release Update 19.12. In earlier versions of Oracle Database 19c, this feature is available only on Exadata on-premises systems and ExaDB.

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Table 1-8 (Cont.) Performance

Feature / Option / Pack	SE2	EE	EE-ES	Base DB SE	Base DB EE	Base DB EE-HP	Base DB EE-EP	ExaDB	Notes
Attribute Clustering	N	Y	Y	N	Y	Y	Y	Y	
Zone Maps	N	N	Y	N	N	N	N	Y	**EE-ES**: Available on Exadata and requires the Oracle Partitioning option. Not available on Oracle Database Appliance.

Table 1-9 Scalability

Feature / Option / Pack	SE2	EE	EE-ES	Base DB SE	Base DB EE	Base DB EE-HP	Base DB EE-EP	ExaDB	Notes
Oracle Real Application Clusters (Oracle RAC)	N	Y	Y	N	N	N	Y	Y	**EE** and **EE-ES**: Extra cost option
Automatic Workload Management	N	Y	Y	N	N	N	Y	Y	**EE** and **EE-ES**: Requires the Oracle Real Application Clusters option
Quality of Service Management	N	Y	Y	N	N	N	Y	Y	**EE** and **EE-ES**: Requires the Oracle RAC One Node option or the Oracle Real Application Clusters option
Oracle NoSQL Database Enterprise Edition	N	Y	Y	N/A	N/A	N/A	N/A	N/A	

Table 1-10 Security

Feature / Option / Pack	SE2	EE	EE-ES	Base DB SE	Base DB EE	Base DB EE-HP	Base DB EE-EP	ExaDB	Notes
Transparent Data Encryption (TDE) for Columns	N	Y	Y	N	N	Y	Y	Y	**EE** and **EE-ES**: Requires the Oracle Advanced Security option
Transparent Data Encryption (TDE) for Tablespaces	N	Y	Y	Y	Y	Y	Y	Y	**EE** and **EE-ES**: Requires the Oracle Advanced Security option
Oracle Advanced Security	N	Y	Y	N	N	Y	Y	Y	**EE** and **EE-ES**: Extra cost option
Oracle Database Vault	N	Y	Y	N	N	Y	Y	Y	**EE** and **EE-ES**: Extra cost option
Oracle Label Security	N	Y	Y	N	N	Y	Y	Y	**EE** and **EE-ES**: Extra cost option
Enterprise User Security	N	Y	Y	N	Y	Y	Y	Y	**EE**, **EE-ES**, **BaseDB EE**, **BaseDB EE-HP**, **BaseDB EE-EP**, and **ExaDB**: Enterprise User Security is a feature for directory-based management of database users. It requires a corresponding Oracle Identity Management Directory Services Plus to be licensed.

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Table 1-10 (Cont.) Security

Feature / Option / Pack	SE2	EE	EE-ES	Base DB SE	Base DB EE	Base DB EE-HP	Base DB EE-EP	ExaDB	Notes
Centrally Managed Users	N	Y	Y	N	Y	Y	Y	Y	**EE**, **EE-ES**, **BaseDB EE**, **BaseDB EE-HP**, **BaseDB EE-EP**, and **ExaDB**: Centrally Managed Users is a feature for centrally authenticating and authorizing database users with Microsoft Active Directory.
Fine-grained Auditing	N	Y	Y	N	Y	Y	Y	Y	
Privilege Analysis	N	Y	Y	N	Y	Y	Y	Y	
Real Application Security	N	Y	Y	N	Y	Y	Y	Y	
Redaction	N	Y	Y	N	N	Y	Y	Y	**EE** and **EE-ES**: Requires the Oracle Advanced Security option
Transparent Sensitive Data Protection	N	Y	Y	N	Y	Y	Y	Y	
Virtual Private Database	N	Y	Y	N	Y	Y	Y	Y	
Keystore for Each Pluggable Database	N	Y	Y	N	Y	Y	Y	Y	**EE**: This feature is available starting with Oracle Database release 19c, Release Update 19.14, and requires the Oracle Advanced Security option. **EE-ES**: Requires the Oracle Advanced Security option **CLOUD**: Only available in OCI

Table 1-11 Snapshots and Cloning

Feature / Option / Pack	SE2	EE	EE-ES	Base DB SE	Base DB EE	Base DB EE-HP	Base DB EE-EP	ExaDB	Notes
Storage Snapshot Optimization	N	Y	Y	N/A	N/A	N/A	N/A	N/A	**EE** and **EE-ES**: Requires the Oracle Advanced Compression option

Table 1-12 Spatial and Graph Data

Feature / Option / Pack	SE2	EE	EE-ES	Base DB SE	Base DB EE	Base DB EE-HP	Base DB EE-EP	ExaDB	Notes
Oracle Spatial and Graph	Y	Y	Y	Y	Y	Y	Y	Y	Oracle Spatial and Graph no longer requires an extra cost license. See Oracle Database Insider blog post for more information.

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Table 1-12 (Cont.) Spatial and Graph Data

Feature / Option / Pack	SE2	EE	EE-ES	Base DB SE	Base DB EE	Base DB EE-HP	Base DB EE-EP	ExaDB	Notes
Property Graph and RDF Graph Technologies (RDF/OWL)	Y	Y	Y	Y	Y	Y	Y	Y	Property Graph and RDF Graph Technologies (RDF/OWL) no longer requires an extra cost license. See Oracle Database Insider blog post for more information.
Parallel spatial index builds	N	Y	Y	N	Y	Y	Y	Y	
Partitioned spatial indexes	N	Y	Y	N	N	Y	Y	Y	**EE** and **EE-ES**: Requires the Oracle Partitioning option

Table 1-13 VLDB, Data Warehousing, and Business Intelligence

Feature / Option / Pack	SE2	EE	EE-ES	Base DB SE	Base DB EE	Base DB EE-HP	Base DB EE-EP	ExaDB	Notes
Oracle Partitioning	N	Y	Y	N	N	Y	Y	Y	**EE** and **EE-ES**: Extra cost option
Oracle On-Line Analytical Processing (OLAP)	N	Y	Y	N	N	Y	Y	Y	**EE** and **EE-ES**: Extra cost option
Oracle Machine Learning (formerly Advanced Analytics)	Y	Y	Y	Y	Y	Y	Y	Y	Oracle Machine Learning no longer requires an extra cost license. See Oracle Database Insider blog post for more information.
Oracle Advanced Compression	N	Y	Y	N	N	Y	Y	Y	**EE** and **EE-ES**: Extra cost option
Advanced Index Compression	N	Y	Y	N	N	Y	Y	Y	**EE** and **EE-ES**: Requires the Oracle Advanced Compression option
Prefix Compression (also called Key Compression)	N	Y	Y	N	Y	Y	Y	Y	
Hybrid Columnar Compression	N	Y	Y	N	Y	Y	Y	Y	**EE**: Requires ZFS, Axiom, or FS1 storage
Row-Level Locking for Hybrid Columnar Compression	N	Y	Y	N	N	N	N	Y	**EE**: Requires ZFS or FS1 storage, and the Oracle Advanced Compression option **EE-ES**: Requires the Oracle Advanced Compression option
Exadata Flash Cache Compression	N	N	Y	N	N	N	N	Y	**EE-ES**: Available on Exadata and requires the Oracle Advanced Compression option. Not available on Oracle Database Appliance.
Heat Map	N	Y	Y	N	Y	Y	Y	Y	

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Table 1-13 (Cont.) VLDB, Data Warehousing, and Business Intelligence

Feature / Option / Pack	SE2	EE	EE-ES	Base DB SE	Base DB EE	Base DB EE-HP	Base DB EE-EP	ExaDB	Notes
Automatic Data Optimization	N	Y	Y	N	N	Y	Y	Y	**EE** and **EE-ES**: Requires the Oracle Advanced Compression option or the Oracle Database In-Memory option
Basic Table Compression	N	Y	Y	N	Y	Y	Y	Y	
Deferred Segment Creation	N	Y	Y	N	Y	Y	Y	Y	
Bitmapped index, bitmapped join index, and bitmap plan conversions	N	Y	Y	N	Y	Y	Y	Y	
Parallel query/DML	N	Y	Y	N	Y	Y	Y	Y	
Parallel statistics gathering	N	Y	Y	N	Y	Y	Y	Y	
Parallel index build/ scans	N	Y	Y	N	Y	Y	Y	Y	
Parallel Data Pump Export/Import	N	Y	Y	N	Y	Y	Y	Y	
In-memory Parallel Execution	N	Y	Y	N	Y	Y	Y	Y	
Parallel Statement Queuing	N	Y	Y	N	Y	Y	Y	Y	
Parallel capture and apply via XStream	N	Y	Y	N	Y	Y	Y	Y	
Transportable tablespaces, including cross-platform and full transportable export and import	N	Y	Y	N	Y	Y	Y	Y	Import of transportable tablespaces is supported from all offerings that include Enterprise Edition software into **SE2**; this does not include the use of cross-platform capabilities.
Summary management —Materialized View Query Rewrite	N	Y	Y	N	Y	Y	Y	Y	

1.4 Oracle Database Options and Their Permitted Features

Table 1-14 lists Oracle Database options, the Oracle Database offerings for which each option is available, and the features that are included with each option. You must be licensed for an option in order to use any of its features.

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Table 1-14 Oracle Database Options and Their Permitted Features

Option	Availability	Included Features
Oracle Active Data Guard	Extra cost option: **EE**, **EE-ES** Included option: **PE**, **BaseDB EE-EP**, **ExaDB**	Oracle Active Data Guard includes 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 • Active Data Guard DML Redirection (**CLOUD**: Only available in OCI) In an Oracle Data Guard configuration: • Oracle Active Data Guard must be licensed on any standby databases with any of the above features in use, as well as the primary database. If there are additional standby databases in the Oracle Data Guard configuration that are not using any of the Oracle Active Data Guard features, those standby databases do not require an Oracle Active Data Guard license. **Note:** For customers who back up standby databases to Zero Data Loss Recovery Appliance (ZDLRA) and wish to use the Fast Incremental Backup on Physical Standby or Real-Time Cascade feature, an Oracle Active Data Guard license is not required. Oracle Active Data Guard must still be licensed on standby databases, if any other of the above features are in use. • The container root (`CDB$Root`) of the standby database may be opened read-only without requiring an Oracle Active Data Guard license. An Oracle Active Data Guard license is only required if any of the pluggable databases in the standby is opened for read.

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Table 1-14 (Cont.) Oracle Database Options and Their Permitted Features

Option	Availability	Included Features
Oracle Advanced Compression	Extra cost option: **EE**, **EE-ES** Included option: **PE**, **BaseDB EE-HP**, **BaseDB EE-EP**, **ExaDB**	Oracle Advanced Compression includes the following features: • Advanced Row Compression • Advanced LOB Compression • Advanced LOB Deduplication • RMAN Backup Compression (`RMAN DEFAULT COMPRESS` does not require the Oracle Advanced Compression option) • Data Pump Export Data Compression (`COMPRESSION=METADATA_ONLY` does not require the Oracle Advanced Compression option) • Automatic Data Optimization • Data Guard Redo Transport Compression • Advanced Network Compression • Optimization for Flashback Time Travel 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 • Row-Level Locking for Hybrid Columnar Compression (Requires Exadata, Oracle Database Appliance, Supercluster, ZFS, or FS1 storage) **Note:** The use of Hybrid Columnar Compression without Row-Level Locking does not require a license for Oracle Advanced Compression.
Oracle Advanced Security	Extra cost option: **EE**, **EE-ES** Included option: **PE**, **BaseDB EE-HP**, **BaseDB EE-EP**, **ExaDB**	Oracle Advanced Security includes the following features: • Transparent Data Encryption (TDE) for columns and tablespaces (including Oracle SecureFiles) • DataPump Export File encryption • RMAN backup encryption to disk • Encrypted Database File System (DBFS) • Data Redaction of sensitive data returned to applications (Full, Partial, Regular Expression, and Random techniques) Oracle Advanced Security includes a restricted use license for certain Oracle Enterprise Manager features. Refer to Oracle Advanced Security in "Restricted Use Licenses" for more information. **Note:** Network encryption (native network encryption, network data integrity, 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 Oracle Database.
Oracle Database In-Memory	Extra cost option: **EE**, **EE-ES** Included option: **PE**, **BaseDB EE-EP**, **ExaDB**	Oracle Database In-Memory includes the following features: • In-Memory Column Store • In-Memory Column Cache on Storage Servers (Requires Exadata or Supercluster) • Fault Tolerant In-Memory Column Store (Requires Exadata, Supercluster, or Infiniband-based Oracle Database Appliance) • In-Memory Aggregation • Automatic Data Optimization

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Table 1-14 (Cont.) Oracle Database Options and Their Permitted Features

Option	Availability	Included Features
Oracle Database Vault	Extra cost option: **EE**, **EE-ES** Included option: **PE**, **BaseDB EE-HP**, **BaseDB EE-EP**, **ExaDB**	Oracle Database Vault includes the following features: • Separation of Duties • Realms • Command Rules • Trusted Paths In an Oracle Multitenant environment, an Oracle Database Vault license is required when Oracle Database Vault is enabled in the CDB root, regardless of whether any PDBs are plugged in to the CDB root. An Oracle Database Vault license is not required when Oracle Database Vault is merely installed or configured in the CDB root. The Oracle Database Vault license applies to the entire CDB; you cannot license individual PDBs. When you purchase a license to use Oracle Database Vault on Oracle Database Enterprise Edition (**EE** or **EE-ES**), the licensing metrics for Oracle Database Vault must match the licensing metrics for Oracle Database Enterprise Edition. Oracle Database Vault includes special license rights for Oracle Label Security. Refer to Oracle Database Vault in "Special License Rights" for more information. Oracle Database Vault includes a restricted use license for certain Oracle Enterprise Manager features. Refer to Oracle Database Vault in "Restricted Use Licenses" for more information.
Oracle Label Security	Extra cost option: **EE**, **EE-ES** Included option: **PE**, **BaseDB EE-HP**, **BaseDB EE-EP**, **ExaDB**	Oracle Label Security includes the following features: • Label based access control (LBAC) • Multi-level security (MLS) • Label factors for Oracle Database Vault (Confidential, Sensitive) • User label authorizations (Confidential, Sensitive: PII) • Data labels (Sensitive: PII) In an Oracle Multitenant environment, an Oracle Label Security license is required when an Oracle Label Security policy is created in any container. An Oracle Label Security license is not required when Oracle Label Security is merely installed or enabled in any container. The Oracle Label Security license applies to the entire CDB; you cannot license individual PDBs. When you purchase a license to use Oracle Label Security on Oracle Database Enterprise Edition (**EE** or **EE-ES**), the licensing metrics for Oracle Label Security must match the licensing metrics for Oracle Database Enterprise Edition. Oracle Label Security includes a restricted use license for certain Oracle Enterprise Manager features. Refer to Oracle Label Security in "Restricted Use Licenses" for more information.
Oracle Multitenant	Extra cost option: **EE**, **EE-ES** Included option: **PE**, **BaseDB EE-HP**, **BaseDB EE-EP**, **ExaDB**	Oracle Multitenant includes the following features: • For **EE** and **PE**, the ability to have up to 252 pluggable databases per multitenant container database • For **EE-ES**, **BaseDB EE-HP**, **BaseDB EE-EP**, and **ExaDB**, the ability to have up to 4096 pluggable databases per multitenant container database **Note:** For licensing purposes, one non-CDB instance is equivalent to one user-created PDB inside one CDB.

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Table 1-14 (Cont.) Oracle Database Options and Their Permitted Features

Option	Availability	Included Features
Oracle On-Line Analytical Processing (OLAP)	Extra cost option: **EE**, **EE-ES** Included option: **PE**, **BaseDB EE-HP**, **BaseDB EE-EP**, **ExaDB**	Oracle On-Line Analytical Processing (OLAP) 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	Extra cost option: **EE**, **EE-ES** Included option: **PE**, **BaseDB EE-HP**, **BaseDB EE-EP**, **ExaDB**	These are some of the features that make use of Oracle Partitioning: • Table Partitions and Subpartitions • Global and Local Index Partitions and Subpartitions • AQ Sharded Queues • Zone Maps (Available only on **EE-ES** and **ExaDB**; requires Exadata or Supercluster)
Oracle RAC One Node	Extra cost option: **EE**, **EE-ES**	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 • Zero-Downtime Oracle Grid Infrastructure Patching
Oracle Real Application Clusters (Oracle RAC)	Extra cost option: **EE**, **EE-ES** Included option: **BaseDB EE-EP**, **ExaDB**	Oracle Real Application Clusters (Oracle RAC) includes the following features: • All of the features included with Oracle RAC One Node • Real Application Clusters scaling to multiple servers • Connection Load Balancing • Fast Connection Failover • Hot Cluster Failover

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Table 1-14 (Cont.) Oracle Database Options and Their Permitted Features

Option	Availability	Included Features
Oracle Real Application Testing	Extra cost option: **EE**, **EE-ES** Included option: **PE**, **BaseDB EE**, **BaseDB EE-HP**, **BaseDB EE-EP**, **ExaDB**	Oracle Real Application Testing includes the following features: • Database Replay • SQL Performance Analyzer (SPA) • Database Migration Planner • Database Migration Workbench **Database Replay** • 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. Licensing is also charged by the total number of CPUs on both systems when the capture is done on any read-only standby database and the workload is replayed on a True Cache. • Use of Capture and Replay ASH Analytics Reports, Compare Period ADDM Reports, and Replay Compare Period Reports also requires an Oracle Diagnostics Pack license. • An Oracle Real Application Testing license permits you to access Database Replay functionality through Oracle Enterprise Manager, as well as through the following database server command-line APIs: `DBMS_WORKLOAD_CAPTURE` package and `DBMS_WORKLOAD_REPLAY` package. The use of the `DBMS_WORKLOAD_REPLAY.COMPARE_PERIOD_REPORT()` function also requires a license for Oracle Diagnostics Pack. **SQL Performance Analyzer (SPA)** An Oracle Real Application Testing license permits you to access SQL Performance Analyzer functionality through Oracle Enterprise Manager, as well as through the following database server command-line API: `DBMS_SQLPA` package, which is part of the Oracle Real Application Testing option. **Database Migration Planner** • Database Migration Planner was renamed from Database Consolidation Workbench in Enterprise Manager Cloud Control 13.4. • Database Migration Planner, introduced in Oracle Enterprise Manager Cloud Control 13c, provides a data-driven and systematic approach to consolidation by eliminating guess work and human errors. • Use of the consolidation planning feature of Database Migration Planner requires an Oracle Diagnostics Pack license. • An Oracle Real Application Testing license permits you to access the following links on the Database Migration Planner page in Oracle Enterprise Manager: – From the **Enterprise** menu, select **Migration and Consolidation**, then select **Database Migration Planner**. – On the database target home page, select the **Administration** menu, then select **Database Migration Planner**. – All features, functions, links, buttons, and drill-downs on this page are licensed as part of the Database Migration Planner. **Database Migration Workbench** • Database Migration Workbench, introduced in Oracle Enterprise Manager Cloud Control 13c Release 4, is a single workbench that integrates all needs for migration sizing and performance comparison.

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Table 1-14 (Cont.) Oracle Database Options and Their Permitted Features

Option	Availability	Included Features
		• An Oracle Real Application Testing license permits you to access the following links on the Database Migration Workbench page in Oracle Enterprise Manager: – From the **Enterprise** menu, select **Migration and Consolidation**, then select **Database Migration Workbench**. – All features, functions, links, buttons, and drill-downs on this page are licensed as part of the Database Migration Workbench.
Oracle TimesTen Application-Tier Database Cache	Extra cost option: **EE**, **EE-ES** Included option: **PE**	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

1.5 Oracle Management Packs and Their Permitted Features

Table 1-15 lists Oracle management packs, the Oracle Database offerings for which each pack is available, and the features that are included with each pack. The features in these packs are accessible through Oracle Enterprise Manager, Desktop Widgets, and APIs provided with Oracle Database software. You must be licensed for a management pack in order to use any of its features.

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Table 1-15 Oracle Management Packs and Their Permitted Features

Management Pack	Availability	Included Features
Oracle Cloud Management Pack for Oracle Database	Extra cost pack: **EE**, **EE-ES** Included pack: **BaseDB EE-HP**, **BaseDB EE-EP**, **ExaDB**	**Features:** Oracle Cloud Management Pack for Oracle Database includes the following features: • 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:** Use of the following Oracle Enterprise Manager pages and links requires a license for Oracle Cloud Management Pack for Oracle Database. Starting on the Enterprise Summary home page, click the **Enterprise** menu. Select: • **Cloud**, then **Infrastructure Home** • **Cloud**, then **Infrastructure Request Dashboard** • **Cloud**, then **Infrastructure Policies** • **Cloud**, then **Middleware and Database Home** • **Cloud**, then **Middleware and Database Request Dashboard** • **Cloud**, then **Self Service Portal** • **Cloud**, then **Service Instances** • **Chargeback** • **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**. Starting on the Enterprise Summary home page, click the **Setup** menu. Select: • **Cloud**. Select **Infrastructure** • **Cloud**. Select **Database** • **Provisioning and Patching**, then **Storage Registration** On the Multitenant container database's home page, from the Oracle Database menu, select **Provisioning**, then **Provision Pluggable**

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Table 1-15 (Cont.) Oracle Management Packs and Their Permitted Features

Management Pack	Availability	Included Features
		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**. **Licensed APIs:** Use of the following APIs requires a license for Oracle Cloud Management Pack for Oracle Database: • 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 (CLI) 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. • `add_pool_members` • `create_charge_item` • `create_dbaas_quota` • `create_dbprofile` • `create_pool` • `create_service_template` • `delete_charge_item` • `delete_dbaas_quota` • `delete_pool` • `delete_service_template` • `get_dbaas_quota` • `get_dbaas_request_settings` • `get_metering_data` • `get_pool_capacity_data` • `get_pool_capacity_summary_data` • `get_pool_constraints` • `get_pool_criteria` • `get_pool_detail` • `get_pool_instance_data` • `get_pool_target_type` • `get_pools` • `get_service_template` • `list_charge_item_candidates` • `remove_pool_members` • `update_dbaas_quota` • `update_dbaas_request_settings` • `update_pool` **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`

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Table 1-15 (Cont.) Oracle Management Packs and Their Permitted Features

Management Pack	Availability	Included Features
		• Views starting with `EMCT$CBA` • The `GP_EMCT_CBA_TARGET_CHARGE` views • The `MGMT$EMCT_CBA_CHARGE_DAILY` view • The `MGMT$EMCT_CBA_CHARGE_HOURLY` view **Licensed Chargeback Reports:** The following BI Publisher reports are licensed under Oracle Cloud Management Pack for Oracle Database: • Charge Trend Report • Charge Summary Report • Usage Trend Report • Usage Summary Report Also, any report created using the "create-like" feature of BI publisher referring the preceding reports, falls under this license.

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Table 1-15 (Cont.) Oracle Management Packs and Their Permitted Features

Management Pack	Availability	Included Features
Oracle Data Masking and Subsetting Pack	Extra cost pack: **EE**, **EE-ES** Included pack: **BaseDB EE**, **BaseDB EE-HP**, **BaseDB EE-EP**, **ExaDB**	**Features:** Oracle Data Masking and Subsetting Pack includes the following 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 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 only for the source database server, i.e., the databases from which the data originates. There is no requirement to license the pack for the staging database server on which masking and subsetting operations are executed, or for copies made of the masked database. **Notes:** 1. Oracle Data Masking and Subsetting Pack incorporates the previous Oracle Data Masking Pack, Oracle Test Data Management Pack, and Oracle Data Masking and Subsetting Pack for non-Oracle Databases. 2. Application Data Modeling was previously called Data Discovery and Modeling. **Licensed Links:** All features, functions, links, buttons, and drill-downs on these Oracle Enterprise Manager menus are licensed as part of the Oracle Data Masking and Subsetting Pack. Starting on the Enterprise Summary home page, click the **Enterprise** menu, then **Quality Management**, then select:

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Table 1-15 (Cont.) Oracle Management Packs and Their Permitted Features

Management Pack	Availability	Included Features
		• **Application Data Modeling** • **Data Masking Definitions** • **Data Masking Formats** • **Data Subset Definitions** From the Oracle database or cluster database target home page, click the **Security** menu, then select: • **Application Data Modeling** • **Data Masking Definitions** • **Data Subsetting**

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Table 1-15 (Cont.) Oracle Management Packs and Their Permitted Features

Management Pack	Availability	Included Features
Oracle Database Lifecycle Management Pack for Oracle Database	Extra cost pack: **EE**, **EE-ES** Included pack: **BaseDB EE-HP**, **BaseDB EE-EP**, **ExaDB**	**Features:** Oracle Database Lifecycle Management Pack for Oracle Database includes the following features: • 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) With the purchase of Oracle 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 Oracle Database Lifecycle Management Pack for Oracle Database.) • Migrate to ASM • Self Update **Licensed Parameters:** The `init.ora` parameter `ENABLE_DDL_LOGGING` is licensed as part of Oracle Database Lifecycle Management Pack for Oracle Database when set to `TRUE`. When set to `TRUE`, the database reports schema changes in

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Table 1-15 (Cont.) Oracle Management Packs and Their Permitted Features

Management Pack	Availability	Included Features
		real time into the database alert log under the message group schema_ddl. The default setting is FALSE. **Licensed Links:** The Licensed Links, features, and functions listed in the following sections 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. **Licensed Links – Database Provisioning Procedures:** Use of the following Oracle Enterprise Manager pages and links requires a license for Oracle Database Lifecycle Management Pack for Oracle Database: • 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 Oracle Database Lifecycle Management Pack for Oracle Database. • 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 Oracle Database Lifecycle Management Pack for Oracle Database. • 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 Oracle Database Lifecycle Management Pack for Oracle Database. **Licensed Links – Database Upgrade:** Use of the following Oracle Enterprise Manager pages and links requires a license for Oracle Database Lifecycle Management Pack for Oracle Database: • 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 Oracle Database Lifecycle Management Pack for Oracle Database. • 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 Oracle Database Lifecycle Management Pack for Oracle Database. **Licensed Links – User Defined Deployment Procedures (UDDP)** Use of the following Oracle Enterprise Manager pages and links requires a license for Oracle Database Lifecycle Management Pack for Oracle Database: • 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 Oracle Database Lifecycle Management Pack for Oracle Database. **Licensed Links – RAC Scale Out and Scale Back** Use of the following Oracle Enterprise Manager pages and links requires a license for Oracle Database Lifecycle Management Pack for Oracle Database: • From the Enterprise Manager home page, click the **Enterprise** menu, **Provisioning and Patching**, then **Procedure Library**. All

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Table 1-15 (Cont.) Oracle Management Packs and Their Permitted Features

Management Pack	Availability	Included Features
		Procedures that Extend or Scale a database or RAC are licensed with Oracle Database Lifecycle Management Pack for Oracle Database. • 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 Oracle Database Lifecycle Management Pack for Oracle Database. • 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 Oracle Database Lifecycle Management Pack for Oracle Database. **Licensed Links – Database Patching** Use of the following Oracle Enterprise Manager pages and links requires a license for Oracle Database Lifecycle Management Pack for Oracle Database: • 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 Oracle Database Lifecycle Management Pack for Oracle Database. **Licensed Links – Offline Patching** Use of the following Oracle Enterprise Manager pages and links requires a license for Oracle Database Lifecycle Management Pack for Oracle Database: • 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 Oracle Database Lifecycle Management Pack for Oracle Database. **Licensed Links – Configuration Instance Browser** Use of the following Oracle Enterprise Manager pages and links requires a license for Oracle Database Lifecycle Management Pack for Oracle Database: • 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 Oracle Database Lifecycle Management Pack for Oracle Database. • If the Target Home Page is accessed directly or by other paths: – 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 Oracle Database Lifecycle Management Pack for Oracle Database. **Licensed Links – Configuration Search** Use of the following Oracle Enterprise Manager pages and links requires a license for Oracle Database Lifecycle Management Pack for Oracle Database: • From the Enterprise Manager home page, click the **Enterprise** menu, then **Configuration and Search**. All features, functions, links,

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Table 1-15 (Cont.) Oracle Management Packs and Their Permitted Features

Management Pack	Availability	Included Features
		buttons, and drill-downs on this page are licensed as part of Oracle Database Lifecycle Management Pack for Oracle Database. **Licensed Links – Configuration History** Use of the following Oracle Enterprise Manager pages and links requires a license for Oracle Database Lifecycle Management Pack for Oracle Database: • 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 Oracle Database Lifecycle Management Pack for Oracle Database. **Licensed Links – Configuration Compare** Use of the following Oracle Enterprise Manager pages and links requires a license for Oracle Database Lifecycle Management Pack for Oracle Database: • 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 Oracle Database Lifecycle Management Pack for Oracle Database. **Licensed Links – Configuration Save** Use of the following Oracle Enterprise Manager pages and links requires a license for Oracle Database Lifecycle Management Pack for Oracle Database: • 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 Oracle Database Lifecycle Management Pack for Oracle Database. **Licensed Links – Configuration Topology** Use of the following Oracle Enterprise Manager pages and links requires a license for Oracle Database Lifecycle Management Pack for Oracle Database: • From the Target Home Page, click on **Oracle Database**, **Configuration**, **Topology**. In the View Dropdown, Used By is licensed as part of Oracle Database Lifecycle Management Pack for Oracle Database. • 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 Oracle Database Lifecycle Management Pack for Oracle Database. • If the Target Home Page is accessed directly or by other paths: – From the Target Home Page, click on **Oracle Database**, **Configuration**, **Topology**. In the View drop-down, Used By is licensed as part of Oracle Database Lifecycle Management Pack for Oracle Database. – 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 Oracle Database Lifecycle Management Pack for Oracle Database. **Licensed Links – Configuration Collection Extensibility** Use of the following Oracle Enterprise Manager pages and links requires a license for Oracle Database Lifecycle Management Pack for Oracle Database: • From the Enterprise Manager home page, click the **Enterprise** menu, then **Configuration and Custom**. All features, functions,

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Management Pack	Availability	Included Features
		links, buttons, and drill-downs on this page are licensed as part of Oracle Database Lifecycle Management Pack for Oracle Database. **Licensed Links – File Synchronization** Use of the following Oracle Enterprise Manager pages and links requires a license for Oracle Database Lifecycle Management Pack for Oracle Database: • 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 Oracle Database Lifecycle Management Pack for Oracle Database. **Licensed Links – Schema Comparison:** Use of the following Oracle Enterprise Manager pages and links requires a license for Oracle Database Lifecycle Management Pack for Oracle Database: • 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 Oracle Database Lifecycle Management Pack for Oracle Database. • If the Target Home Page is accessed directly or by other paths: – From the database home page, click on **Schema**, **Change Management**. All features, unctions, links, buttons, and drill-downs on this menu are licensed as part of Oracle Database Lifecycle Management Pack for Oracle Database. **Licensed Links – Schema and Data Comparisons:** Use of the following Oracle Enterprise Manager pages and links requires a license for Oracle Database Lifecycle Management Pack for Oracle Database: • 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 Oracle Database Lifecycle Management Pack for Oracle Database. • If the Target Home Page is accessed directly or by other paths: – 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 Oracle Database Lifecycle Management Pack for Oracle Database. **Licensed Links – Schema and Data Synchronization:** Use of the following Oracle Enterprise Manager pages and links requires a license for Oracle Database Lifecycle Management Pack for Oracle Database: • 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 Oracle Database Lifecycle Management Pack for Oracle Database. • If the Target Home Page is accessed directly or by other paths:

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Management Pack	Availability	Included Features
		– 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 Oracle Database Lifecycle Management Pack for Oracle Database. **Licensed Links – Copy Objects:** Use of the following Oracle Enterprise Manager pages and links requires a license for Oracle Database Lifecycle Management Pack for Oracle Database: • 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 Oracle Database Lifecycle Management Pack for Oracle Database. • If the Target Home Page is accessed directly or by other paths: – 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 Oracle Database Lifecycle Management Pack for Oracle Database. **Licensed Links – Real-Time Schema Change Detection:** Use of the following Oracle Enterprise Manager pages and links requires a license for Oracle Database Lifecycle Management Pack for Oracle Database: • 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 Oracle Database Lifecycle Management Pack for Oracle Database. • If the Target Home Page is accessed directly or by other paths: – 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 Oracle Database Lifecycle Management Pack for Oracle Database. **Licensed Links – Real-time Configuration Change Detection and Compliance:** Use of the following Oracle Enterprise Manager pages and links requires a license for Oracle Database Lifecycle Management Pack for Oracle Database: • 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 Oracle Database Lifecycle Management Pack for Oracle Database. **Licensed Reports:** The following reports are part of Oracle 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 Oracle Database Lifecycle Management Pack for Oracle Database:

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Table 1-15 (Cont.) Oracle Management Packs and Their Permitted Features

Management Pack	Availability	Included Features
		• 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 Oracle Database Lifecycle Management Pack for Oracle Database: • Compliance • Deployment and Configuration • Sample Host reports, Configuration Reports • Security **Licensed Command Line Interface (CLI) Verbs:** The following Enterprise Manager Command Line Interface (CLI) verbs are licensed as part of Oracle Database Lifecycle Management Pack for Oracle Database. • `associate_cs_targets` • `clone_database` • `config_compare` • `config_db_service_target` • `configure_log_archive_locations` • `confirm_instance` • `create_database` • `describe_instance` • `describe_procedure_input` • `disable_config_history` • `enable_config_history` • `export_compliance_group` • `export_compliance_standard_rule` • `export_facet` • `export_standard` • `fix_compliance_state` • `get_config_searches` • `get_config_templates` • `get_executions` • `get_instance_data` • `get_instance_status` • `get_instances` • `get_oms_config_property` • `get_procedure_types` • `get_procedure_xml` • `get_procedures` • `get_retry_argument` • `get_saved_configs` • `ignore_instance` • `import_compliance_object` • `list_oms_config_properties` • `remove_cs_target_association` • `reschedule_instance`

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Table 1-15 (Cont.) Oracle Management Packs and Their Permitted Features

Management Pack	Availability	Included Features
		• resume_instance • run_config_search • save_procedure • set_config_history_retention_period • stop_instance • submit_procedure • suspend_instance • update_and_retry_step • update_procedure_input • upgrade_database **Licensed Repository Views – Compliance Views:** The following compliance views within the repository schema are licensed under Oracle Database Lifecycle Management Pack for Oracle Database: • MGMT$CCC_ALL_OBS_BUNDLES • MGMT$CCC_ALL_OBSERVATIONS • MGMT$CCC_DIAG_ANALYTICS • MGMT$CCC_DIAG_QUEUEBACKLOG • MGMT$COMPLIANCE_STANDARD • MGMT$COMPLIANCE_STANDARD_GROUP • MGMT$COMPLIANCE_STANDARD_RULE • MGMT$COMPOSITE_CS_EVAL_SUMMARY • MGMT$CS_ASM_DISKGRP_SETTINGS • MGMT$CS_DB_CONTROL_FILE_COUNT • MGMT$CS_DB_INIT_PARAMS • MGMT$CS_DB_RBS_IN_SYSTEM • MGMT$CS_DB_REC_SEG_SETTINGS • MGMT$CS_DB_REC_TS_SETTINGS • MGMT$CS_DB_REC_USER_SETTINGS • MGMT$CS_DB_REDO_LOG_COUNT • MGMT$CS_DB_REDO_LOGS • MGMT$CS_DB_TABLESPACES • MGMT$CS_DB_TBSP_SEGSPACE_MGMT • MGMT$CS_EVAL_SUMMARY • MGMT$CS_FEATURE_USAGE • MGMT$CS_GROUP_EVAL_SUMMARY • MGMT$CS_GROUP_KEYWORD • MGMT$CS_HA_INFO • MGMT$CS_HIERARCHY • MGMT$CS_KEYWORD • MGMT$CS_RQS_HIERARCHY • MGMT$CS_RULE_ATTRS • MGMT$CS_RULE_EVAL_SUMMARY • MGMT$CS_RULEFOLDER • MGMT$CS_TARGET_ASSOC • MGMT$CS_TGT_ASSOC_TXF_REQ • MGMT$CSG_HIERARCHY • MGMT$CSG_SUBGROUP • MGMT$CSR_CURRENT_VIOLATION

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Table 1-15 (Cont.) Oracle Management Packs and Their Permitted Features

Management Pack	Availability	Included Features
		• MGMT$CSR_TARGET_ASSOC • MGMT$CSR_VIOLATION_CONTEXT • MGMT$CSRF_TARGET_ASSOC • MGMT$EM_CS_RULE_EVENT_ERROR • MGMT$EM_RULE_VIOL_CTXT_DEF • MGMT$ICS_TARGET_ASSOC • MGMT$REPO_RULE_CHK_DETAILS • MGMT$REPOSITORY_RULE_BIND_VARS • MGMT$REPOSITORY_RULE_PARAMS • MGMT$RULE_KEYWORD **Licensed Repository Views – Provisioning and Patching Views:** The following provisioning and patching views within the repository schema are licensed under Oracle Database Lifecycle Management Pack for Oracle Database: • EM$PROV_APPTYPES • EM$PROVAPP_METADATA • EM$PROVAPP_METADATA_VERSION • EM$PROVAPP_TAG_PROPERTIES • EM$PROVAPP_TAGS • MGMT$PA_RECOM_METRIC_SOURCE **Licensed Repository Views – Patching Views:** The following patching views within the repository schema are licensed under Oracle Database Lifecycle Management Pack for Oracle Database: • GC$EM_PC_PLAN_PATCHES • GC$EM_PC_PLANS • GC$EM_PC_PLAN_TARGETS • GC_PC_EXECUTION_INSTANCES • GC_PC_PLAN_ANALYSIS_RS • GC_PC_PLAN_REMEDY • GC_PC_PLAN_REMEDY_DETAILS • GC_PC_PLAN_USERS • GC_PC_TARGETS • MGMT$APPLIED_PATCHES • MGMT$APPLIED_PATCHSETS • MGMT$ARU_FAMILY_PRODUCT_MAP • MGMT$ARU_LANGUAGES • MGMT$ARU_PATCH_RECOMMENDATIONS • MGMT$ARU_PLATFORMS • MGMT$ARU_PRODUCT_RELEASE_MAP • MGMT$ARU_PRODUCTS • MGMT$ARU_RELEASES • MGMT$ARU_TARGETS • MGMT$PA_AFFTED_HOST_GUID_OH • MGMT$PA_AFFTED_HOST_OH • MGMT$PA_AFFTED_TARGETS • MGMT$PA_FINAL_PATCH_LIST • MGMT$PA_TARGET_MAPPING • MGMT$PR_APPL_PATCHES_TO_OH

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Table 1-15 (Cont.) Oracle Management Packs and Their Permitted Features

Management Pack	Availability	Included Features
		• MGMT$PR_APPL_PATCHES_TO_OH_TGT • MGMT$PR_HOME_INFO • MGMT$PR_HOMES_AFFECTED_COUNT • MGMT$RECOM_METRIC_SOURCE **Licensed Repository Views – Configuration Views:** The following configuration views within the repository schema are licensed under Oracle Database Lifecycle Management Pack for Oracle Database: • GC$ECM_COMP_PROPERTIES • GC$ECM_CONFIG_SUMMARY • GC$ECM_CURR_CONFIG • GC$ECM_CURR_CONFIG_FLAT_MEMS • GC$ECM_CURR_CONFIG_SNAPSHOTS • GC$ECM_CURR_TARGET_SNAPSHOTS • GC$ECM_DATA_RETENTION_TIME • GC$ECM_GEN_SNAPSHOT • GC$ECM_SAVED_CONFIG • GC$ECM_SAVED_CONFIG_FLAT_MEMS • GC$ECM_SAVED_CONFIG_SNAPSHOTS • GC$ECM_SAVED_CONFIG_TARGETS • GC$ECM_SAVED_TARGET_SNAPSHOTS • MGMT$CCS_DATA • MGMT$CCS_DATA_SOURCE • MGMT$CCS_DATA_SOURCE_VISIBLE • MGMT$CCS_DATA_VISIBLE • MGMT$DB_CONTROLFILES • MGMT$DB_DATAFILES • MGMT$DB_DBNINSTANCEINFO • MGMT$DB_FEATUREUSAGE • MGMT$DB_INIT_PARAMS • MGMT$DB_LICENSE • MGMT$DB_OPTIONS • MGMT$DB_REDOLOGS • MGMT$DB_ROLLBACK_SEGS • MGMT$DB_SGA • MGMT$DB_TABLESPACES • MGMT$DB_TABLESPACES_ALL • MGMT$ECM_CMP_JOB_LAST_RESULTS • MGMT$ECM_CMP_JOBS • MGMT$ECM_CMP_RPT_CCS_DS • MGMT$ECM_CMP_RPT_CCS_DS_DTLS • MGMT$ECM_CMP_RPT_CCS_PD_ALL • MGMT$ECM_CMP_RPT_CCS_PD_DIFFS • MGMT$ECM_CMP_RPT_CI_DIFFS • MGMT$ECM_CMP_VISIBLE_CONFIGS • MGMT$ECM_CURRENT_SNAPSHOTS • MGMT$ECM_VISIBLE_SNAPSHOTS • MGMT$SERVICETAG_INSTANCES

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Table 1-15 (Cont.) Oracle Management Packs and Their Permitted Features

Management Pack	Availability	Included Features
		• MGMT$SERVICETAG_REGISTRY • MGMT$UNPATCHABLE_DB_TARGETS **Licensed Repository Views – Oracle Home Patching Views:** The following Oracle home patching views within the repository schema are licensed under Oracle Database Lifecycle Management Pack for Oracle Database: • MGMT$APPLIED_PATCHES • MGMT$APPLIED_PATCHSETS • MGMT$APPL_PATCH_AND_PATCHSET • MGMT$CPF_ADVISORY_INFO • MGMT$CPF_HOMES_INFO • MGMT$CPF_PATCH_INFO • MGMT$EM_HOMES_PLATFORM • MGMT$HOMES_AFFECTED • MGMT$OH_CLONE_PROPERTIES • MGMT$OH_COMP_DEP_RULE • MGMT$OH_COMP_INST_TYPE • MGMT$OH_COMPONENT • MGMT$OH_CRS_NODES • MGMT$OH_DEP_HOMES • MGMT$OH_FILE • MGMT$OH_HOME_INFO • MGMT$OH_INSTALLED_TARGETS • MGMT$OH_INV_SUMMARY • MGMT$OH_PATCH • MGMT$OH_PATCHED_COMPONENT • MGMT$OH_PATCHED_FILE • MGMT$OH_PATCH_FIXED_BUG • MGMT$OH_PATCHSET • MGMT$OH_VERSIONED_PATCHV • MGMT$PATCH_ADVISORIES **Licensed Repository Views – Security Views:** The following security views within the repository schema are licensed under Oracle Database Lifecycle Management Pack for Oracle Database: • MGMT$ESA_ALL_PRIVS_REPORT • MGMT$ESA_ANY_DICT_REPORT • MGMT$ESA_ANY_PRIV_REPORT • MGMT$ESA_AUDIT_SYSTEM_REPORT • MGMT$ESA_BECOME_USER_REPORT • MGMT$ESA_CATALOG_REPORT • MGMT$ESA_CONN_PRIV_REPORT • MGMT$ESA_CREATE_PRIV_REPORT • MGMT$ESA_DBA_GROUP_REPORT • MGMT$ESA_DBA_ROLE_REPORT • MGMT$ESA_DIRECT_PRIV_REPORT • MGMT$ESA_EXMPT_ACCESS_REPORT • MGMT$ESA_KEY_OBJECTS_REPORT • MGMT$ESA_OH_OWNERSHIP_REPORT

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Table 1-15 (Cont.) Oracle Management Packs and Their Permitted Features

Management Pack	Availability	Included Features
		• MGMT$ESA_OH_PERMISSION_REPORT • MGMT$ESA_POWER_PRIV_REPORT • MGMT$ESA_PUB_PRIV_REPORT • MGMT$ESA_SYS_PUB_PKG_REPORT • MGMT$ESA_TABSP_OWNERS_REPORT • MGMT$ESA_TRC_AUD_PERM_REPORT • MGMT$ESA_WITH_ADMIN_REPORT • MGMT$ESA_WITH_GRANT_REPORT **Licensed Repository Views – Client Configuration Views:** The following client configuration views within the repository schema are licensed under Oracle Database Lifecycle Management Pack for Oracle Database: • MGMT$CSA_COLLECTIONS • MGMT$CSA_FAILED • MGMT$CSA_HOST_COOKIES • MGMT$CSA_HOST_CPUS • MGMT$CSA_HOST_CUSTOM • MGMT$CSA_HOST_IOCARDS • MGMT$CSA_HOST_NICS • MGMT$CSA_HOST_OS_COMPONENTS • MGMT$CSA_HOST_OS_FILESYSEMS • MGMT$CSA_HOST_OS_PROPERTIES • MGMT$CSA_HOST_RULES • MGMT$CSA_HOST_SW • MGMT$ECM_CONFIG_HISTORY

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Table 1-15 (Cont.) Oracle Management Packs and Their Permitted Features

Management Pack	Availability	Included Features
Oracle Diagnostics Pack	Extra cost pack: **EE**, **EE-ES** Included pack: **BaseDB EE**, **BaseDB EE-HP**, **BaseDB EE-EP**, **ExaDB**	**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 • ADDM Spotlight • Active Session History (ASH) • ASH analytics • Performance Hub • Top Activity Lite • 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 functionally 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 functionally 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.

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Table 1-15 (Cont.) Oracle Management Packs and Their Permitted Features

Management Pack	Availability	Included Features

		– 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_ADDM, DBMS_PERF, DBMS_UMF, and DBMS_WORKLOAD_REPOSITORY packages are 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:

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Table 1-15 (Cont.) Oracle Management Packs and Their Permitted Features

Management Pack	Availability	Included Features
		The following monitoring views are licensed under Oracle Diagnostics Pack: • 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$TARGET_METRIC_SETTINGS **Licensed Repository Views – Template Views:** The following template views are licensed under Oracle Diagnostics Pack: • MGMT$TEMPLATES • MGMT$TEMPLATE_METRIC_COLLECTION • MGMT$TEMPLATE_METRIC_SETTINGS • MGMT$TEMPLATE_POLICY_SETTINGS **Additional Licensing Information:** • The use of Automatic Workload Repository Hub (AWR Hub) features in the database requires both an Oracle Diagnostics Pack license and an OCI Operations Insights Service subscription. • The use of PL/SQL APIs through the DBMS_AWRHUB package requires both an Oracle Diagnostics Pack license and an OCI Operations Insights Service subscription. • The use of ADDM Spotlight in Enterprise Manager requires an Oracle Diagnostics Pack license. • The use of ADDM Spotlight in OCI Operations Insights Service requires both an Oracle Diagnostics Pack license and an OCI Operations Insights Service subscription. • The use of Top Activity Lite in Enterprise Manager requires an Oracle Diagnostics Pack license. • The use of Top Activity Lite in OCI Database Management Service requires both an Oracle Diagnostics Pack license and an OCI Database Management Service subscription – Full Management.

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Table 1-15 (Cont.) Oracle Management Packs and Their Permitted Features

Management Pack	Availability	Included Features
Oracle Tuning Pack	Extra cost pack: **EE**, **EE-ES** Included pack: **BaseDB EE**, **BaseDB EE-HP**, **BaseDB EE-EP**, **ExaDB**	**Features:** Oracle Tuning Pack includes the following features: • SQL Access Advisor • SQL Tuning Advisor • Oracle Database In-Memory Advisor • Automatic SQL Tuning • SQL Profiles • Real-time SQL and PL/SQL Monitoring • Real-time Database Operations Monitoring • Reorganize objects 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 functionally 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 functionally 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. **Prerequisites:** Oracle Tuning Pack requires Oracle Diagnostics Pack. **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_AUTO_SQLTUNE` • `DBMS_PERF` • `DBMS_SQL_MONITOR` • `DBMS_SQLTUNE` (See Note)

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Table 1-15 (Cont.) Oracle Management Packs and Their Permitted Features

Management Pack	Availability	Included Features
		• 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. **Note**: If you are licensed for the on-premises Oracle Database Enterprise Edition, then you can use certain subprograms of the DBMS_SQLTUNE package even if you do not have an Oracle Tuning Pack license. See the SQL Tuning Sets entry in Table 1-6 for more information.

1.6 Checking for Feature, Option, and Management Pack Usage

Oracle provides the script **options_packs_usage_statistics.sql**, which enables you to check feature usage, Oracle Database option usage, and Oracle management pack usage on your database. This script lists, in two distinct sections:

- Oracle Database option and Oracle management pack usage
- Features used by each option and management pack

You can obtain the script 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 KB143588, or access it directly with the following URL:

   https://support.oracle.com/support/?documentId=KB143588

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

> **Note**
>
> The information obtained from this script will provide you an overview of the licensable Oracle Database options and Oracle 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.

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1.7 Special License Rights

Table 1-16 Special License Rights

Feature / Option	Licensing Information
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.
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.
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.
GoldenGate Supplemental Logging	GoldenGate Supplemental Logging feature enables logging of additional information in the redo logs. GoldenGate Supplemental Logging is enabled when the database parameter `ENABLE_GOLDENGATE_REPLICATION` is set to `TRUE`. GoldenGate Supplemental Logging is a licensed feature that requires either a software license or an authorized managed cloud client for consuming the GoldenGate supplemental log records. For on-premises GoldenGate supplemental log capture, a license for Oracle GoldenGate is required regardless of which APIs are used for log consumption (e.g., LogMiner, XStream or 3rd party tools). See *Oracle GoldenGate Licensing Information* for more information about GoldenGate licenses. Authorized managed cloud services, such as Oracle Cloud Infrastructure GoldenGate, may also consume GoldenGate supplemental log records. See "Oracle PaaS and IaaS Universal Credits Service Descriptions" (https://www.oracle.com/contracts/docs/paas_iaas_universal_credits_3940775.pdf) for more information. When the database parameter `ENABLE_GOLDENGATE_REPLICATION` is set to `TRUE`, the end user must be using an authorized managed cloud client or have licensed Oracle GoldenGate for the database processors. Contact your Oracle sales representative for additional information.
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, Sharding 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, Global Data Services Catalog, and Sharding 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 for RMAN, Oracle Enterprise Manager Cloud Control, AWR Warehouse, Global Data Services, and Grid infrastructure management Repository, then an Enterprise Edition license for the standby server is required. The Infrastructure Database for the Sharding Catalog can be protected with Data Guard without a second Enterprise Edition license.

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Table 1-16 (Cont.) Special License Rights

Feature / Option	Licensing Information
Oracle ASM Cluster File System (Oracle ACFS)	When used with non-Oracle Database files, all Oracle ACFS features are free. When used with Oracle Database files, all Oracle ACFS features are free, with the following exceptions: • ACFS Auditing - Not available (use Oracle Audit Vault*) • ACFS Compression - Not available (use Oracle Advanced Compression*) • ACFS Encryption - Not available (use Oracle Transparent Data Encryption (TDE), part of the Oracle Advanced Security option*) • ACFS Security - Not available (use Oracle Database Vault*) * Requires appropriate full-use licenses to these products or components. 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.
Oracle Automatic Storage Management (Oracle ASM)	Oracle ASM is free to use with all Oracle databases and Oracle ACFS file systems.
Oracle BYOL (Bring Your Own License)	Oracle BYOL allows you to use your existing on-premises Oracle Database license with Oracle Cloud Infrastructure (OCI) database services. When doing so, you are granted the right to use certain features, as follows: • When you use an on-premises **Oracle Database Standard Edition 2** license for Oracle BYOL with Oracle Base Database Service, you are granted the right to use the following features, free of charge, even if your on-premises license does not include entitlements to these features: – Oracle Data Safe (1M included audit records per database per month) – Transparent Data Encryption • When you use an on-premises **Oracle Database Enterprise Edition** license for Oracle BYOL with Oracle Exadata Database Service on Dedicated Infrastructure, Exadata Database Service on Cloud@Customer, Exadata Database Service on Exascale Infrastructure, or Base Database Service, you are granted the right to use the following features, free of charge, even if your on-premises license does not include entitlements to these features: – DDL logging functionaliy of Oracle Database Lifecycle Management Pack (`ENABLE_DDL_LOGGING=TRUE`) – Exadata In-Memory Columnar Cache on Storage Servers (Applicable only when using Oracle BYOL with Exadata environments) – Exadata System Software (Applicable only when using Oracle BYOL with Exadata environments) – Oracle Data Masking and Subsetting Pack – Oracle Data Safe (1M included audit records per database per month) – Oracle Diagnostics Pack – Oracle Real Application Testing – Oracle Tuning Pack – Transparent Data Encryption
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 that is under a valid Oracle support contract. Examples of such products include, but are not limited to, Oracle Linux, Oracle Solaris, Oracle Database, and Oracle Fusion Middleware.
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.

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Table 1-16 (Cont.) Special License Rights

Feature / Option	Licensing Information
Oracle Data Guard broker	You can install the broker command line interface DGMGRL and run the observer software on computer systems that are separate from the Oracle Data Guard primary and standby systems. It is not necessary to obtain a separate license for a system hosting the observer.
Oracle Database Backup Cloud Service	Oracle Database Backup Cloud Service includes use of the following two features from the Oracle Advanced Security option or the Oracle Advanced Compression option at no additional cost: • 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 separately licensed when performing RMAN encrypted backups directly to disk.
Oracle Database Cloud Backup for Amazon S3	For backup of Oracle Database Enterprise Edition, Oracle Database Cloud Backup for Amazon S3 includes restricted use licenses for: • RMAN backup encryption to Amazon S3 • RMAN backup compression leveraging LOW, MEDIUM, BASIC or HIGH algorithms The Oracle Database Cloud Backup for Amazon S3 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.
Oracle Database Cloud Backup for Amazon S3 on ZDLRA	Oracle Database Cloud Backup for Amazon S3 can be used free of charge on Oracle Zero Data Loss Recovery Appliance (ZDLRA) for the sole purpose of backing up data to and restoring data from S3-compatible storage devices that are in the same campus as ZDLRA. This special use license does not allow you to move such data to or from Non-Oracle Public Cloud Environments, either directly or through gateway devices. You are allowed to move such data to and from Oracle databases that do not have ZDLRA, however, Oracle Database Cloud Backup for Amazon S3 must be licensed on those Oracle databases. For example, if you use Oracle Database Cloud Backup for Amazon S3 free of charge on ZDLRA to back up data to an S3-compatible storage device, you can then use Oracle Database Cloud Backup for Amazon S3 to restore that data to an Oracle database without ZDLRA, but only if Oracle Database Cloud Backup for Amazon S3 is licensed on that Oracle database. To move data to or from the Oracle Cloud Infrastructure, ZDLRA provides built-in integration with the OCI Backup Cloud Module, which does not require a license.
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 Vault	When Oracle Database Vault is configured and enabled, it configures and enables Oracle Label Security. Oracle Label Security is solely restricted for use by the Oracle Database Vault software. If you want to create Oracle Label Security policies, then you must purchase a full-use license for Oracle Label Security.

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Table 1-16 (Cont.) Special License Rights

Feature / Option	Licensing Information
Oracle JDK and Oracle JRE	Oracle customers of Oracle products that use the Oracle JDK or Oracle JRE are entitled, without the need to separately purchase Oracle Java SE Subscriptions, to the following: • Download and use Oracle Java SE updates, patches, and tools for use with the licensed Oracle product. Customers are only entitled to download such Java SE versions as are required by their Oracle product. • Install and use such Java SE updates, patches, and tools to develop or deploy an Oracle product. • Customers can file service requests for Java issues against an Oracle product, but not directly against Java SE. • Oracle JFR may be used when requested by Oracle Support for troubleshooting Oracle products on any supported Oracle product.
Oracle Real Application Testing	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 Oracle9*i* Database Release 2 or Oracle Database 10g. The functionality available on Oracle9*i* 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 9*i* 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 Oracle9*i* 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 9*i* 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). Oracle Real Application Testing licensing is required for both systems, Oracle Database 10g Release 2 and Oracle Database 11g.
Oracle Secure Backup 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. **Note:** Oracle is commencing desupport of Oracle Secure Backup as of May 1, 2026. See My Oracle Support note PNEWS3035 for more information.

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Table 1-16 (Cont.) Special License Rights

Feature / Option	Licensing Information
Oracle Secure Backup Cloud Module on ZDLRA	Oracle Secure Backup Cloud Module can be used free of charge on Oracle Zero Data Loss Recovery Appliance (ZDLRA) for the sole purpose of backing up data to and restoring data from S3-compatible storage devices that are in the same campus as ZDLRA. This special use license does not allow you to move such data to or from Non-Oracle Public Cloud Environments, either directly or through gateway devices. You are allowed to move such data to and from Oracle databases that do not have ZDLRA, however, Oracle Secure Backup Cloud Module must be licensed on those Oracle databases. For example, if you use Oracle Secure Backup Cloud Module free of charge on ZDLRA to back up data to an S3-compatible storage device, you can then use Oracle Secure Backup Cloud Module to restore that data to an Oracle database without ZDLRA, but only if Oracle Secure Backup Cloud Module is licensed on that Oracle database. To move data to or from the Oracle Cloud Infrastructure, the ZDLRA provides an integration with the OCI Backup Cloud Module which does not require a license. **Note:** Oracle is commencing desupport of Oracle Secure Backup as of May 1, 2026. See My Oracle Support note PNEWS3035 for more information.
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*. **Note:** Oracle is commencing desupport of Oracle Secure Backup as of May 1, 2026. See My Oracle Support note PNEWS3035 for more information.
Oracle Spatial and Graph	These Oracle Spatial and Graph components can be installed and used on a server different from the server where the Oracle Database is installed and used without a separate license: • Spatial Geocoder • Spatial Routing engine • Spatial Web Services • Property Graph client • In-memory analyst (PGX) • Spatial Visualization component • Spatial Studio For more information, see *Oracle Spatial and Graph Developer's Guide* and *Oracle Spatial and Graph Property Graph Developer's Guide*.
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. Network encryption (native network encryption, network data integrity, 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 Oracle Database.
Shard Director	The shard directors 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 shard directors.

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Table 1-16 (Cont.) Special License Rights

Feature / Option	Licensing Information
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.

1.8 Restricted Use Licenses

Table 1-17 Restricted Use Licenses

Feature / Option	Licensing Information
AQ Sharded Queues	Restricted use of Oracle Partitioning is allowed on all offerings, free of charge, for the sole purpose of supporting AQ Sharded Queues. All other uses of Oracle Partitioning require a license for the Oracle Partitioning option, where available.
Oracle Advanced Compression Oracle Advanced Security	Restricted use licenses for Oracle Advanced Compression and Oracle Advanced Security are granted when performing either of the following migrations: • Oracle Zero Downtime Migration • Oracle Cloud Infrastructure Database Migration (DMS) These restricted use licenses are in effect only while the migration is being performed and apply solely for the purposes of the migration operation. All other uses of Oracle Advanced Compression and Oracle Advanced Security require a license.
Oracle Advanced Security	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 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 Application Server Containers for J2EE	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, and Application Express, and may not be used or deployed for other purposes
Oracle Applications Unlimited	An Oracle Base Database Service Enterprise Edition (BaseDB EE) instance being used to support an Oracle Cloud deployment of an Oracle Applications Unlimited application has restricted use of the following options: Oracle On-Line Analytical Processing (OLAP) and Oracle Partitioning. These options may be used only to support Oracle Applications Unlimited and may not be used or deployed for any other purpose.

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Table 1-17 (Cont.) Restricted Use Licenses

Feature / Option	Licensing Information
Oracle Big Data SQL	Oracle Big Data SQL includes a Query Server that is used to query data sources including HDFS, Kafka, and NoSQL stores. Oracle Big Data SQL includes a restricted use license of Oracle Database for storing metadata (i.e. external tables and views) maintained by the Query Server. No other objects may be created in this Oracle Database.
Oracle Data Masking and Subsetting Pack	A restricted use license for Oracle Advanced Security is included for encrypted Data Pump exports and imports used by Oracle Data Masking and Subsetting. No other features of Oracle Advanced Security are included.
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.
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2

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		// ----------
		// Transitive dependencies of this project determined
		// from the maven pom organized by organization.
		// ----------
		
		Apache MINA SSHD
		From: 'QOS.ch' (http://www.qos.ch)
		• JCL 1.2 implemented over SLF4J (http://www.slf4j.org) org.slf4j:jcl-over-slf4j:jar:1.7.32
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https://github.com/madler/zlib

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Bit Twiddling Hacks

By Sean Eron Anderson

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Files:

DBIXS.h

vim: ts=8:sw=4:expandtab

Id

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Files:

Driver_xst.h

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dbd_xsh.h

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Files:

dbi_sql.h

Id

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Version 1.1 - 26 February 2007

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gdal/frmts/gtiff/tif_float.c

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gdal/frmts/hdf4/hdf-eos/*

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gdal/frmts/pcraster/libcsf

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gdal/ogr/ogrsf_frmts/dxf/intronurbs.cpp

This code is derived from the code associated with the book "An Introduction to NURBS" by David F. Rogers. More information on the book and the code is available at:

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gdal/alg/thinplatespline.cpp

IEEE754 log() code derived from:

@(#)e_log.c 1.3 95/01/18

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gdal/alg/libqhull

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gdal/frmts/pdf/pdfdataset.cpp (method PDFiumRenderPageBitmap())

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gdal/frmts/mrf/* (apply when MRF driver included in build)

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Apache httpclient 4.5.6

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Modules:

```
fluent-hc
httpclient-cache
httpclient-osgi
httpclient-win
httpclient
httpmime
```

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4P Dependencies:

commons-codec » commons-codec 1.10

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---
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---
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==========

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==========

4P Test Dependencies (No Compile Dependencies):

There are four 4th party dependencies, all of them are for testing only.

1) Commons-logging version 1.2 (Apache 2.0)

```
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-->
-----------------------------------------------------------------------------
```

2) junit version 5.2.0 (EPL 2.0)

```
-----------------------------------------------------------------------------
/*
 * Copyright 2015-2018 the original author or authors.
 *
 * All rights reserved. This program and the accompanying materials are
 * made available under the terms of the Eclipse Public License v2.0 which
 * accompanies this distribution and is available at
 *
 * http://www.eclipse.org/legal/epl-v20.html
 */
-----------------------------------------------------------------------------
```

3) commons-lang3 version 3.8 (Apache 2.0)

```
-----------------------------------------------------------------------------
/*
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 */
-----------------------------------------------------------------------------
```


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4) mockito-core version 2.21.0 (MIT)

```
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 */
--------------------------------------------------------------------------------
```

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All functions of the compression library are documented in the file zlib.h (volunteer to write man pages welcome, contact zlib@gzip.org). A usage example of the library is given in the file test/example.c which also tests that the library is working correctly. Another example is given in the file test/minigzip.c. The compression library itself is composed of all source files in the root directory.

To compile all files and run the test program, follow the instructions given at the top of Makefile.in. In short "./configure; make test", and if that goes well, "make install" should work for most flavors of Unix. For Windows, use one of the special makefiles in win32/ or contrib/vstudio/ . For VMS, use make_vms.com.

Questions about zlib should be sent to <zlib@gzip.org>, or to Gilles Vollant <info@winimage.com> for the Windows DLL version. The zlib home page is http://zlib.net/ . Before reporting a problem, please check this site to verify that you have the latest version of zlib; otherwise get the latest version and check whether the problem still exists or not.

PLEASE read the zlib FAQ http://zlib.net/zlib_faq.html before asking for help.

Mark Nelson <markn@ieee.org> wrote an article about zlib for the Jan. 1997 issue of Dr. Dobb's Journal; a copy of the article is available at https://marknelson.us/posts/1997/01/01/zlib-engine.html.

The changes made in version 1.3.1 are documented in the file ChangeLog.

Unsupported third party contributions are provided in directory contrib/.

zlib is available in Java using the java.util.zip package. Follow the API Documentation link at: https://docs.oracle.com/search/?q=java.util.zip.

A Perl interface to zlib and bzip2 written by Paul Marquess <pmqs@cpan.org> can be found at https://github.com/pmqs/IO-Compress.

A Python interface to zlib written by A.M. Kuchling <amk@amk.ca> is available in Python 1.5 and later versions, see http://docs.python.org/library/zlib.html.

zlib is built into tcl: http://wiki.tcl.tk/4610.

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An experimental package to read and write files in .zip format, written on top of zlib by Gilles Vollant <info@winimage.com>, is available in the contrib/minizip directory of zlib.

Notes for some targets:

- For Windows DLL versions, please see win32/DLL_FAQ.txt
- For 64-bit Irix, deflate.c must be compiled without any optimization. With -O, one libpng test fails. The test works in 32 bit mode (with the -n32 compiler flag). The compiler bug has been reported to SGI.
- zlib doesn't work with gcc 2.6.3 on a DEC 3000/300LX under OSF/1 2.1 it works when compiled with cc.
- On Digital Unix 4.0D (formerly OSF/1) on AlphaServer, the cc option -std1 is necessary to get gzprintf working correctly. This is done by configure.
- zlib doesn't work on HP-UX 9.05 with some versions of /bin/cc. It works with other compilers. Use "make test" to check your compiler.
- gzdopen is not supported on RISCOS or BEOS.
- For PalmOs, see http://palmzlib.sourceforge.net/

Acknowledgments:

The deflate format used by zlib was defined by Phil Katz. The deflate and zlib specifications were written by L. Peter Deutsch. Thanks to all the people who reported problems and suggested various improvements in zlib; they are too numerous to cite here.

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```
Jean-loup Gailly        Mark Adler
jloup@gzip.org          madler@alumni.caltech.edu
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bzip2/libbzip2 version 1.0.8

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The implementations of GSSAPI mechglue in GSSAPI-SPNEGO in src/lib/gssapi, including the following files:

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

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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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```
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log4j-api-java9
log4j-api
log4j-appserver
log4j-bom
log4j-cassandra
log4j-core-its
log4j-core-java9
log4j-core
log4j-couchdb
log4j-distribution
log4j-flume-ng
log4j-iostreams
log4j-jcl
log4j-jdbc-dbcp2
log4j-jmx-gui
log4j-jpa
log4j-jul
log4j-liquibase
log4j-mongodb2
log4j-mongodb3
```


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```
   log4j-osgi
   log4j-perf
   log4j-samples
   log4j-slf4j-impl
   log4j-slf4j18-impl
   log4j-taglib
   log4j-to-slf4j
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```

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Jdom-contrib version 1.1.3

The JTS tests module contains source from JDOM Contrib 1.1.3 which is available under the Jdom License [1]. The two files are LineNumberElement.java and LineNumberSAXHandler.java.

Typical users of this library will not need to depend on this module.

[1] https://github.com/hunterhacker/jdom/blob/master/LICENSE.txt

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ABOUT PERL

==========

Perl is a general-purpose programming language originally developed for text manipulation and now used for a wide range of tasks including system administration, web development, network programming, GUI development, and more.

The language is intended to be practical (easy to use, efficient, complete) rather than beautiful (tiny, elegant, minimal). Its major features are that it's easy to use, supports both procedural and object-oriented (OO) programming, has powerful built-in support for text processing, and has one of the world's most impressive collections of third-party modules.

For an introduction to the language's features, see pod/perlintro.pod. For a discussion of the important changes in this release, see pod/perldelta.pod.

There are also many Perl books available, covering a wide variety of topics, from various publishers. See pod/perlbook.pod for more information.

INSTALLATION

==========

If you're using a relatively modern operating system and want to install this version of Perl locally, run the following commands:

```
./Configure -des -Dprefix=$HOME/localperl
make test
make install
```

This will configure and compile perl for your platform, run the regression tests, and install perl in a subdirectory "localperl" of your home directory. If you run into any trouble whatsoever or you need to install a customized version of Perl, you should read the detailed instructions in the "INSTALL" file that came with this distribution. Additionally, there are a number of "README" files with hints and tips about building and using Perl on a wide variety of platforms, some more common than others.

Once you have Perl installed, a wealth of documentation is available to you through the 'perldoc' tool. To get started, run this command:

```
perldoc perl
```

IF YOU RUN INTO TROUBLE

Perl is a large and complex system that's used for everything from knitting to rocket science. If you run into trouble, it's quite likely that someone else has already solved the problem you're facing. Once you've exhausted the documentation, please report bugs to us at the GitHub issue tracker at https://github.com/Perl/perl5/issues

While it was current when we made it available, Perl is constantly evolving and there may be a more recent version that fixes bugs you've run into or adds new features that you might find useful.

You can always find the latest version of perl on a CPAN (Comprehensive Perl Archive Network) site near you at https://www.cpan.org/src/

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If you want to submit a simple patch to the perl source, see the "SUPER QUICK PATCH GUIDE" in pod/perlhack.pod.

Just a personal note: I want you to know that I create nice things like this because it pleases the Author of my story. If this bothers you, then your notion of Authorship needs some revision. But you can use perl anyway. :-)

The author.

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==========

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Perl//dist/ExtUtils-CBuilder/LICENSE

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./cpan/Compress-Raw-Bzip2/bzip2-src/LICENSE

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Julian Seward, jseward@acm.org

bzip2/libbzip2 version 1.0.8 of 13 July 2019

Exceptions

The Perl distribution contains the Perl interpreter and many Perl modules. Most Perl modules use the "perl license" as described in the section LICENSING above.

There are a few modules whose licensing or Copyright text is different. If a Perl module has the same licensing terms as Perl itself, but has a different Copyright text, the module name along with the Copyright text is presented. If a Perl module has a different Copyright text and a different license, then both the Copyright text and the license text is presented for the module.

These modules are noted below:

perl/expat/lib/cmake/expat-2.4.4/expat-config.cmake

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perl/expat/include/expat_external.h

```
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perl/expat/include/expat.h

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```
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Distantly based on LWP::Base64 written by Martijn Koster
<m.koster@nexor.co.uk> and Joerg Reichelt <j.reichelt@nexor.co.uk> and
code posted to comp.lang.perl <3pd2lp$6gf@wsinti07.win.tue.nl> by Hans
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The XS implementation uses code from metamail.  Copyright 1991 Bell
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perl/lib/site_perl/5.38.2/x86_64-linux-thread-multi/DBD/Gofer/Transport/corostream.pm
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   especially those whose name start with YY_ or yy_.  They are
   private implementation details that can be changed or removed.  */
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/* This file contains definitions for various tables used in EBCDIC handling.
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The optional caching functions require Storable.

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AUTHORS

Larry Wall <larry@wall.org> wrote version 1.0.

Clark Cooper <coopercc@netheaven.com> picked up support, changed the API for this version (2.x), provided documentation, and added some standard package features.

Matt Sergeant <matt@sergeant.org> is now maintaining XML::Parser

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XML::NamespaceSupport

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Jackson [JSON Schema](http://json-schema.org/) Module

This module supports the creation of a JSON Schema (v3)

Note that since JSON Schema draft version 3 and 4 are incompatible, this module CAN NOT, as-is, support v4. There is another module [mbknor-jackson-jsonSchema](https://github.com/mbknor/mbknor-jackson-jsonSchema) that does support v4, however.

It is possible that in future this repo could have 2 different modules; one for v3, another v4. And if necessary, more if future revisions also prove incompatible.

Status

[![Build Status](https://travis-ci.org/FasterXML/jackson-module-jsonSchema.svg)](https://travis-ci.org/FasterXML/jackson-module-jsonSchema) [![Maven Central](https://maven-badges.herokuapp.com/maven-central/com.fasterxml.jackson.module/jackson-module-jsonSchema/badge.svg)](https://maven-badges.herokuapp.com/maven-central/com.fasterxml.jackson.module/jackson-module-jsonSchema/) [![Javadoc](https://javadoc.io/badge/com.fasterxml.jackson.module/jackson-module-jsonSchema.svg)](http://www.javadoc.io/doc/com.fasterxml.jackson.module/jackson-module-jsonSchema)

Version 2.4 was considered the first stable version of the module.

Two modules (with Jackson 2.15)

Starting with upcoming Jackson 2.15, this repository contains TWO versions of the module:

1. Old JSON Schema module `com.fasterxml.jackson.module:jackson-module-jsonSchema` (since 2.0)

2. New JSON Schema module `com.fasterxml.jackson.module:jackson-module-jsonSchema-jakarta` (2.15+)

depending on whether system needs to work with "old" `javax`/`JAXB` APIs (first module) or newer "Jakarta" APIs.

Future plans (lack thereof)

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Due to lack of support by community, this module is NOT planned to be supported beyond Jackson 2.x -- no work has been done for it to work with future Jackson 3.0. Users are encouraged to use more up-to-date JSON Schema support tools.

Example Usage

(from [TestGenerateJsonSchema](https://github.com/FasterXML/jackson-module-jsonSchema/blob/master/javax/src/test/java/com/fasterxml/jackson/module/jsonSchema/TestGenerateJsonSchema.java#L136))

simply add a dependency `"com.fasterxml.jackson.module:jackson-module-jsonSchema:2.15.0"` or `"com.fasterxml.jackson.module:jackson-module-jsonSchema-jakarta:2.15.0"` for the jakarta namespace

and for gradle, at least, you can simply add `mavenLocal()` to your repositories. Maven should resolve the dependency from its local repo transparently.

'''java ObjectMapper mapper = new ObjectMapper(); // configure mapper, if necessary, then create schema generator JsonSchemaGenerator schemaGen = new JsonSchemaGenerator(mapper); JsonSchema schema = schemaGen.generateSchema(SimpleBean.class); '''

This will yield a java pojo representing a JSON Schema, which can itself easily be serialized with jackson, or configured with java. Customizing the generation should be simply a matter of locating the particular stage of generation you want to override, and replacing or extending that particular object in the dependency injection cycle in schemafactory wrapper.

Adding Property Processing

See `com.fasterxml.jackson.module.jsonSchema.customProperties.TitleSchemaFactoryWrapper` for an example of writing custom schema properties.

Required Fields

JSON Schema has the ability to mark fields as required. This module supports this via the `@JsonProperty(required = true)` field annotation.

JsonSchema Hypermedia support

Generic support

Current implementation is partial for IETF published draft v4 (http://json-schema.org/latest/json-schema-hypermedia.html).

Currently 2 aspects of IETF supported:

* pathStart - URI that defines what the instance's URI MUST start with in order to validate.

* links - associated Link Description Objects with instances.

You can enable HypermediaSupport using `com.fasterxml.jackson.module.jsonSchema.customProperties.HyperSchemaFactoryWrapper`. Example:

'''java HyperSchemaFactoryWrapper personVisitor = new HyperSchemaFactoryWrapper(); ObjectMapper mapper = new ObjectMapper(); mapper.acceptJsonFormatVisitor(Person.class, personVisitor); JsonSchema personSchema = personVisitor.finalSchema(); '''

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By default all default values for Link Description Object are ignored in the output (method = GET, enctype = application/json, mediaType = application/json), to enable default setIgnoreDefaults(true)

```
### Describing JSON hyper-schema

You can describe hyperlinks, using annotations @JsonHyperSchema & @Link

     public class Pet {
         public String genus;
     }

     @JsonHyperSchema(
         pathStart = "http://localhost:8080/persons/",
         links = {
             @Link(href = "{name}", rel = "self"),
             @Link(href = "{name}/pet", rel = "pet", targetSchema = Pet.class)
     })
     public class Person {
         public String name;
         public String hat;
     }

Would generate following values:

    {
      "type" : "object",
      "pathStart" : "http://localhost:8080/persons/",
      "links" : [ {
        "href" : "http://localhost:8080/persons/{name}",
        "rel" : "self"
      }, {
        "href" : "http://localhost:8080/persons/{name}/pet",
        "rel" : "pet",
        "targetSchema" : {
          "type" : "object",
          "properties" : {
            "genus" : {
              "type" : "string"
            }
          }
        }
      } ],
      "properties" : {
        "name" : {
          "type" : "string"
        },
        "hat" : {
          "type" : "string"
        }
      }
    }

## More
```


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Check out [Project Wiki](http://github.com/FasterXML/jackson-module-jsonSchema/wiki) for more information (javadocs, downloads).

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Jackson JSON processor

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=== Select2.js ===

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=== jQuery UI - v1.11.4 ===

Includes: core.js, widget.js, mouse.js, position.js, draggable.js, sortable.js

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=== jQuery JavaScript Library v2.1.3 ===

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 *
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js/libs/require-css/css.js (require-css)                 MIT 0.1.8
js/libs/proj4js/dist/proj4.js                            Proj4js 2.3.14
scss/oj/v3.1.0/3rdparty/normalize/normalize.scss         MIT 1.0

--------------------------------------------------------------------------------
```

=== Knockout.js 3.4.0 ===

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=== Knockout Mapping plugin v2.4.1 ===

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=== knockout-amd-helpers 0.7.3 ===

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=== Normalize.css ===

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=== jsTree 1.0-rc3 ===

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=== jQuery UI - v1.11.4 ===

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=== Knockout.js 3.4.0 ===

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=== knockout-amd-helpers 0.7.3 ===

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=== jsTree 1.0-rc3 ===

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