

Glossary

access driver

In the external table infrastructure, the API that interprets the external data for the database. The access driver runs inside the database, which uses the driver to read the data in the external table.

access path

The means by which data is retrieved from a database. For example, a query using an index and a query using a [full table scan](#) use different access paths.

ACID properties

The basic properties of a database [transaction](#) that all Oracle Database transactions must obey. ACID is an acronym for atomicity, consistency, isolation, and durability.

active online redo log file

An online redo log file that may contain data that is required for database instance recovery.

active session

A database [session](#) that is using CPU and is not waiting for an event in the idle wait class.

Active Session History (ASH)

A part of the database self-management framework that samples active database sessions each second, writing the data to memory and persistent storage.

active transaction

A [transaction](#) that has started but not yet committed or rolled back.

adaptive query optimization

A set of capabilities that enables the adaptive [optimizer](#) to make run-time adjustments to execution plans and discover additional information that can lead to better [optimizer statistics](#).

Adaptive optimization is helpful when existing statistics are not sufficient to generate an optimal plan.

ADDM

Automatic Database Diagnostic Monitor. An Oracle Database infrastructure that enables a database to diagnose its own performance and determine how identified problems could be resolved.

ADR

Automatic Diagnostic Repository. A file-based hierarchical data store for managing information, including network tracing and logging.

ADR base

The ADR root directory. The ADR base can contain multiple ADR homes, where each ADR home is the root directory for all diagnostic data—traces, dumps, the alert log, and so on—for an instance of an Oracle product or component.

ADR home

The root directory for all diagnostic data—traces, dumps, the alert log, and so on—for an instance of an Oracle product or component. For example, in an Oracle RAC environment with shared storage and Oracle ASM, each database instance and each Oracle ASM instance has its own ADR home.

advanced index compression

An extension and enhancement of [prefix compression](#) for supported unique and non-unique indexes on heap-organized tables. Unlike prefix compression, which uses fixed duplicate key elimination for every block, advanced compression uses adaptive duplicate key elimination on a per-block basis.

advanced row compression

A type of table compression, intended for OLTP applications, that compresses data manipulated by any SQL operation.

See also [basic table compression](#).

aggregate function

A function such as `COUNT` that operates on a group of rows to return a single row as a result.

alert log

A file that provides a chronological log of database messages and errors. The alert log is stored in the [ADR](#).

analytic function

A function that operates on a group of rows to return multiple rows as a result.

analytic query

A "what if" query that answers a business question. Typically, analytic queries involve joins and aggregation, and require scanning a very large amount of input data to produce a relatively small amount of output.

analytic view

A type of view that encapsulates aggregations, calculations, and joins of fact data. Analytic views organize data using a dimensional model. They allow you to easily add aggregations and calculations to data sets and to present data in views that can be queried with relatively simple SQL.

antijoin

A [join](#) that returns rows from the left side of the [predicate](#) for which there are no corresponding rows on the right side of the predicate.

application

Within an application root, an application is a named, versioned set of data and metadata created by a common user. An application might include an application common user, an application common object, or some multiple and combination of the preceding.

application architecture

The computing environment in which a database application connects to an Oracle database. The two most common database architectures are client/server and multitier.

application common object

A shared database object created while connected to an [application root](#). The metadata (for a metadata-linked object) or data (for a [data-linked common object](#)) is shared by application PDBs in the [application container](#).

application common user

A [common user](#) created while connected to an [application root](#). The metadata (for a [metadata-linked common object](#)) or data (for a [data-linked common object](#)) is shared by application PDBs in the application container.

application container

A named set of application PDBs plugged in to an application root. An application container may contain an application seed.

application context

An attribute name-value pair in a specified namespace. Applications set various contexts before executing actions on the database.

Application Continuity

A feature that enables the replay, in a nondisruptive and rapid manner, of a request against the database after a recoverable error that makes the database session unavailable.

application domain index

A customized [index](#) specific to an application.

application PDB

A [PDB](#) that is plugged in to an [application container](#).

application root

The root container within an application container. Every [application container](#) has exactly one application root. An application root shares some characteristics with the [CDB root](#), because it can contain common objects, and some characteristics with a [PDB](#), because it is created with the `CREATE PLUGGABLE DATABASE` statement.

application seed

An optional [application PDB](#) that serves as a template for creating other PDBs within an [application container](#). An application container includes 0 or 1 application seed.

application server

Software that provides an interface between the client and one or more database servers, and hosts the applications.

archive compression

Hybrid Columnar Compression specified with `COLUMN STORE COMPRESS FOR ARCHIVE`. This type uses higher compression ratios than `COLUMN STORE COMPRESS FOR QUERY`, and is useful for compressing data that will be stored for long periods of time.

archived redo log file

A member of the [online redo log](#) that has been archived by Oracle Database. The archived redo log files can be applied to a database backup in media recovery.

ARCHIVELOG mode

A mode of the database that enables the archiving of the [online redo log](#).

archiver process (ARCn)

The background process that archives online redo log files.

archiving

The operation of generating an archived redo log file.

ascending index

An [index](#) in which data is stored in ascending order. By default, character data is ordered by the binary values contained in each byte of the value, numeric data from smallest to largest number, and date from earliest to latest value.

attribute-clustered table

A heap-organized table that stores data in close proximity on disk based on user-specified clustering directives.

audit trail

A location that stores audit records.

Automatic Database Diagnostic Monitor (ADDM)

See [ADDM](#).

Automatic Diagnostic Repository (ADR)

See [ADR](#).

automatic memory management

The mode in which Oracle Database manages the SGA and instance PGA memory completely automatically.

automatic segment space management (ASSM)

A method of storage space management that uses bitmaps to manage segment space instead of free lists.

automatic undo management mode

A mode of the database in which it automatically manages undo space in a dedicated [undo tablespace](#).

See also [manual undo management mode](#).

Automatic Workload Repository (AWR)

See [AWR](#).

autonomous transaction

A independent [transaction](#) that can be called from another transaction, called the main transaction.

AWR

Automatic Workload Repository (AWR). A built-in repository in every Oracle database. Oracle Database periodically makes a snapshot of its vital statistics and workload information and stores them in AWR.

AWR baseline

A collection of statistic rates usually taken over a period when the system is performing well at peak load

AWR snapshot

A set of performance statistics captured in AWR at a specific time.

B-tree index

An [index](#) that is organized like an upside-down tree. A B-tree index has two types of blocks: branch blocks for searching and leaf blocks that store values. The leaf blocks contain every indexed data value and a corresponding rowid used to locate the actual row. The "B" stands for "balanced" because all leaf blocks automatically stay at the same depth.

background process

A [process](#) that consolidates functions that would otherwise be handled by multiple Oracle programs running for each [client process](#). The background processes asynchronously perform I/O and monitor other Oracle processes.

See also [database instance](#); [Oracle process](#).

backup

A copy of data. A backup can include crucial parts of the database such as data files, the server parameter file, and control file.

backup piece

The smallest unit of a backup set.

backup set

A proprietary RMAN backup format that contains data from one or more data files, archived redo log files, or control files or server parameter file.

basic table compression

A type of table compression intended for bulk load operations. You must use direct path `INSERT` operations, `ALTER TABLE . . . MOVE` operations, or online table redefinition to achieve basic table compression.

big table cache

An optional, integrated portion of the [database buffer cache](#) that uses a temperature-based, object-level replacement algorithm instead of the traditional LRU-based, block-level replacement algorithm.

bigfile tablespace

A tablespace that contains one very large data file or temp file.

bind variable

A placeholder in a SQL statement that must be replaced with a valid value or value address for the statement to execute successfully. By using bind variables, you can write a SQL statement that accepts inputs or parameters at run time. The following example shows a query that uses `v_empid` as a bind variable:

```
SELECT * FROM employees WHERE employee_id = :v_empid;
```

bitmap index

A database [index](#) in which the database stores a bitmap for each index key instead of a list of rowids.

bitmap join index

A bitmap [index](#) for the join of two or more tables.

bitmap merge

An operation that merges bitmaps retrieved from [bitmap index](#) scans. For example, if the `gender` and `DOB` columns have bitmap indexes, then the database may use a bitmap merge if the [query predicate](#) is `WHERE gender='F' AND DOB > 1966`.

block corruption

A [data block](#) that is not in a recognized Oracle format, or whose contents are not internally consistent.

block header

A part of a [data block](#) that includes information about the type of block, the address of the block, and sometimes [transaction](#) information.

block overhead

Space in a [data block](#) that stores metadata required for managing the block. The overhead includes the [block header](#), table directory, and row directory.

branch block

In a B-tree index, a block that the database uses for searching. The leaf blocks store the index entries. The upper-level branch blocks of a B-tree index contain index data that points to lower-level index blocks.

B-tree index

An [index](#) that is organized like an upside-down tree. A B-tree index has two types of blocks: branch blocks for searching and leaf blocks that store values. The leaf blocks contain every indexed data value and a corresponding rowid used to locate the actual row. The "B" stands for "balanced" because all leaf blocks automatically stay at the same depth.

buffer

A main memory address in the [database buffer cache](#). A buffer caches currently and recently used data blocks read from disk. When a new block is needed, the database can replace an old [data block](#) with a new one.

buffer cache hit ratio

The measure of how often the database found a requested block in the buffer cache without needing to read it from disk.

buffer header

A memory structure that stores metadata about a [buffer](#).

buffer pool

A collection of buffers in the SGA.

business intelligence

The analysis of an organization's information as an aid to making business decisions.

byte semantics

Treatment of strings as a sequence of bytes. Offsets into strings and string lengths are expressed in bytes.

cache recovery

The automatic phase of [instance recovery](#) where Oracle Database applies all committed and uncommitted changes in the [online redo log](#) files to the affected data blocks.

cardinality

The ratio of distinct values to the number of table rows. A column with only two distinct values in a million-row table would have low cardinality.

Cartesian join

A [join](#) in which one or more of the tables does not have any join conditions to any other tables in the statement. The [optimizer](#) joins every row from one data source with every row from the other data source, creating the Cartesian product of the two sets.

CDB

An Oracle Database installation that contains at least one [PDB](#). Starting in Oracle Database 21c, every Oracle database is a CDB.

CDB administrator

A database administrator who manages a CDB. A [PDB administrator](#) manages individual PDBs within the CDB.

CDB root

In a [multitenant container database \(CDB\)](#), a collection of schemas, schema objects, and nonschema objects to which all PDBs belong. Every CDB has exactly one root [container](#), which stores the system metadata required to manage PDBs. All PDBs belong to the CDB root.

character encoding

A code that pairs each character from a given repertoire with a code unit to facilitate data storage.

character semantics

Treatment of strings as a sequence of characters. Offsets into strings and string lengths are expressed in characters (character codes).

character set

An encoding scheme used to display characters on your computer screen.

check constraint

A constraint on a column or set of columns that requires a specified condition to be true or unknown for every row.

checkpoint

1. A data structure that marks the checkpoint position, which is the SCN in the redo thread where [instance recovery](#) must begin. Checkpoints are recorded in the [control file](#) and each data file header, and are a crucial element of recovery.
2. The writing of dirty data blocks in the [database buffer cache](#) to disk. The [database writer \(DBW\)](#) process writes blocks to disk to synchronize the buffer cache with the data files.

checkpoint process (CKPT)

The background process that updates the control file and data file headers with checkpoint information and signals DBW to write blocks to disk.

clean restore point

A PDB restore point that is created when the PDB is closed. A Flashback PDB to a clean restore point does not require restoring backups or creating a temporary instance.

child cursor

The cursor containing the plan, compilation environment, and other information for a statement whose text is stored in a parent cursor. The parent cursor is number 0, the first child is number 1, and so on. Child cursors reference exactly the same SQL text as the parent cursor, but are

different. For example, two statements with the text `SELECT * FROM mytable` use different cursors when they reference tables named `mytable` in different schemas.

circular reuse record

A type of control file record that contains noncritical information that is eligible to be overwritten if needed. When all available record slots are full, the database either expands the control file to make room for a new record or overwrites the oldest record.

client

In [client/server architecture](#), the front-end database application that interacts with a user. The client portion has no data access responsibilities.

client character set

The character set for data entered or displayed by a client application. The character set for the client and database can be different.

client process

A [process](#) that executes the application or Oracle tool code. When users run client applications such as SQL*Plus, the operating system creates client processes to run the applications.

See also [Oracle process](#).

client/server architecture

Software architecture based on a separation of processing between two CPUs, one acting as the [client](#) in the transaction, requesting and receiving services, and the other as the server that provides services in a transaction.

cluster file system

A distributed file system that is a cluster of servers that collaborate to provide consistency and high performance to their clients.

cluster index

A [B-tree index](#) on the cluster key.

cluster key

In a [table cluster](#), the column or columns that the clustered tables have in common. For example, the `employees` and `departments` tables share the `department_id` column. Specify the cluster key when creating the table cluster and when creating every table added to the table cluster.

cold buffer

A buffer in the database buffer cache that has not been recently used.

column

Vertical space in a [table](#) that represents a domain of data. A table definition includes a table name and set of columns. Each column has a name and data type.

columnar format

The column-based format for objects that reside in the In-Memory Column Store. The columnar format contrasts with the row format that the database uses to store objects in the database buffer cache and in data files.

commit

Action that ends a database [transaction](#) and makes permanent all changes performed in the transaction.

commit cleanout

The automatic removal of lock-related [transaction](#) information (ITL entry) from the blocks after a commit. The database removes the ITL entry only if modified blocks containing data from the committed transaction are still in the [SGA](#), and if no other session is modifying them.

common object

An object that resides either in the [CDB root](#) or an [application root](#) that shares either data (a [data-linked common object](#)) or metadata (a [metadata-linked common object](#)). All common objects in the CDB root are Oracle-supplied. A common object in an application root is called an [application common object](#).

common role

A role that exists in all containers in a [multitenant container database \(CDB\)](#).

common user

In a [multitenant container database \(CDB\)](#), a database user that exists with the same identity in multiple containers. A common user created in the [CDB root](#) has the same identity in every existing and future [PDB](#). A common user created in an [application container](#) has the same identity in every existing and future [application PDB](#) in this [application container](#).

complete refresh

An execution of the query that defines a materialized view. A complete refresh occurs when you initially create the materialized view, unless the materialized view references a prebuilt table, or you define the table as `BUILD DEFERRED`.

composite database operation

Activity between two points in time in a single database session.

composite index

An index on multiple columns in a table.

composite partitioning

A partitioning strategy in which a table is partitioned by one data distribution method and then each partition is further divided into subpartitions using a second data distribution method.

composite unique key

A set of two or more columns with a unique key constraint.

compound trigger

A trigger that can fire at multiple timing points. For example, a compound trigger might fire both before and after the triggering statement.

compression unit

In Hybrid Columnar Compression, a logical construct that stores a set of rows. When you load data into a table, the database stores groups of rows in columnar format, with the values for each column stored and compressed together. After the database has compressed the column data for a set of rows, the database fits the data into the compression unit.

concatenated index

See [composite index](#).

condition

The combination of one or more expressions and logical operators in a SQL statement that returns a value of `TRUE`, `FALSE`, or `UNKNOWN`. For example, the condition `1=1` always evaluates to `TRUE`.

conflicting write

In a read committed transaction, a situation that occurs when the transaction attempts to change a row updated by an uncommitted concurrent transaction.

connection

Communication pathway between a [client process](#) and an Oracle [database instance](#).

See also [session](#).

connection pooling

A resource utilization and user scalability feature that maximizes the number of sessions over a limited number of protocol connections to a [shared server](#).

consistent backup

A [whole database backup](#) that you can open with the `RESETLOGS` option without performing media recovery. By its nature, a consistent backup of the whole database does not require the application of redo to be made consistent.

See also [inconsistent backup](#).

consistent read get

The retrieval of a version of a block in the database buffer cache that is consistent to a specific SCN (part of [read consistency](#)). If the database needs a block to satisfy a query, and if no block in the database buffer cache is consistent to the correct SCN, then the database attempts to obtain the correct version of the block from undo data.

container

In a [multitenant container database \(CDB\)](#), either the root or a PDB.

context

A set of application-defined attributes that validates and secures an application. The SQL statement `CREATE CONTEXT` creates namespaces for contexts.

control file

A binary file that records the physical structure of a database and contains the names and locations of [redo log](#) files, the time stamp of the database creation, the current log sequence number, [checkpoint](#) information, and so on.

cube

An organization of measures with identical dimensions and other shared characteristics. The edges of the cube contain the [dimension](#) members, whereas the body of the cube contains the data values.

current mode get

The retrieval of the version of a data block as it exists right now in the buffer cache, without using [read consistency](#). Only one version of a block exists in current mode at any one time.

current online redo log file

The online redo log file to which the log writer (LGWR) process is actively writing.

cursor

A handle or name for a [private SQL area](#) in the [PGA](#). Because cursors are closely associated with private SQL areas, the terms are sometimes used interchangeably.

data block

Smallest logical unit of data storage in Oracle Database. Other names for data blocks include Oracle blocks or pages. One data block corresponds to a specific number of bytes of physical space on disk.

See also [extent](#); [segment](#).

data concurrency

Simultaneous access of the same data by many users. A multiuser database management system must provide adequate concurrency controls so that data cannot be updated or changed improperly, compromising [data integrity](#).

See also [data consistency](#).

data consistency

A consistent view of the data by each user in a multiuser database.

See also [data concurrency](#).

data corruption

An error that occurs when a hardware, software, or network component causes corrupt data to be read or written.

data dictionary

A read-only collection of database tables and views containing reference information about the database, its structures, and its users.

data dictionary (DDL) lock

A lock that protects the definition of a schema object while an ongoing DDL operation acts on or refers to the object. Oracle Database acquires a DDL lock automatically on behalf of any DDL transaction requiring it. Users cannot explicitly request DDL locks.

data dictionary cache

A memory area in the [shared pool](#) that holds [data dictionary](#) information. The data dictionary cache is also known as the *row cache* because it holds data as rows instead of buffers, which hold entire data blocks.

data dictionary view

A predefined view of tables or other views in the [data dictionary](#). Data dictionary views begin with the prefix `DBA_`, `ALL_`, or `USER_`.

data file

A physical file on disk that was created by Oracle Database and contains the data for a database. The data files can be located either in an operating system file system or [Oracle ASM disk group](#).

data link

In a [PDB](#), an internal mechanism that points to data (not metadata) in the root. For example, AWR data resides in the root. Each PDB uses an object link to point to the AWR data in the root, thereby making views such as `DBA_HIST_ACTIVE_SESS_HISTORY` and `DBA_HIST_BASELINE` accessible in each separate container.

data-linked common object

A [common object](#) that exists either in the [CDB root](#) or an [application root](#). The data, rather than the metadata, is shared by any PDB that contains a [data link](#) that points to the common object.

data integrity

Business rules that dictate the standards for acceptable data. These rules are applied to a database by using integrity constraints and triggers to prevent invalid data entry.

data mining

The automated search of large stores of data for patterns and trends that transcend simple analysis.

data segment

The [segment](#) containing the data for a nonclustered table, table partition, or [table cluster](#).

See also [extent](#).

data type

In SQL, a fixed set of properties associated with a [column](#) value or constant. Examples include VARCHAR2 and NUMBER. Oracle Database treats values of different data types differently.

data warehouse

A relational database designed for [query](#) and analysis rather than for [OLTP](#).

database access control

Restricting data access and database activities. For example, the restriction of users from querying specified tables or executing specified database statements.

database application

A software program that interacts with a database to access and manipulate data.

database authentication

The process by which a user presents credentials to the database, which verifies the credentials and allows access to the database.

database block size

The data block size for a database set when it is created. The size is set for the SYSTEM and SYSAUX tablespaces and is the default for all other tablespaces. The database block size cannot be changed except by re-creating the database.

database buffer cache

The portion of the [system global area \(SGA\)](#) that holds copies of data blocks. All client processes concurrently connected to the [database instance](#) share access to the buffer cache.

database character set

A character encoding scheme that determines which languages can be represented in a database.

database driver

Software that sits between an application and an Oracle database. The driver translates the API calls made by the application into commands that the database can process. By using an ODBC driver, an application can access any data source, including data stored in spreadsheets. The ODBC driver performs all mappings between the ODBC standard and the database.

database instance

The combination of the [system global area \(SGA\)](#) and background processes. An instance is associated with one and only one database. Every database instance is either a [read/write database instance](#) or a [read-only database instance](#). In an Oracle Real Application Clusters configuration, multiple instances access a single database.

database link

A [schema object](#) in one database that enables users to access objects in a different database.

database management system (DBMS)

Software that controls the storage, organization, and retrieval of data.

database object

An object in the database that can be manipulated with SQL. Schema objects such as tables and indexes reside in schemas. Nonschema objects such as directories and roles do not reside in schemas.

database operation

In the context of database monitoring, a logical entity that includes a SQL statement, a PL/SQL block, or a composite of the two.

database point-in-time recovery

A type of media recovery that results in a noncurrent version of the database. In this case, you do not apply all of the redo generated after the restored backup.

database security

The aspect of database administration that involves user authentication, encryption, access control, and monitoring.

database server

A server that reliably manages a large amount of data in a multiuser environment so that users can concurrently access the same data. A database server also prevents unauthorized access and provides efficient solutions for failure recovery.

Database Server Grid

A collection of commodity servers connected together to run on one or more databases.

database service

A named representation of one or more database instances. The service name for an Oracle database is normally its global database name. Clients use the service name to connect to one or more database instances.

Database Storage Grid

A collection of low-cost modular storage arrays combined together and accessed by the computers in the [Database Server Grid](#).

database user

An account through which you can log in to an Oracle database.

database writer (DBW)

A [background process](#) that writes buffers in the [database buffer cache](#) to data files.

DDL

Data definition language. Includes statements such as `CREATE TABLE` or `ALTER INDEX` that define or change a data structure.

deadlock

A situation in which two or more users are waiting for data locked by each other. Such deadlocks are rare in Oracle Database.

declarative language

A nonprocedural language that describes what should be done, now how to do it. SQL and Prolog are examples of declarative languages. SQL is declarative in the sense that users specify the result that they want, not how to derive it.

dedicated server

A database configuration in which a [server process](#) handles requests for a single [client process](#).

See also [shared server](#).

deferrable constraint

A constraint that permits a `SET CONSTRAINT` statement to defer constraint checking until a `COMMIT` statement is issued. A deferrable constraint enables you to disable the constraint temporarily while making changes that might violate the constraint.

deferred insert

An insert with the `MEMOPTIMIZE_WRITE` hint into a table specified as `MEMOPTIMIZE FOR WRITE`. Deferred inserts cannot be rolled back and do not use the consistency mechanisms of the database buffer cache. Background processes write deferred inserts to the data files asynchronously.

definer's rights PL/SQL procedure

A procedure that executes with the privileges of its owner, not its current user.

degree of parallelism

The number of parallel execution servers associated with a single operation. Parallel execution is designed to effectively use multiple CPUs. Oracle Database parallel execution framework enables you to either explicitly choose a specific degree of parallelism or to rely on Oracle Database to automatically control it.

dependent object

In a schema object dependency, the object whose definition references another object. For example, if the definition of object A references object B, then A is a dependent object on B.

descending index

An index in which data is stored on a specified column or columns in descending order.

dimension

A structure that categorizes data to enable users to answer business questions. Commonly used dimensions are customers, products, and time.

dimension table

A relational table that stores all or part of the values for a [dimension](#) in a star or snowflake schema. Dimension tables typically contain columns for the dimension keys, levels, and attributes.

direct path INSERT

An `INSERT` in which the database writes data directly to the data files, bypassing the [database buffer cache](#). The database appends the inserted data to the existing data in the table.

direct path read

A single or multiblock read into the PGA, bypassing the SGA.

directory object

A database object that specifies an alias for a directory on the server file system where external binary file LOBs (BFILEs) and [external table](#) data are located. All directory objects are created in a single namespace and are not owned by an individual schema.

dirty read

The situation that occurs when a transaction reads uncommitted data written by another transaction. Oracle Database *never* permits dirty reads.

dispatcher

See [dispatcher process \(Dnnn\)](#).

dispatcher process (Dnnn)

Optional background process present only when a shared server configuration is used. Each dispatcher process is responsible for routing requests from connected client processes to available [shared server](#) processes and returning the responses.

distributed database

A set of databases in a distributed system that can appear to applications as a single data source.

distributed environment

A network of disparate systems that seamlessly communicate with each other.

distributed processing

The operations that occur when an application distributes its tasks among different computers in a network.

distributed transaction

A transaction that includes statements that, individually or as a group, update data on nodes of a [distributed database](#). Oracle Database ensures the integrity of data in distributed transactions using the two-phase commit mechanism.

DML

Data manipulation language. Includes statements such as `SELECT`, `INSERT`, `UPDATE`, and `DELETE`.

DML lock

A lock that prevents destructive interference of simultaneous conflicting DML or DDL operations. DML statements automatically acquire row locks and table locks.

dynamic performance view

A special views that is continuously updated while a database is open and in use. The dynamic performance views are sometimes called *V\$ views*.

dynamic SQL

SQL whose complete text is not known until run time. Dynamic SQL statements are stored in character strings that are entered into, or built by, the program at run time.

edition

A private environment in which you can redefine database objects. Edition-based redefinition enables you to upgrade an application's database objects while the application is in use, thus minimizing or eliminating downtime.

encryption

The process of transforming data into an unreadable format using a secret key and an encryption algorithm.

equijoin

A join with a join condition containing an equality operator.

ETL

Extraction, transformation, and loading (ETL). The process of extracting data from source systems and bringing it into a [data warehouse](#).

exclusive lock

A lock that prevents the associated resource from being shared. The first transaction to obtain an exclusive lock on a resource is the only transaction that can alter the resource until the lock is released.

executable SQL statement

A SQL statement that generates calls to a database instance, including DML and DDL statements and the `SET TRANSACTION` statement.

execution plan

The combination of steps used by the database to execute a SQL statement. Each step either retrieves rows of data physically from the database or prepares them for the user issuing the statement. You can override execution plans by using a [hint](#).

expression

A combination of one or more values, operators, and SQL functions that resolves to a value. For example, the expression $2*2$ evaluates to 4. In general, expressions assume the data type of their components.

extent

Multiple contiguous data blocks allocated for storing a specific type of information. A [segment](#) is made up of one or more extents.

See also [data block](#).

external table

A read-only table whose metadata is stored in the database but whose data is stored in files outside the database. The database uses the metadata describing external tables to expose their data as if they were relational tables.

extraction, transformation, and loading (ETL)

See [ETL](#).

fact

Data that represents a business measure, such as sales or cost data.

fact table

A table in a star schema of a [data warehouse](#) that contains factual data. A fact table typically has two types of columns: those that contain facts and those that are foreign keys to [dimension](#) tables.

fast full index scan

A [full index scan](#) in which the database reads all the blocks in the index using multiblock reads, and then discards the branch blocks, returning the index blocks in no particular order.

fast recovery area

An optional disk location that stores recovery-related files such as control file and [online redo log](#) copies, archived redo log files, flashback logs, and RMAN backups.

fault tolerance

The protection provided by a high availability architecture against the failure of a component in the architecture.

field

In a table, the intersection of a row and column.

file system

A data structure built inside a contiguous disk address space.

fine-grained auditing

A type of database auditing that enables you to audit specific table columns, and to associate event handlers during policy creation.

fixed SGA

An internal housekeeping area that contains a variety of information, including general information about the state of the database and the instance, and information communicated between processes.

flashback data archive process (FBDA)

The background process that archives historical rows of tracked tables into Flashback Data Archives. When a transaction containing DML on a tracked table commits, this process stores the pre-image of the changed rows into the Flashback Data Archive. It also keeps metadata on the current rows.

force full database caching mode

The caching mode that is manually enabled by executing the `ALTER DATABASE ... FORCE FULL DATABASE CACHING` statement. Unlike in the default caching mode, Oracle Database caches the entire database, LOBs specified with the `NOCACHE` attribute.

foreign key

An [integrity constraint](#) that requires each value in a column or set of columns to match a value in the unique or [primary key](#) for a related table. Integrity constraints for foreign keys define actions dictating database behavior if referenced data is altered.

foreign key constraint

A constraint in which Oracle Database enforces the relationship between two tables that contain one or more common columns. The constraint requires that for each value in the column on which the constraint is defined, the value in the other specified other table, and column must match. For example, a [referential integrity](#) rule might state that an employee can only work for an existing department.

format model

A character literal that describes the format of a datetime in a character string.

free list

A linked list called a free list to manage free space in a segment in [manual segment space management \(MSSM\)](#). For a database object that has free space, a free list keeps track of blocks under the high water mark, which is the dividing line between segment space that is used and not yet used. As blocks are used, the database puts blocks on or removes blocks from the free list as needed.

full index scan

An [index](#) scan in which the database reads only the root and left side branch blocks to find the first leaf block, and then reads the leaf blocks in index sorted order using single block I/O.

full outer join

A join between two tables that returns the result of an inner join and the result of a [left outer join](#) and a [right outer join](#).

full table scan

A scan of table data in which the database sequentially reads all rows from a table and filters out those that do not meet the selection criteria. The database scans all formatted data blocks under the [high water mark \(HWM\)](#).

function

A schema object, similar to a [PL/SQL procedure](#), that always returns a single value.

function-based index

An index that computes the value of a function or expression involving one or more columns and stores it in the index.

GDS

See [Global Data Services \(GDS\)](#)

GDS catalog

A metadata repository, located inside an Oracle database, that is associated with a [GDS configuration](#). Every cloud has one and only one catalog.

GDS configuration

A set of databases integrated by the GDS framework into a single virtual server that offers one or more global services while ensuring high performance, availability, and optimal utilization of resources.

See also [global service](#).

GDS pool

A set of databases within a [GDS configuration](#) that provides a unique set of global services and belongs to a specific administrative domain.

GDS region

A logical boundary within a [GDS configuration](#) that contains database clients and servers that are geographically close to each other.

Global Data Services (GDS)

An automated workload management solution for replicated databases. Database services are named representations of one or more database instances. GDS implements the Oracle Database service model across a set of replicated databases.

global database name

The combination of the database name (`DB_NAME`) and network domain (`DB_DOMAIN`), for example, `orcl.example.com`. The global database domain is unique within a network.

global partitioned index

A B-tree index that is partitioned independently of the partitioning scheme used on the indexed table. A single index partition can point to any or all table partitions.

global service

A [database service](#) provided by multiple databases synchronized through data replication.

global service manager

The central management tool in the Global Data Services framework. At least one global service manager must exist in every [GDS region](#) of a [GDS configuration](#).

global temporary table

A special temporary table that stores intermediate session-private data for a specific duration.

granule

The basic unit of work in parallelism. Oracle Database divides the operation executed in parallel (for example, a table scan, table update, or index creation) into granules. Parallel execution processes execute the operation one granule at a time.

grid computing

A computing architecture that coordinates large numbers of servers and storage to act as a single large computer.

grid infrastructure

The software that provides the infrastructure for an enterprise grid architecture. In a cluster, this software includes Oracle Clusterware and [Oracle ASM](#). For a standalone server, this software includes Oracle ASM. Oracle Database combines these products into one software installation called the **Grid home**.

hard parse

The steps performed by the database to build a new executable version of application code. The database must perform a hard parse instead of a [soft parse](#) if the parsed representation of a submitted statement does not exist in the [shared pool](#).

hash cluster

A type of [table cluster](#) that is similar to an indexed cluster, except the index key is replaced with a hash function. No separate cluster index exists. In a hash cluster, the data is the index.

hash collision

Hashing multiple input values to the same output value.

hash function

A [function](#) that operates on an arbitrary-length input value and returns a fixed-length hash value.

hash index

An internal structure in the [memoptimize pool](#) that indexes a memory area by primary key.

hash join

A [join](#) in which the database uses the smaller of two tables or data sources to build a [hash table](#) in memory. The database scans the larger table, probing the hash table for the addresses of the matching rows in the smaller table.

hash key value

In a hash cluster, an actual or possible value inserted into the cluster key column. For example, if the cluster key is `department_id`, then hash key values could be 10, 20, 30, and so on.

hash partitioning

A partitioning strategy that maps rows to partitions based on a hashing algorithm that the database applies to the user-specified partitioning key. The destination of a row is determined by the internal hash function applied to the row by the database. The hashing algorithm is designed to distribute rows evenly across devices so that each partition contains about the same number of rows.

hash table

An in-memory data structure that associates join keys with rows in a [hash join](#). For example, in a [join](#) of the `employees` and `departments` tables, the join key might be the department ID. A [hash function](#) uses the [join](#) key to generate a hash value. This hash value is an index in an array, which is the hash table.

hash value

In a hash cluster, a unique numeric ID that identifies a bucket. Oracle Database uses a hash function that accepts an infinite number of hash key values as input and sorts them into a finite number of buckets. Each hash value maps to the database block address for the block that stores the rows corresponding to the hash key value (department 10, 20, 30, and so on).

hashing

A mathematical technique in which an infinite set of input values is mapped to a finite set of output values, called hash values. Hashing is useful for rapid lookups of data in a hash table.

heap-organized table

A table in which the data rows are stored in no particular order on disk. By default, `CREATE TABLE` creates a heap-organized table.

hierarchical database

A database that organizes data in a tree structure. Each parent record has one or more child records, similar to the structure of a file system.

high water mark (HWM)

The boundary between used and unused space in a [segment](#).

hint

An instruction passed to the [optimizer](#) through comments in a SQL statement. The optimizer uses hints to choose an [execution plan](#) for the statement.

hot buffer

A buffer in the database buffer cache that is frequently accessed and has been recently used.

human error outage

An outage that occurs when unintentional or malicious actions are committed that cause data in the database to become logically corrupt or unusable.

Hybrid Columnar Compression

A hybrid method that uses row and columnar techniques to compress data in a data block. A logical construct called a compression unit is used to store a set of hybrid columnar-compressed rows.

hybrid partitioned table

A table in which some partitions are stored in data file segments and some are stored in external data source.

IM column store

An optional SGA area that stores copies of tables and partitions in a columnar format optimized for rapid scans.

image copy

A bit-for-bit, on-disk duplicate of a data file, control file, or archived redo log file. You can create image copies of physical files with operating system utilities or RMAN and use either tool to restore them.

implicit query

A component of a [DML](#) statement that retrieves data without a [subquery](#). An `UPDATE`, `DELETE`, or `MERGE` statement that does not explicitly include a `SELECT` statement uses an implicit query to retrieve the rows to be modified.

In-Memory Column Store

See [IM column store](#).

inactive online redo log file

An online redo log file that is not required for instance recovery.

inconsistent backup

A backup in which some files in the backup contain changes made after the [checkpoint](#). Unlike a [consistent backup](#), an inconsistent backup requires [media recovery](#) to be made consistent.

incremental refresh

A refresh that processes only the changes to the existing data in a [materialized view](#). This method eliminates the need for a [complete refresh](#).

incremental-forever backup strategy

The strategy in which an initial level 0 backup is taken to the [Recovery Appliance](#), with all subsequent incremental backups occurring at level 1. The Recovery Appliance creates a virtual full backup by combining the initial level 0 with subsequent level 1 backups.

index

Optional schema object associated with a nonclustered [table](#), table [partition](#), or [table cluster](#). In some cases indexes speed data access.

index block

A special type of data block that manages space differently from table blocks.

index cluster

An table cluster that uses an index to locate data. The cluster index is a B-tree index on the cluster key.

index clustering factor

A measure of the row order in relation to an indexed value such as last name. The more order that exists in row storage for this value, the lower the clustering factor.

index range scan

An ordered scan of an index that has the following characteristics:

- One or more leading columns of an index are specified in conditions. A [condition](#) specifies a combination of one or more expressions and logical (Boolean) operators and returns a value of `TRUE`, `FALSE`, or `UNKNOWN`.
- 0, 1, or more values are possible for an index key.

index scan

The retrieval of a row by traversing an index, using the indexed column values specified by the statement.

index segment

A [segment](#) that stores data for a nonpartitioned index or index [partition](#).

index skip scan

An index scan that uses logical subindexes of a composite index. The database "skips" through a single index as if it were searching separate indexes.

index unique scan

An index scan that must have either 0 or 1 rowid associated with an index key. The database performs a unique scan when a predicate references all of the columns in the key of a `UNIQUE` index using an equality operator.

index-organized table

A table whose storage organization is a variant of a primary B-tree [index](#). Unlike a [heap-organized table](#), data is stored in [primary key](#) order.

in-doubt distributed transaction

A distributed transaction in which a two-phase commit is interrupted by any type of system or network failure.

in-flight transaction

A transaction that is running when an outage breaks the connection between a client application and the database.

information system

A formal system for storing and processing information.

initialization parameter

A configuration parameter such as `DB_NAME` or `SGA_TARGET` that affects the operation of a [database instance](#). Settings for initialization parameters are stored in a text-based [initialization parameter](#) file or binary [server parameter file](#).

initialization parameter file

A text file that contains [initialization parameter](#) settings for a [database instance](#).

inner join

A join of two or more tables that returns only those rows that satisfy the join condition.

instance failure

The termination of a [database instance](#) because of a hardware failure, Oracle internal error, or `SHUTDOWN ABORT` statement.

instance PGA

The collection of individual PGAs in a database instance.

instance recovery

The automatic application of redo log records to uncommitted data blocks when an [database instance](#) is restarted after a failure.

INSTEAD OF trigger

A [trigger](#) that is fired by Oracle Database instead of executing the triggering statement. These triggers are useful for transparently modifying views that cannot be modified directly through DML statements.

integrity

See [data integrity](#).

integrity constraint

Declarative method of defining a rule for a [column](#). The integrity constraints enforce business rules and prevent the entry of invalid information into tables.

interested transaction list (ITL)

Information in a block header that determines whether a transaction was uncommitted when the database began modifying the block. Entries in the ITL describe which transactions have rows locked and which rows in the block contain committed and uncommitted changes.

interval partition

An extension of range partitioning that instructs the database to create partitions of the specified range or interval. The database automatically creates the partitions when data inserted into the table exceeds all existing range partitions.

invisible index

An index that is maintained by DML operations, but is not used by default by the optimizer. Making an index invisible is an alternative to making it unusable or dropping it.

invoker's rights PL/SQL procedure

A procedure that executes in the current user's schema with the current user's privileges.

Java pool

An area of memory that stores all session-specific Java code and data within the Java Virtual Machine (JVM).

Java Publisher (JPublisher)

A utility that generates Java classes to represent database entities, such as SQL objects and PL/SQL packages, in a Java client program.

Java stored procedure

A Java method published to SQL and stored in the database.

JavaScript object

An associative array of zero or more pairs of property names and associated [JavaScript Object Notation \(JSON\)](#) values.

JavaScript Object Notation (JSON)

A language-independent, text-based data format that can represent objects, arrays, and scalar data.

job queue process

An optional background process that runs user jobs, often in batch mode. A job is a user-defined task scheduled to run one or more times.

join

A statement that retrieves data from multiple tables specified in the `FROM` clause. Join types include inner joins, outer joins, and Cartesian joins.

join attribute clustering

In an [attribute-clustered table](#), clustering that is based on joined columns.

join condition

A condition that compares two columns, each from a different table, in a [join](#). The database combines pairs of rows, each containing one row from each table, for which the join condition evaluates to `TRUE`.

join view

A view whose definition includes multiple tables or views in the `FROM` clause.

JSON object

A JavaScript object literal written as a property listed enclosed in braces.
See also [JavaScript Object Notation \(JSON\)](#).

JVM

A virtual processor that runs compiled Java code.

key

Column or set of columns included in the definition of certain types of integrity constraints.

key compression

See [prefix compression](#).

key values

Individual values in a key.

key-preserved table

In a join query, a table in which each row appears at most one time in the output of the query.

large object (LOB)

See [LOB](#).

large pool

Optional area in the [SGA](#) that provides large memory allocations for backup and restore operations, I/O server processes, and session memory for the [shared server](#) and [Oracle XA](#).

latch

A low-level serialization control mechanism used to protect shared data structures in the [SGA](#) from simultaneous access.

latch sleeping

The phenomenon that occurs when a process releases the CPU before renewing the latch request.

latch spinning

The phenomenon that occurs when a process repeatedly requests a latch in a loop.

leaf block

In a B-tree index, a lower-level block that stores index entries. The upper-level branch blocks of a B-tree index contain index data that points to lower-level index blocks.

left outer join

The result of a left outer join for table *A* and *B* contains all records of the left table *A*, even if the join condition does not match a record in the right table *B*. For example, if you perform a left outer join of `employees` (left) to `departments` (right), and if some employees are not in a department, then the query returns rows from `employees` with no matches in `departments`.

library cache

An area of memory in the [shared pool](#). This cache includes the shared SQL areas, private SQL areas (in a [shared server](#) configuration), [PL/SQL](#) procedures and packages, and control structures such as locks and library cache handles.

list partitioning

A [partitioning](#) strategy that uses a list of discrete values as the partition key for each partition. You can use list partitioning to control how individual rows map to specific partitions. By using lists, you can group and organize related sets of data when the key used to identify them is not conveniently ordered.

listener

A process that listens for incoming client connection requests and manages network traffic to the database.

listener registration process (LREG)

The process that registers information about the database instance and dispatcher processes with the Oracle Net listener.

literal

A fixed data value.

LOB

Large object. Large Objects include the following SQL data types: BLOB, CLOB, NCLOB, and BFILE. These data types are designed for storing data that is large in size.

local partitioned index

An index partitioned on the same columns, with the same number of partitions and the same partition bounds as its table. A one-to-one parity exists between index partitions and table partitions.

local role

In a CDB, a role that exists only in a single PDB. Unlike a [common role](#), a local role may only contain roles and privileges that apply within the container in which the role exists.

local temporary tablespace

A [temporary tablespace](#) that resides on local storage and is accessible by a specific database instance. In contrast, a shared [shared temporary tablespace](#) resides on shared storage and is accessible by all database instances.

locale

Within the context of globalization support, a linguistic and cultural environment in which a system or program is running.

locally managed tablespace

A [tablespace](#) that uses a bitmap stored in each data file to manage the extents. In contrast, a dictionary-managed tablespace uses the [data dictionary](#) to manage space.

lock

A database mechanism that prevents destructive interaction between transactions accessing a shared resource such as a table, row, or system object not visible to users. The main categories of locks are DML locks, DDL locks, and latches and internal locks.

lock conversion

The automatic conversion of a table lock of lower restrictiveness to one of higher restrictiveness. For example, suppose a transaction issues a `SELECT ... FOR UPDATE` for an employee and later updates the locked row. In this case, the database automatically converts the row share table lock to a row exclusive table lock.

lock escalation

A situation that occurs in some databases when numerous locks are held at one level of granularity (for example, rows) and the database raises the locks to a higher level of granularity (for example, table). *Oracle Database never escalates locks.*

log sequence number

A number that uniquely identifies a set of redo records in a [redo log](#) file. When the database fills one [online redo log](#) file and switches to a different one, the database automatically assigns the new file a log sequence number.

log switch

The point at which the [log writer process \(LGWR\)](#) stops writing to the active redo log file and switches to the next available redo log file. LGWR switches when either the active redo log file is filled with redo records or a switch is manually initiated.

log writer process (LGWR)

The [background process](#) responsible for [redo log](#) buffer management—writing the redo log buffer to the [online redo log](#). LGWR writes all redo entries that have been copied into the buffer since the last time it wrote.

logical I/O

Reads and writes of buffers in the database buffer cache.

logical read

A read of a buffer in the database buffer cache.

logical rowid

A rowid for an index-organized table. A logical rowid is a base64-encoded representation of a table primary key.

logical transaction ID

A globally unique identifier that defines a transaction from the application perspective. The logical transaction ID is bound to the database [transaction ID](#).

logical volume

A virtual disk partition.

logical volume manager (LVM)

A software package, available with most operating systems, that enables pieces of multiple physical disks to be combined into a single contiguous address space that appears as one disk to higher layers of software.

lookup table

A table containing a code column and an associated value column. For example, a job code corresponds to a job name. In contrast to a master table in a pair of [master-detail tables](#), a lookup table is not the means to obtain a detailed result set, such as a list of employees. Rather, a user queries a table such as `employees` for an employee list and then joins the result set to the lookup table.

lost update

A [data integrity](#) problem in which one writer of data overwrites the changes of a different writer modifying the same data.

lost write

A data corruption that occurs when the database thinks that it has written a block to persistent storage, but the block either was not written, or a previous version of the block was written.

manageability monitor process (MMON)

The background process that performs many tasks related to the Automatic Workload Repository (AWR). For example, MMON writes when a metric violates its threshold value, taking snapshots, and capturing statistics value for recently modified SQL objects.

mantissa

The part of a floating-point number that contains its significant digits.

manual segment space management (MSSM)

A legacy space management method that uses a linked list called a free list to manage free space in a segment.

manual undo management mode

A mode of the database in which undo blocks are stored in user-managed undo segments. In [automatic undo management mode](#), undo blocks are stored in a system-managed, dedicated undo tablespaces.

master database

In [replication](#), the source of the data that is copied to a subscriber database. The replication agent on the master database reads the records from the transaction log for the master database. It forwards changes to replicated elements to the replication agent on the subscriber database. The replication agent on the subscriber database then applies the updates.

master site

In a [replication](#) environment, a different database with which a [materialized view](#) shares data.

master table

In a [replication](#) environment, the table associated with a [materialized view](#) at a [master site](#).

master-detail tables

A detail table has a [foreign key](#) relationship with a master table. For example, the `employees` detail table has a foreign key to the `departments` master table. Unlike a [lookup table](#), a master table is typically queried and then joined to the detail table. For example, a user may query a department in the `departments` table and then use this result to find the employees in this department.

materialized view

A schema object that stores the result of a query. The `FROM` clause of the query can name tables, views, and other materialized views.

See also [view](#).

media recovery

The application of redo or incremental backups to a [data block](#) or backup [data file](#).

memoptimize pool

An SGA pool that stores buffers and related structures for heap-organized tables specified as `MEMOPTIMIZE FOR READ`.

metadata link

In a [PDB](#), an internal mechanism that points to a dictionary object definition stored in the root. For example, the `OBJ$` table in each PDB uses a metadata link to point to the definition of `OBJ$` stored in the root.

metadata-linked common object

A [common object](#) that exists either in the [CDB root](#) or an [application root](#). The metadata, rather than the data, is shared by any PDB that contains a [metadata link](#) that points to the common object.

metric

The rate of change in a cumulative statistic

mounted database

An [database instance](#) that is started and has the database [control file](#) open.

multitenant architecture

The architecture that enables an Oracle database to function as a multitenant container database ([CDB](#)), which means that it can contain [PDBs](#) and [application containers](#).

multitenant container database (CDB)

See [CDB](#).

multithreaded Oracle Database model

A model that enables Oracle processes to execute as operating system threads in separate address spaces. In threaded mode, some background processes on UNIX and Linux run as processes containing one thread, whereas the remaining Oracle processes run as threads within processes.

multitier architecture

An architecture in which one or more application servers provide data for clients and serves as an interface between clients and database servers.

multiversion consistency model

A model that enables the database to present a view of data to multiple concurrent users, with each view consistent to a point in time.

multiversioning

The ability of the database to simultaneously materialize multiple versions of data.

mutual exclusion object (mutex)

A low-level mechanism that prevents an object in memory from aging out or from being corrupted when accessed by concurrent processes.

natural key

A meaningful identifier made of existing attributes in a table. For example, a natural key could be a postal code in a lookup table.

network database

A type of database, similar to a hierarchical database, in which records have a many-to-many rather than a one-to-many relationship.

network encryption

Encrypting data as it travels across the network between a client and server.

noncircular reuse record

A control file record that contains critical information that does not change often and cannot be overwritten. Examples of information include tablespaces, data files, online redo log files, and redo threads. Oracle Database never reuses these records unless the corresponding object is dropped from the tablespace.

nondeferrable constraint

A constraint whose validity check is never deferred to the end of the transaction. Instead, the database checks the constraint at the end of each statement. If the constraint is violated, then the statement rolls back.

null

Absence of a value in a [column](#) of a [row](#). Nulls indicate missing, unknown, or inapplicable data.

object-relational database management system (ORDBMS)

An RDBMS that implements object-oriented features such as user-defined types, inheritance, and polymorphism.

object table

An special kind of table in which each row represents an object.

object type

A [schema object](#) that abstracts a real-world entity such as a purchase order. Attributes model the structure of the entity, whereas methods implement operations an application can perform on the entity.

object view

A virtual object table. Each row in the view is an object, which is an instance of a user-defined data type.

OLAP

Online Analytical Processing. OLAP is characterized by dynamic, dimensional analysis of historical data.

OLAP page pool

The pool in the UGA that manages OLAP data pages, which are equivalent to data blocks. The page pool is allocated at the start of an OLAP session and released at the end of the session.

OLTP

Online Transaction Processing. OLTP systems are optimized for fast and reliable transaction handling. Compared to [data warehouse](#) systems, most OLTP interactions involve a relatively small number of rows, but a larger group of tables.

online redo log

The set of two or more online [redo log](#) files that record all changes made to Oracle Database data files and [control file](#). When a change is made to the database, Oracle Database generates a redo record in the redo buffer. The [log writer process \(LGWR\)](#) process writes the contents of the [redo log buffer](#) to the online redo log.

online redo log group

An online redo log file and its redundant copies.

operating system block

The minimum unit of data that the operating system can read or write.

operator

1. In memory management, operators control the flow of data. Examples include sort, [hash join](#), and [bitmap merge](#) operators.
2. In SQL, an operator manipulates data items called *operands* or *arguments* and returns a result. Keywords or special characters represent the operators. For example, an asterisk (*) represents the multiplication operator.

optimizer

Built-in database software that determines the most efficient way to execute a SQL statement by considering factors related to the objects referenced and the conditions specified in the statement.

optimizer statistics

Details about the database its object used by the optimizer to select the best execution plan for each SQL statement. Categories include table statistics such as numbers of rows, index statistics such as B-tree levels, system statistics such as CPU and I/O performance, and column statistics such as number of nulls.

Oracle Application Express

A Web application development tool for Oracle Database. Oracle Application Express uses built-in features such as user interface themes, navigational controls, form handlers, and flexible reports to accelerate application development.

Oracle architecture

Memory and [process](#) structures used by Oracle Database to manage a database.

Oracle ASM

Oracle Automatic Storage Management (Oracle ASM). A volume manager and a file system for database files. Oracle ASM is Oracle's recommended storage management solution, providing an alternative to conventional volume managers and file systems.

Oracle ASM allocation unit

The fundamental unit of allocation within an ASM disk group. An allocation unit is the smallest contiguous disk space that Oracle ASM allocates. One or more allocation units form an Oracle ASM extent.

Oracle ASM disk

A storage device that is provisioned to an Oracle ASM disk group. An Oracle ASM disk can be a physical disk or partition, a Logical Unit Number (LUN) from a storage array, a logical volume, or a network-attached file.

Oracle ASM disk group

One or more [Oracle ASM](#) disks managed as a logical unit. I/O to a disk group is automatically spread across all the disks in the group.

Oracle ASM extent

A section of an Oracle ASM file. An Oracle ASM file consists of one or more file extents. Each Oracle ASM extent consists of one or more allocation units on a specific disk.

Oracle ASM file

A file stored in an Oracle ASM disk group. The database can store data files, control files, online redo log files, and other types of files as Oracle ASM files.

Oracle ASM instance

A special Oracle instance that manages Oracle ASM disks. Both the Oracle ASM instance and the database instances require shared access to the disks in an Oracle ASM disk group. Oracle ASM instances manage the metadata of the disk group and provide file layout information to the database instances.

Oracle Automatic Storage Management (Oracle ASM)

See [Oracle ASM](#).

Oracle base

The Oracle base directory is the database home directory for Oracle Database installation owners. The directory, which is specified by the `ORACLE_BASE` environment variable, is the root of the Oracle directory tree.

Oracle base configuration directory

A directory that contains the instance-specific configuration files.

For a read-write [Oracle home](#), the Oracle base home (`ORACLE_BASE_HOME`), Oracle base configuration directory (`ORACLE_BASE_CONFIG`), and Oracle home are the same. For a read-only Oracle home, the Oracle base configuration directory contains configuration files shared by all Oracle homes in an [Oracle base home](#). To prevent naming collisions, each file name contains the SID (system identifier).

Oracle base home

A directory that stores configuration files for the database instances associated with an [Oracle home](#).

For a read-write Oracle home, the Oracle base home (ORACLE_BASE_HOME), Oracle base configuration directory (ORACLE_BASE_CONFIG), and Oracle home are the same. For a read-only Oracle home, the Oracle base home is a home-specific directory located in the `homes/home_name` subdirectory of the [Oracle base](#).

Oracle Clusterware

A set of components that enables servers to operate together as if they were one server.

Oracle Clusterware is a requirement for using [Oracle RAC](#) and it is the only clusterware that you need for platforms on which Oracle RAC operates.

Oracle Connection Manager

A router through which a client connection request may be sent either to its next hop or directly to the database server.

Oracle Data Redaction

A feature of Oracle Advanced Security that enables you to mask (redact) data that is queried by low-privileged users or applications.

Oracle database

A set of files, located on disk, that store data. Because a [database instance](#) and a database are so closely connected, the term *Oracle database* is often used to refer to both instance and database.

Oracle Database Vault

A database security feature that controls when, where, and how databases, data, and applications are accessed.

Oracle Developer Tools for Visual Studio .NET

A set of application tools integrated with the Visual Studio .NET environment. These tools provide GUI access to Oracle functionality, enable the user to perform a wide range of application development tasks, and improve development productivity and ease of use.

Oracle Enterprise Manager

A system management tool that provides centralized management of an Oracle database environment.

Oracle Flashback Technology

A group of features that supports viewing past states of data, and winding data back and forth in time, without needing to restore backups.

Oracle Flex Clusters

A large cluster configured using Oracle Clusterware and Oracle Real Application Clusters. These clusters contain two types of nodes arranged in a hub-and-spoke architecture: Hub Nodes and Leaf Nodes.

Oracle Globalization Development Kit (GDK)

A development toolkit that includes comprehensive programming APIs for both Java and PL/SQL, code samples, and documentation that address many of the design, development, and deployment issues encountered while creating global applications.

Oracle home

The operating system location of an Oracle Database installation. An Oracle home can be read/write or read-only.

Oracle JDeveloper

An integrated development environment (IDE) for building service-oriented applications using the latest industry standards for Java, XML, Web services, and SQL.

Oracle JVM

A standard, Java-compatible environment that runs any pure Java application.

Oracle Managed Files

A database file naming strategy that enables database administrators to specify operations in terms of database objects rather than file names. Oracle Managed Files eliminates the need for administrators to directly manage the operating system files in a database.

Oracle Multimedia

A technology that enables Oracle Database to store, manage, and retrieve images, DICOM format medical images and other objects, audio, video, or other heterogeneous media data in an integrated fashion with other enterprise information.

Oracle Multitenant

A database option that enables you to create multiple PDBs in a CDB.

Oracle Net

Communication software that enables a network session between a client application and an Oracle database. After a network session is established, Oracle Net acts as a data courier for the client application and the database.

Oracle Net Listener

A process that resides on the server whose responsibility is to listen for incoming client connection requests and manage the traffic to the server. When a client requests a network session with a database, Oracle Net Listener (typically called *the listener*) receives the request. If the client information matches the listener information, then the listener grants a connection to the database server.

Oracle Net Services

A suite of networking components that provide enterprise-wide connectivity solutions in distributed, heterogeneous computing environments. Oracle Net Services includes Oracle Net, listener, Oracle Connection Manager, Oracle Net Configuration Assistant, and Oracle Net Manager.

Oracle Optimal Flexible Architecture (OFA)

A set of configuration guidelines created to ensure well-organized Oracle installations.

Oracle process

A unit of execution that runs the Oracle database code. The process execution architecture depends on the operating system. Oracle processes include server processes and background processes.

Oracle RAC

Oracle Real Application Clusters. Option that allows multiple concurrent database instances to share a single physical database.

Oracle Real Application Clusters

See [Oracle RAC](#).

Oracle Sharding

A feature for OLTP applications that enables distribution and replication of data across a pool of Oracle databases in a shared-nothing architecture. Applications access the pool as a single, logical database called a [sharded database \(SDB\)](#).

Oracle Spatial and Graph

A set of advanced features for spatial data and analysis and for physical, logical, network, and social and semantic graph applications. The spatial features provide a schema and functions

that facilitate the storage, retrieval, update, and query of collections of spatial features in an Oracle database.

Oracle SQL

An implementation of the ANSI standard for SQL. Oracle SQL supports numerous features that extend beyond standard SQL.

Oracle Text (Text)

A full-text retrieval technology integrated with Oracle Database.

Oracle Virtual Private Database (VPD)

A security feature that enables you to create security policies to control database access at the row and column level. Essentially, VPD adds a dynamic `WHERE` clause to a SQL statement that is issued against the table, view, or synonym to which a VPD security policy was applied.

Oracle XA

An external interface that allows global transactions to be coordinated by a [transaction](#) manager other than Oracle Database.

Oracle XML DB

A set of Oracle Database technologies related to high-performance XML manipulation, storage, and retrieval. Oracle XML DB provides native XML support by encompassing both SQL and XML data models in an interoperable manner.

Oracle XML Developer's Kit (XDK)

A developer toolkit that contains the basic building blocks for reading, manipulating, transforming, and viewing XML documents, whether on a file system or in a database. APIs and tools are available for Java, C, and C++. The production Oracle XDK comes with a commercial redistribution license.

outer join

A join that returns all rows that satisfy the join condition and also returns some or all of those rows from one table for which no rows from the other satisfy the join condition.

parallel execution

The application of multiple CPU and I/O resources to the execution of a single database operation.

parse lock

A lock is held by a SQL statement or PL/SQL program unit for each schema object that it references. Parse locks are acquired so that the associated shared SQL area can be invalidated if a referenced object is altered or dropped.

partial index

An index that is correlated with the indexing properties of an associated partitioned table.

partition

A piece of a table or index that shares the same logical attributes as the other partitions. For example, all partitions in a table share the same column and constraint definitions. Each partition is an independent object with its own name and optionally its own storage characteristics.

partition elimination

The exclusion of partitions from a query plan. Whether the optimizer can eliminate partitions from consideration depends on the query predicate. A query that uses a local prefixed index always allows for index partition elimination, whereas a query that uses a local nonprefixed index might not.

partition key

A set of one or more columns that determines the partition in which each row in a partitioned table should go. Each row is unambiguously assigned to a single partition.

partitioned index

An index that is divided into smaller and more manageable pieces. Like partitioned tables, partitioned indexes improve manageability, availability, performance, and scalability.

partitioned table

A table that has one or more partitions, each of which is managed individually and can operate independently of the other partitions.

partitioning

The ability to decompose very large tables and indexes into smaller and more manageable pieces called partitions.

PDB

In a [multitenant container database \(CDB\)](#), a portable collection of schemas, schema objects, and nonschema objects that appears to an Oracle Net client as a separate database.

PDB administrator

A database administrator who manages one or more PDBs. A [CDB administrator](#) manages the whole CDB.

PDB restore point

Within a CDB, a restore point that usable only for a specific PDB. In contrast, a CDB restore point is usable by all PDBs.

performance profile

A specified share of system resources, CPU, parallel execution servers, and memory for a PDB or set of PDBs.

permanent tablespace

A tablespace that contains persistent schema objects. Every tablespace that is not a temporary tablespace is a permanent tablespace.

PGA

Program global area. A memory buffer that contains data and control information for a [server process](#).

See also [SGA](#).

physical guess

The physical rowid of an index entry when it was first made. Oracle Database can use physical guesses to probe directly into the leaf block of any index-organized table, bypassing the primary key search.

PL/SQL

Procedural Language/SQL. The Oracle Database procedural language extension to [SQL](#). PL/SQL enables you to mix SQL statements with programmatic constructs such as procedures, functions, and packages.

PL/SQL anonymous block

A PL/SQL block that appears in an application, but is not named or stored in the database. In many applications, PL/SQL blocks may appear wherever SQL statements can appear.

PL/SQL collection

An ordered group of elements, all of the same type. Each element has a unique subscript that determines its position in the collection.

PL/SQL engine

The tool used to define, compile, and run PL/SQL program units. This engine is a special component of many Oracle products, including Oracle Database.

PL/SQL function

A [schema object](#) that consists of a set of SQL statements and other [PL/SQL](#) constructs, grouped together, stored in the database, and run as a unit to solve a specific problem or perform a set of related tasks, and that always returns a single value to the caller.

PL/SQL function result cache

A subset of the [server result cache](#) that stores function result sets.

PL/SQL package

A logical grouping of related PL/SQL types, variables, and subprograms.

PL/SQL procedure

A [schema object](#) that consists of a set of SQL statements and other [PL/SQL](#) constructs, grouped together, stored in the database, and run as a unit to solve a specific problem or perform a set of related tasks.

PL/SQL record

A composite variable that can store data values of different types, similar to a `struct` type in C, C++, or Java. Records are useful for holding data from table rows, or specific columns from table rows.

PL/SQL subprogram

A named PL/SQL block that can be invoked with a set of parameters

plan generator

The part of the optimizer that tries different access paths, join methods, and join orders for a given query block to find the plan with the lowest cost.

pluggable database (PDB)

See [PDB](#).

population

The transfer of data into the IM column store. Population does not insert *new* data into the database; rather, it brings *existing* data into memory and stores it in columnar format.

pragma

A directive that instructs the compiler to perform a compilation option. For example, the pragma `AUTONOMOUS_TRANSACTION` instructs the database that this procedure, when executed, is to be executed as a new autonomous transaction that is independent of its parent transaction.

precision

The total number of digits in a floating-point number. You specify a fixed-point number in the form `NUMBER (p, s)`, where *p* represents the precision.

precompiler

A programming tool that enables you to embed SQL statements in a high-level source program written in a language such as C, C++, or COBOL.

predicate

The `WHERE` condition in a SQL statement.

prefix compression

The elimination of repeated occurrence of [primary key](#) column values in an [index-organized table](#). Prefix compression was formerly known as *key compression*.

primary key

The column or set of columns that uniquely identifies a row in a table. Only one primary [key](#) can be defined for each table.

primary key constraint

An [integrity constraint](#) that disallows duplicate values and nulls in a column or set of columns.

private SQL area

An area in memory that holds a parsed statement and other information for processing. The private SQL area contains data such as [bind variable](#) values, [query](#) execution state information, and query execution work areas.

private temporary table

A memory-only temporary table whose data and metadata is session-private.

privilege

The right to run a particular type of SQL statement, or the right to access an object that belongs to another user, run a PL/SQL package, and so on. The types of privileges are defined by Oracle Database.

privilege analysis

A security mechanism that captures privilege usage for a database according to a specified condition. For example, you can find the privileges that a user exercised during a specific database session.

procedural language

A language that describes *how* things should be done, not *what* should be done (as in declarative languages). C++ and Java are examples of procedural languages.

process

A mechanism in an operating system that can run a series of steps. By dividing the work of Oracle Database and database applications into several processes, multiple users and applications can connect to a single database instance simultaneously.

See also [background process](#); [Oracle process](#); [client process](#).

process monitor (PMON)

The background process that detects the termination of other background processes. If a server or dispatcher process terminates abnormally, then the [process monitor \(PMON\) group](#) is responsible for performing process recovery.

process monitor (PMON) group

The group of background processes that is responsible for the monitoring and cleanup of other processes. The PMON group includes [process monitor \(PMON\)](#), Cleanup Main Process (CLMN), and Cleanup Helper Processes (CLnn).

program global area (PGA)

See [PGA](#).

program interface

The software layer between a database application and Oracle Database.

protected database

A client database whose backups are managed by a [Recovery Appliance](#).

protection policy

A group of attributes that control how a [Recovery Appliance](#) stores and maintains backup data. Each protected database is assigned to exactly one protection policy, which controls all aspects of backup processing for that client.

proxy PDB

A PDB that references a PDB in a remote CDB using a database link. The remote PDB is called a [referenced PDB](#).

pseudocolumn

A column that is not stored in a table, yet behaves like a table column.

query

An operation that retrieves data from tables or views. For example, `SELECT * FROM employees` is a query.

See also [implicit query](#); [subquery](#).

query block

A top-level `SELECT` statement, subquery, or unmerged view.

query coordinator

In [parallel execution](#), the user [session](#) or shadow process that coordinates the parallel execution servers. The parallel execution servers performs each operation in parallel if possible. When the parallel servers are finished executing the statement, the query coordinator performs any portion of the work that cannot be executed in parallel. Finally, the query coordinator returns any results to the user.

query optimization

The process of choosing the most efficient means of executing a SQL statement.

query plan

The [execution plan](#) used to execute a query.

query rewrite

An optimization technique that transforms a user request written in terms of master tables into a semantically equivalent request that includes materialized views.

query transformer

An optimizer component that decides whether it can rewrite the original SQL statement into a semantically equivalent SQL statement with a lower cost.

R

A language and environment for statistical computing and graphics.

range partitioning

A type of [partitioning](#) in which the database maps rows to partitions based on ranges of values of the partitioning key. Range partitioning is the most common type of partitioning and is often used with dates.

RDMA

Remote Direct Memory Access. A communication protocol that enables a client to transfer data from the memory (DRAM) of the database server over the network without consuming server-side CPU.

read committed isolation level

An isolation level that guarantees that a query executed by a transaction sees only data committed before the query—not the transaction—began.

read consistency

A consistent view of data seen by a user. For example, in statement-level read consistency the set of data seen by a SQL statement remains constant throughout statement execution.

See also [data concurrency](#); [data consistency](#).

read-only database

A database that is available for queries only and cannot be modified.

read-only database instance

A [database instance](#) that cannot process DML and does not support client connections.

read-only isolation level

An isolation level that is similar to the serializable isolation level, with one exception: read-only transactions do not permit data to be modified in the transaction unless the user is `SYS`.

read/write database instance

A [database instance](#) that can process DML and supports direct client connections. By default, a database instance is read/write.

real-time redo transport

The continuous transfer of redo changes from the SGA of a protected database to a [Recovery Appliance](#). Real-time redo transport enables RMAN to provide a recovery point objective near 0. Typically, RMAN can recover to within a second of the time when the failure occurred. Protected databases write redo entries directly from the [SGA](#) to the Recovery Appliance as they are generated.

recoverable error

A class of errors that arise because of an external system failure, independently of the application session logic that is executing. Recoverable errors occur following planned and unplanned outages of networks, nodes, storage, and databases. An example of a nonrecoverable error is submission of invalid data values.

recoverer process (RECO)

In a distributed database, the background process that automatically resolves failures in distributed transactions.

Recovery Appliance

Shortened name for Zero Data Loss Recovery Appliance. Recovery Appliance is an Oracle Engineered System specifically designed to protect Oracle databases. Integrated with RMAN, it enables a centralized, incremental-forever backup strategy for hundreds to thousands of databases across the enterprise, using cloud-scale, fully fault-tolerant hardware and storage.

Recovery Appliance Backup Module

An Oracle-supplied SBT library that [RMAN](#) uses to send backups of protected databases over the network to the Recovery Appliance. The library must be installed in each Oracle home used by a protected database.

The module functions as an SBT media management library that RMAN references when allocating or configuring a channel for backup to the Recovery Appliance. RMAN performs all backups to the Recovery Appliance, and all restores of complete backup sets, using this module.

Recovery Appliance metadata database

The Oracle database that runs inside of the Recovery Appliance. This database stores configuration data such as user definitions, protection policy definitions, and client database

definitions. The metadata database also stores backup metadata, including the contents of the delta store.

Recovery Appliance storage location

A set of Oracle ASM disk groups within Recovery Appliance that stores backups. A storage location can be shared among multiple protected databases. Every Recovery Appliance contains the default Recovery Appliance storage location named `DELTA`.

recovery catalog

A centralized backup repository located in an Oracle database. The recovery catalog contains metadata about RMAN backups.

Recovery Manager (RMAN)

See [RMAN](#).

recovery window goal

The time interval within which a protected database must be recoverable to satisfy business requirements. For each [protected database](#) in a [protection policy](#), the Recovery Appliance attempts to ensure that the oldest backup on disk is able to support a point-in-time recovery to any time within the specified interval (for example, the past 7 days), counting backward from the current time.

recursive SQL

SQL that the database executes in the background to obtain space for database objects. You can think of recursive SQL as "side effect" SQL.

redo log

A set of files that protect altered database data in memory that has not been written to the data files. The redo log can consist of two parts: the [online redo log](#) and the archived redo log.

redo log buffer

Memory structure in the [SGA](#) that stores redo entries—a log of changes made to the database. The database writes the redo entries stored in the redo log buffers to an [online redo log](#) file, which the database uses when [instance recovery](#) is necessary.

redo record

A record in the [online redo log](#) that holds a group of change vectors, each of which describes a change made to a data block. Each redo log file consists of redo records.

redo thread

The redo generated by a [database instance](#).

reference partitioning

A partitioning strategy in which a child table is solely defined through the foreign key relationship with a parent table. For every partition in the parent table, exactly one corresponding partition exists in the child table.

referenced key

In a foreign key relationship, the primary or unique key to which the foreign key refers. For example, in the common schema, the `employees.department_id` column is a foreign key, and the `departments.department_id` column is the referenced key.

referenced object

In a schema object dependency, the object that is referenced by another object's definition. For example, if the definition of object A references object B, then B is a referenced object for A.

referenced PDB

The PDB that is referenced by a [proxy PDB](#). A local PDB is in the same CDB as its referenced PDB, whereas a remote PDB is in a different CDB.

referential integrity

A rule defined on a [key](#) in one table that guarantees that the values in that key match the values in a key in a related table (the referenced value).

refreshable clone PDB

A read-only clone that can periodically synchronize with its source PDB. Depending on the value in the `REFRESH MODE` clause, the synchronization occurs either automatically or manually.

relation

A set of tuples.

relational database

A database that conforms to the relational model, storing data in a set of simple relations.

relational database management system (RDBMS)

A management system that moves data into a relational database, stores the data, and retrieves it so that applications can manipulate it.

replay context

In Application Continuity, opaque information that the database returns to the client driver during normal application run time.

replication

The process of sharing database objects and data at multiple databases.

reserved pool

A memory area in the [shared pool](#) that Oracle Database can use to allocate large contiguous chunks of memory.

resource plan

A container for resource plan directives that specify how resources are allocated to resource consumer groups.

resource plan directive

A set of limits and controls for CPU, physical I/O, or logical I/O consumption for sessions in a consumer group.

restore point

A user-defined name associated with an [SCN](#) of the database corresponding to the time of the creation of the restore point.

result set

The set of data retrieved from execution of a `SELECT` statement.

reverse key index

A type of B-tree index that physically reverses the bytes of each index key while keeping the column order. For example, if the index key is 20, and if the two bytes stored for this key in hexadecimal are C1, 15 in a standard B-tree index, then a reverse key index stores the bytes as 15, C1.

right outer join

The result of a right outer join for table *A* and *B* contains all records of the right table *B*, even if the join condition does not match a record in the left table *A*. For example, if you perform a right outer join of `employees` (left) to `departments` (right), and if some departments contain no employees, then the query returns rows from `departments` with no matches in `employees`.

RMAN

Recovery Manager. An Oracle Database utility that backs up, restores, and recovers Oracle databases.

role

A set of privileges that can be granted to database users or to other roles.

row

A set of [column](#) information corresponding to a single record in a [table](#). The database stores rows in data blocks.

row chaining

A situation in which Oracle Database must store a row in a series or chain of blocks because it is too large to fit into a single block.

row lock

A lock on a single row of table. A transaction acquires a row lock for each row modified by an INSERT, UPDATE, DELETE, MERGE, or SELECT ... FOR UPDATE statement.

row major format

A type of table storage in which all columns of one row are stored together, followed by all columns of the next row, and so on.

row migration

A situation in which Oracle Database moves a row from one [data block](#) to another data block because the row grows too large to fit in the original block.

row piece

A row is stored in a variable-length record. This record is divided into one or more row pieces. Each row piece has a row header and column data.

row set

A set of rows returned by a step in an execution plan.

row source

An iterative control structure that processes a set of rows and produces a row set.

row source generator

Software that receives the optimal plan from the optimizer and outputs the execution plan for the SQL statement.

row trigger

A trigger that fires each time the table is affected by the triggering statement. For example, if a statement updates multiple rows, then a row trigger fires once for each row affected by the `UPDATE`.

rowid

A globally unique address for a row in a database.

sample schemas

A set of interlinked schemas that enable Oracle documentation and Oracle instructional materials to illustrate common database tasks.

savepoint

A named SCN in a transaction to which the transaction can be rolled back.

scale

In a floating-point number, the number of digits from the decimal point to the least significant digit. You specify a fixed-point number in the form `NUMBER (p, s)`, where *s* represents the scale.

schema

A named collection of database objects, including logical structures such as tables and indexes. A schema has the name of the database user who owns it.

schema object

A logical structure of data stored in a [schema](#). Examples of schema objects are tables, indexes, sequences, and database links.

schema object dependency

The referencing of one object by another object. For example, a view contains a [query](#) that references tables or views, or a [PL/SQL](#) subprogram invokes other subprograms.

SCN

System Change Number. A database ordering primitive. The value of an SCN is the logical point in time at which changes are made to a database.

secondary index

An index on an index-organized table. In a sense, it is an index on an index.

SecureFiles LOB storage

SecureFiles LOB storage is the default storage mechanism for LOBs. The `SECUREFILE` LOB parameter enables advanced features, including compression and deduplication (part of the Advanced Compression Option) and encryption (part of the Advanced Security Option).

security policy

A set of methods for protecting a database from accidental or malicious destruction of data or damage to the database infrastructure.

seed PDB

In a [multitenant container database \(CDB\)](#), a default [pluggable database \(PDB\)](#) that the system uses as a template for user-created PDBs. A PDB seed is either the system-supplied `PDB$SEED` or an [application seed](#).

segment

A set of extents allocated for a specific database object such as a table, index, or [table cluster](#). User segments, undo segments, and temporary segments are all types of segments.

select list

In a `SELECT` statement, the list of expressions that appears after the `SELECT` keyword and before the `FROM` clause.

selectivity

A value indicating the proportion of a row set retrieved by a predicate or combination of predicates, for example, `WHERE last_name = 'Smith'`. A selectivity of 0 means that no rows pass the predicate test, whereas a value of 1 means that all rows pass the test.

The adjective *selective* means roughly "choosy." Thus, a highly selective query returns a low proportion of rows (selectivity close to 0), whereas an unselective query returns a high proportion of rows (selectivity close to 1).

self join

A join of a table to itself.

self-referential integrity constraint

A constraint in which a foreign key references a parent key in the same table. For example, a constraint could ensure that every value in the `employees.manager_id` column corresponds to an existing value in the `employees.employee_id` column.

sequence

A [schema object](#) that generates a serial list of unique numbers for table columns.

serial execution

A single server process performs all necessary processing for the sequential execution of a SQL statement.

serializability

A transaction isolation model that enables a transaction to operate in an environment that makes it appear as if no other users were modifying data in the database.

serializable isolation level

A level of isolation that guarantees that a transaction sees only changes committed at the time the transaction—not the query—began and changes made by the transaction itself.

server

In a [client/server architecture](#), the computer that runs Oracle software and handles the functions required for concurrent, shared data access. The server receives and processes the SQL and PL/SQL statements that originate from [client](#) applications.

server parameter file

A server-side binary file containing [initialization parameter](#) settings that is read and written to by the database.

server process

An [Oracle process](#) that communicates with a [client process](#) and Oracle Database to fulfill user requests. The server processes are associated with a database instance, but are not part of the instance.

server result cache

A memory pool within the shared pool. This memory pool consists of the SQL query result cache—which stores results of SQL queries—and the PL/SQL function result cache, which stores values returned by PL/SQL functions.

service handler

In Oracle Net, a dedicated server process or dispatcher that acts as a connection point to a database.

service name

In Oracle Net, the logical representation of a service used for client connections.

service registration

In Oracle Net, a feature by which the [listener registration process \(LREG\)](#) dynamically registers instance information with a listener, which enables the listener to forward client connection requests to the appropriate service handler.

service-oriented architecture (SOA)

A multitier architecture relying on services that support computer-to-computer interaction over a network.

session

A logical entity in the [database instance](#) memory that represents the state of a current user login to a database. A single [connection](#) can have 0, 1, or more sessions established on it.

SGA

System global area. A group of shared memory structures that contain data and control information for one Oracle [database instance](#).

shadow extent

An [extent](#) in a shadow tablespace. A one-to-one mapping exists between a shadow extent and a [tracked data file](#).

shadow lost write protection

A data protection feature that uses a [shadow tablespace](#) to detect a [lost write](#) automatically in any [tracked data file](#).

shadow tablespace

A tablespace enabled for [shadow lost write protection](#). The tablespace tracks the SCNs and other metadata for data blocks stored in a [tracked data file](#). A single shadow tablespace may contain descriptive data for many regular data files.

shard

A single database participating in a [sharding](#) configuration.

shard catalog database

A database that stores the [sharded database \(SDB\)](#) configuration data and provides other functionality, such as cross shard queries and centralized management.

shard director

A [GDS](#) infrastructure component that uses the [global service manager](#) to provide direct routing of requests from the application tier to an individual [shard](#).

sharded database (SDB)

In a [sharding](#) architecture, collection of shards that appear to applications as a single logical database.

sharded table

A table that is split horizontally across a [sharded database \(SDB\)](#), so that each [shard](#) contains the table with the same columns but a different subset of rows.

sharding

A data tier architecture in which data is horizontally partitioned across independent databases. Sharding is a shared-nothing database architecture because shards do not share physical resources such as CPU, memory, or storage devices. Shards are also loosely coupled in terms of software; they do not run clusterware.

sharding key

A partitioning key for a [sharded table](#).

share lock

A lock that permits the associated resource to be shared by multiple transactions, depending on the operations involved. Multiple transactions can acquire share locks on the same resource.

shared pool

Portion of the [SGA](#) that contains shared memory constructs such as shared SQL areas.

shared server

A database configuration that enables multiple client processes to share a small number of server processes.

See also [dedicated server](#).

shared SQL area

An area in the [shared pool](#) that contains the parse tree and [execution plan](#) for a SQL statement. Only one shared SQL area exists for a unique statement.

shared temporary tablespace

A [temporary tablespace](#) that resides on shared storage and is accessible by all database instances. Starting in Oracle Database 12c Release 2 (12.2), temporary tablespaces are either shared or local. In previous releases, all temporary tablespaces were shared temporary tablespaces.

shared undo mode

The use of a single set of undo data files for an entire [CDB](#).

simple database operation

A single SQL statement, or a single PL/SQL procedure or function.

simple trigger

A trigger on a table that enables you to specify actions for exactly one timing point. For example, the trigger might fire before the firing statement.

single-level partitioning

A partitioning strategy that uses only one method of data distribution, for example, only list partitioning or only range partitioning.

site failure

An event that causes all or a significant portion of an application to stop processing or slow to an unusable service level.

smallfile tablespace

A tablespace that can contain multiple data files or temp files, but the files cannot be as large as in a [bigfile tablespace](#).

soft parse

The reuse of existing code when the parsed representation of a submitted SQL statement exists in the [shared pool](#) and can be shared.

See also [hard parse](#).

software code area

A portion of memory that stores code that is being run or can be run.

sorted hash cluster

A hash cluster that stores the rows corresponding to each value of the hash function in such a way that the database can efficiently return them in sorted order. The database performs the optimized sort internally.

SQL

Structured Query Language. A nonprocedural language to access a relational database. Users describe in SQL what they want done, and the SQL language compiler automatically generates a procedure to navigate the database and perform the task. **Oracle SQL** includes many extensions to the ANSI/ISO standard SQL language.

See also [SQL*Plus](#); [PL/SQL](#).

SQL Developer

A graphical version of SQL*Plus, written in Java, that supports development in SQL and PL/SQL.

SQL parsing

This stage of SQL processing that involves separating the pieces of a SQL statement into a data structure that can be processed by other routines.

SQL plan baseline

In SQL plan management, a set of one or more accepted plans for a repeatable SQL statement. The effect of a SQL plan baseline is that the optimizer limits its choice to a verified plan in the baseline.

SQL plan management

A preventative mechanism that enables the optimizer to automatically manage execution plans, ensuring that the database uses only verified plans.

SQL profile

A set of auxiliary information built during automatic tuning of a SQL statement. A SQL profile is to a SQL statement what statistics are to a table. The optimizer can use SQL profiles to

improve cardinality and selectivity estimates, which in turn leads the optimizer to select better plans.

SQL query result cache

A subset of the server result cache that stores the results of queries and query fragments.

SQL*Plus

Oracle tool used to run [SQL](#) statements against Oracle Database.

standby database

An independent copy of a production database that you can use for disaster protection in a high availability environment.

star schema

A relational schema whose design represents a dimensional data model. The star schema consists of one or more fact tables and one or more dimension tables that are related through foreign keys.

See also [dimension table](#); [fact table](#).

state object

A session-level structure that contains metadata about the status of database resources such as processes, sessions, and transactions in the SGA.

statement trigger

A trigger that is fired once on behalf of the triggering statement, regardless of the number of rows affected by the triggering statement.

statement-level atomicity

The characteristic of a SQL statement as an atomic unit of work that either completely succeeds or completely fails.

statement-level read consistency

The guarantee that data returned by a single query is committed and consistent for a single point in time.

statement-level rollback

A database operation in which the effects of an unsuccessful SQL statement are rolled back because the statement caused an error during execution.

stored procedure

A named [PL/SQL](#) block or Java program that Oracle Database stores in the database. Applications can call stored procedures by name.

Streams pool

A memory pool that stores buffered queue messages.

Structured Query Language (SQL)

See [SQL](#).

subquery

A [query](#) nested within another SQL statement. Unlike implicit queries, subqueries use a `SELECT` statement to retrieve data.

summary

In a data warehouse, an aggregate view that reduces query time by precalculating joins and aggregation operations and storing the results in a table.

surrogate key

A system-generated incrementing identifier that ensures uniqueness within a table. Typically, a sequence generates surrogate keys.

synonym

An alias for a [schema object](#). You can use synonyms to provide data independence and location transparency.

system change number (SCN)

See [SCN](#).

system container

The container that includes the CDB root and all PDBs in the CDB.

system event trigger

An event trigger caused by events such as error messages, or database instance startup and shutdown.

system global area (SGA)

See [SGA](#).

system monitor process (SMON)

The background process in charge of a variety of system-level cleanup duties, including instance recovery, recovering terminated transactions that were skipped during instance recovery, Cleaning up unused temporary segments, and Coalescing contiguous free extents within dictionary-managed tablespaces.

table

Basic unit of data storage in Oracle Database. Data in tables is stored in rows and columns.

table cluster

A [schema object](#) that contains data from one or more tables, all of which have one or more columns in common. In table clusters, the database stores together all the rows from all tables that share the same cluster [key](#).

table compression

The compression of data segments to reduce disk space in a [heap-organized table](#) or table [partition](#).

table function

A user-defined PL/SQL function that returns a collection of rows (a nested table or varray). You can select from this collection as if it were a database table by invoking the table function inside the `TABLE` clause in a `SELECT` statement.

table lock

A lock on a table that is acquired by a transaction when a table is modified by an `INSERT`, `UPDATE`, `DELETE`, `MERGE`, `SELECT ... FOR UPDATE`, or `LOCK TABLE` statement.

tablespace

A database storage unit that groups related logical structures together. The database data files are stored in tablespaces.

tablespace set

In [Oracle Sharding](#), tablespaces that are distributed across a [sharded database \(SDB\)](#) and managed as a unit.

temp file

A file that belongs to a temporary [tablespace](#). The temp files in temporary tablespaces cannot contain permanent database objects.

temporary segment

A [segment](#) created by Oracle Database when a SQL statement needs a temporary database area to complete execution.

temporary table

A table that holds an intermediate result set for the duration of a [transaction](#) or a [session](#). Only the current session can see the data in temporary tables.

temporary tablespace

A tablespace that can only contain transient data that persists only for the duration of a session. No permanent schema objects can reside in a temporary tablespace.

Every temporary tablespace is either a [shared temporary tablespace](#) or a [local temporary tablespace](#). Unless otherwise stated, the term *temporary tablespace* means *shared temporary tablespace*.

temporary undo segment

An optional space management container for temporary undo data only.

trace file

An administrative file that contain diagnostic data used to investigate problems. Oracle Database writes trace files to [ADR](#).

tracked data file

A data file whose block SCNs are tracked by a [shadow tablespace](#), enabling [shadow lost write protection](#).

transaction

Logical unit of work that contains one or more SQL statements. All statements in a transaction [commit](#) or roll back together. The use of transactions is one of the most important ways that a database management system differs from a file system.

transaction entry

Space in the block header that is required for every transaction that updates the block. In data blocks allocated to segments that support transactional changes, free space can also hold transaction entries when the header space is depleted.

Transaction Guard

A database feature that uses a [logical transaction ID](#) to prevent the possibility of a client application submitting duplicate transactions after a [recoverable error](#).

transaction ID

An identifier is unique to a [transaction](#) and represents the undo segment number, slot, and sequence number.

transaction idempotence

The ability to return a guaranteed outcome for a transaction: whether it committed and whether the call was completed.

transaction-level read consistency

The guarantee of read consistency to all queries in a transaction. Each statement in a transaction sees data from the same point in time, which is the time at which the transaction began.

transaction name

An optional, user-specified tag that serves as a reminder of the work that the transaction is performing. Name a transaction with the `SET TRANSACTION ... NAME` statement.

transaction recovery

A phase of [instance recovery](#) in which uncommitted transactions are rolled back.

transaction table

The data structure within an undo segment that holds the transaction identifiers of the transactions using the undo segment.

transition point

The high value of the range partitions determined by the range partition key value.

Transparent Data Encryption

A database feature that encrypts individual table columns or a tablespace. When a user inserts data into an encrypted column, the database automatically encrypts the data. When users

select the column, the data is decrypted. This form of encryption is transparent, provides high performance, and is easy to implement.

transportable tablespace

A tablespace that you can copy or move between databases. Oracle Data Pump provides the infrastructure for transportable tablespaces.

trigger

A [PL/SQL](#) or Java procedure that fires when a table or view is modified or when specific user or database actions occur. Procedures are explicitly run, whereas triggers are implicitly run.

tuple

An unordered set of attribute values.

two-phase commit mechanism

A mechanism in a distributed database that guarantees that all databases participating in a distributed transaction either all commit or all undo the statements in the transaction.

UGA

User global area. Session memory that stores session variables, such as logon information, and can also contain the [OLAP](#) pool.

undo data

Records of the actions of transactions, primarily before they are committed. The database can use undo data to logically reverse the effect of SQL statements. Undo data is stored in undo segments.

undo retention period

The minimum amount of time that the database attempts to retain old undo data before overwriting it.

undo segment

A [segment](#) in an [undo tablespace](#).

undo tablespace

A [tablespace](#) containing undo segments when [automatic undo management mode](#) is enabled.

Unicode

A universal encoded character set that can store information in any language using a single character set.

unified audit policy

A policy that you can use to configure auditing on SQL statements, system privileges, schema objects, roles, administrative and non-administrative users, application context values, and policy creations for various applications and events.

unified audit trail

An audit trail provides unified storage for audit records from all types of auditing.

unique key

A single column with a unique key constraint.

unique key constraint

An integrity constraint that requires that every value in a column or set of columns be unique.

universal rowid

A data type that can store all types of rowids. Oracle uses universal rowids to store the addresses of index-organized and non-Oracle tables.

unplugged PDB

A self-contained set of [PDB](#) data files, and an XML metadata file that specifies the locations of the PDB files.

unusable index

An index that is not maintained by DML operations and which the optimizer ignores. All indexes are usable (default) or unusable.

updatable join view

A view that is defined on two or more base tables or views and permits DML operations.

user event trigger

An event trigger that is fired because of events related to user logon and logoff, DDL statements, and DML statements.

user global area (UGA)

See [UGA](#).

user name

The name by which a user is known to Oracle Database and to other users. Every user name is associated with a password, and both must be entered to connect to Oracle Database.

user privilege

The right to run specific SQL statements.

user process

See [client process](#).

user profile

A named set of resource limits and password parameters that restrict database usage and database instance resources for a user.

view

A custom-tailored presentation of the data in one or more tables. The views do not actually contain or store data, but derive it from the tables on which they are based.

virtual column

A [column](#) that is not stored on disk. The database derives the values in virtual columns on demand by computing a set of expressions or functions.

virtual full backup

A complete database image as of one distinct point in time, maintained efficiently by a [Recovery Appliance](#) through the indexing of incremental backups from a protected database. The virtual full backups contain individual blocks from multiple incremental backups. For example, if you take a level 0 backup on Monday with SCN 10000, and if you take an incremental level 1 backup on Tuesday with SCN 11000, then the [Recovery Appliance metadata database](#) shows a virtual level 0 backup current to SCN 11000.

warehouse compression

Hybrid Columnar Compression specified with `COLUMN STORE COMPRESS FOR QUERY`. This type of compression is useful in data warehouses.

whole database backup

A backup of the [control file](#) and all data files that belong to a database.

work area

A private allocation of PGA memory used for memory-intensive operations.

write-ahead protocol

The protocol that mandates that before the database writer process can write a dirty buffer, the database must write to disk the redo records associated with changes to the buffer.

zone

Within a zone map, a zone is a set of contiguous data blocks that stores the minimum and maximum values of relevant columns.

zone map

Within an [attribute-clustered table](#), a zone map is an independent access structure that divides data blocks into zones.