

Oracle7TM Server Reference

Release 7.3

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Oracle7™ Server Reference, Release 7.3

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Preface

This manual provides reference information about Oracle7 Server release 7.3, including

- initialization parameters
- static data dictionary views
- dynamic performance (V\$) views
- National Language Support (NLS)
- database limits
- Structured Query Language (SQL) scripts

Information in this manual applies to the Oracle7 Server release 7.3 running on all operating systems.

Audience

This manual is written for database administrators, system administrators, and database application developers.

Knowledge Assumed of the Reader

It is assumed that readers of this manual are familiar with relational database concepts, basic Oracle7 Server concepts, and with the operating system environment under which they are running Oracle.

Installation and Migration Information

This manual is not an installation or migration guide. Therefore, if your primary interest is installation, refer to your operating system-specific Oracle documentation, or if your primary interest is database and application migration, refer to *Oracle7 Server Migration*.

Database Administration Information

While this manual describes the architecture, processes, structures, and other concepts of the Oracle Server, it does not explain how to administer the Oracle Server. For that information, see the *Oracle7 Server Administrator's Guide*.

Application Design Information

In addition to administrators, experienced users of Oracle and advanced database application designers will find information in this manual useful. However, database application developers should also refer to the *Oracle7 Server Application Developer's Guide* and to the documentation for the tool or language product they are using to develop Oracle database applications.

How *Oracle7 Server Reference* Is Organized

This manual is organized as follows:

Chapter 1 Initialization Parameters

This chapter contains detailed descriptions of the database initialization parameters in the parameter file that are required to start an instance.

Chapter 2 Static Data Dictionary Views

This chapter contains descriptions of the Oracle7 data dictionary tables and views.

Chapter 3 Dynamic Performance (V\$) Tables

This chapter contains descriptions of the dynamic performance views, also known as the V\$ views.

Chapter 4 National Language Support

This chapter describes features that enable Oracle7 applications to operate with multiple languages using conventions specified by the application user.

Chapter 5 Database Limits

This chapter lists the limits of values associated with database functions and objects.

Chapter 6 SQL Scripts

This chapter describes the SQL scripts that are required for optimal operation of the Oracle7 Server.

Appendix A Operating System Dependencies

This appendix lists all references made in this manual to operating system-dependent behavior for the Oracle utilities.

Conventions Used in This Manual

The following sections explain the conventions used in this manual.

Text of the Manual

The following textual conventions are used:

UPPERCASE WORDS	Uppercase text is used to call attention to command keywords, object names, parameters, filenames, and so on. For example: “If you create a private rollback segment, the name of the rollback segment must be included in the ROLLBACK_SEGMENTS parameter of the parameter file.”
<i>Italicized Words</i>	Italicized words within text indicate the definition of a term. For example: “A <i>database</i> is a collection of data to be treated as a unit. The general purpose of a database is to store and retrieve related information, as needed.” Italics also call out specific book titles and emphasized words.

Examples of Commands and Statements

SQL, Server Manager line mode, and SQL*Plus commands and statements appear separated from the text of paragraphs in a monospaced font. For example:

```
INSERT INTO emp (empno, ename) VALUES (1000, 'SMITH');  
ALTER TABLESPACE users ADD DATAFILE 'users2.ora' SIZE 50K;
```

Punctuation , ' " Example statements may include punctuation such as commas or quotation marks. All punctuation given in example statements is required. All example statements are terminated with a semicolon. Note that depending on the application being used, a semicolon or other terminator may or may not be required to end a statement.

Uppercase Words: Uppercase words in example statements are used to indicate the keywords within Oracle SQL. However, note that when issuing statements, keywords are not case sensitive.

Lowercase Words: Lowercase words in example statements are used to indicate words supplied only for the context of the example. For example, lowercase words may indicate the name of a table, column, or file.

Special Icons

Two special icons are provided to alert you to particular information within the body of this manual:



Suggestion: The lightbulb highlights suggestions and practical tips that could save time, make procedures easier, and so on.



Warning: The warning symbol highlights text that warns you of actions that could be particularly damaging or fatal to your operations.



OSDoc

Additional Information: The OSDoc icon signifies the reader should refer to the Oracle operating system-specific documentation for additional information.

Your Comments Are Welcome

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Initialization Parameters

This chapter contains detailed descriptions of the database initialization parameters, sometimes referred to as INIT.ORA parameters.

The following topics are included in this chapter:

- Parameter Files
- Specifying Values in the Parameter File
- Reading Parameter Descriptions
- Parameter Descriptions

Parameter Files

The parameter file is a text file that contains a list of parameters and a value for each parameter. You can specify values in the parameter file to reflect your installation.

The following are sample entries in a parameter file:

```
PROCESSES = 100
OPEN_LINKS = 12
GLOBAL_NAMES = TRUE
```

The name of the parameter file varies depending on your operating system. For example, it may be in mixed case or lowercase, or it may have a logical name or a variation on the name INIT.ORA. As the DBA, you can choose a different filename for your parameter file.

See your Oracle operating system specific documentation for the default location and filename for the parameter file. This is the file that the Oracle7 Server reads for its parameter information upon startup.

A sample parameter file is provided on the Oracle7 Server distribution medium for each operating system. The distributed sample file is sufficient for initial use, but you will want to make changes in the file to tune your database system for best performance. Any changes will take effect the next time you completely shut down the instance and then restart it.

Database administrators can use initialization parameters to do the following:

- optimize performance by adjusting memory structures, for example, the number of database buffers in memory
- set some database-wide defaults, for example, how much space is initially allocated for a context area when it is created
- set database limits, for example, the maximum number of database users
- specify names of files

Many initialization parameters can be fine-tuned to improve database performance. Other parameters should never be altered or only be altered under the supervision of Oracle Corporation Worldwide Support staff.

Specifying Values in the Parameter File

This section discusses several aspects of setting parameter values in the parameter file. The following topics are included:

- rules
- changing parameter value names
- displaying current parameter values
- uses of parameter
- types of parameters
- parameters you should not specify in the parameter file
- when parameters are set incorrectly

Rules

The following rules govern the specification of parameters in the parameter file:

- All parameters are optional.
- Only parameters and comments should appear in the parameter file.
- A pound sign (#) starts a comment; the rest of the line is ignored.
- The Server has a default value for each parameter. This value may be operating system dependent, depending on the parameter.
- Parameters can be specified in any order.
- Case (upper or lower) in filenames is only significant if case is significant on the host operating system.
- To enter several parameters on one line, use spaces between parameter names and values, as in the following:

```
PROCESSES = 100 SAVEPOINTS = 5 OPEN_CURSORS = 10
```

- Some parameters, such as ROLLBACK_SEGMENTS, accept multiple value entries. Multiple values must be enclosed in parentheses and separated by commas, as in the following:

```
ROLLBACK_SEGMENTS = (SEG1, SEG2, SEG3, SEG4, SEG5)
```

- A backslash (\) indicates continuation of the parameter specification. If a backslash continues a line, the continued line must have no preceding spaces. For example:

```
ROLLBACK_SEGMENTS = (SEG1, SEG2, \  
SEG3, SEG4, SEG5)
```


- The keyword IFILE can be used to call another parameter file, which must be in the same format as the original parameter file. Up to three levels of nesting are allowed.
- Enclose parameter values that contain special characters, for example, filenames, in double quotes.



Suggestion: It is advisable to list parameters in alphabetical order in the parameter file. That makes it easier to find them and helps ensure that each parameter is specified only once. If a parameter is specified more than once, the last value encountered is the one used.

See your operating system specific Oracle documentation for more information on parameter files.

Changing Parameter Values

To change a parameter's value, edit the parameter file. The next time the instance starts, it uses the new parameter values in the updated parameter file. Note that the change does not take effect until the instance is shut down and restarted.

Displaying Current Parameter Values

To see the current settings for initialization parameters, use the following SQL command:

```
SHOW PARAMETERS
```

This displays all parameters in alphabetical order, with their current values.

Enter the following text string to see a display for all parameters having BLOCK in their name.:

```
SVRMGR> SHOW PARAMETERS BLOCK
```

If you display all the parameters, you may wish to use the SPOOL command to write the output to a file.

Uses of Parameters

Initialization parameters can be grouped by function in several different ways. For example, there are parameters that perform the following functions:

- set database-wide limits
- set user or process limits
- name files or directories required by a database system
- set limits on database resources
- affect performance (these are called *variable parameters*)

The set of variable parameters are of particular interest to database administrators because these parameters are used primarily for improving database performance.

Types of Parameters

The Oracle7 Server has the following types of initialization parameters:

- derived parameters
- dynamic parameters
- global constant parameters
- operating system dependent parameters
- variable parameters

Derived Parameters

Some initialization parameters are noted as *derived*. This means that their values are calculated from the values of other parameters. Normally, you should not alter values for derived parameters, but if you do, the value you specify overrides the calculated value.

Dynamic Parameters

Some initialization parameters can be modified using the ALTER SYSTEM or the ALTER SESSION commands while an instance is running. These *dynamic initialization parameters* include the following:

- HASH_AREA_SIZE
- HASH_JOIN_ENABLED
- HASH_MULTIBLOCK_IO_COUNT

Note that these three parameters can only be changed at the session level using the ALTER SESSION command, not at the system level.

The syntax for dynamically altering the initialization parameters is as follows:

```
ALTER SESSION SET parameter_name = value
ALTER SYSTEM SET parameter_name = value
```

The ALTER SESSION command changes the value of the parameter until the database is shut down.

The ALTER SYSTEM command modifies the global value of the parameter and survives database shutdown and startup. The ALTER SYSTEM command does not always change the parameter value for the current session. Use the ALTER SESSION command to change the parameter value for the current session.

Global Constants Parameters with Prefix GC

Initialization parameters with the prefix GC, such as GC_DB_LOCKS, apply to systems using the Oracle7 Parallel Server. The prefix GC stands for Global Constants. The settings of these parameters determine how

the Oracle7 Parallel Server coordinates multiple instances. The settings you choose have an effect on the use of certain operating system resources.

Additional Information: For more information about the Parallel Server, see the *Oracle7 Parallel Server Concepts & Administration* manual.



OSDoc

See your system release bulletins or other operating system specific Oracle documentation for platform specific information on Parallel Server parameters.

Operating System Dependent Parameters

For some initialization parameters, the valid values or ranges depend upon the host operating system. This is denoted in the default, or range, column as operating system–dependent. For example, the parameter `DB_BLOCK_BUFFERS` indicates the *number* of data buffers in main memory, and its maximum value depends on the operating system. The *size* of those buffers, set by `DB_BLOCK_SIZE`, has a system–dependent default value.

See your operating system specific Oracle documentation for more information on operating system dependent Oracle parameters and operating system parameters.

Variable Parameters

The variable initialization parameters offer the most potential for improving system performance. Some variable parameters set capacity limits but do not affect performance. For example, when the value of `OPEN_CURSORS` is 10, a user process attempting to open its 11th cursor receives an error. Other variable parameters affect performance but do not impose absolute limits. For example, reducing the value of `DB_BLOCK_BUFFERS` does not prevent work even though it may slow down performance.

Increasing the values of variable parameters may improve your system's performance, but increasing most parameters also increases the System Global Area (SGA) size. A larger SGA can improve database performance up to a point. In virtual memory operating systems, an SGA that is too large can degrade performance if it is swapped in and out of memory. Operating system parameters that control virtual memory working areas should be set with the SGA size in mind. The operating system configuration can also limit the maximum size of the SGA.

Parameters You Should Not Specify in the Parameter File

The following types of parameters may never have to be specified in the parameter file:

- parameters that you never alter except when instructed to do so by Oracle Corporation to resolve a problem
- derived parameters that normally do not need altering because their values are automatically calculated by Oracle7 Server

When Parameters Are Set Incorrectly

Some parameters have a minimum setting below which an Oracle instance will not start. For other parameters, setting the value too low or too high may cause Oracle to perform badly, but it still runs.

You may see messages indicating that a parameter value is too low or too high, or that you have reached the maximum for some resource. Frequently, you can wait a short while and retry the operation when the system is not as busy. If a message occurs repeatedly, you should shut down the instance, adjust the relevant parameter, and restart the instance.

Reading the Parameter Descriptions

The parameter descriptions in this chapter follow the format shown below.

PARAMETER_NAME

- Default value:**the value this parameter assumes if not explicitly specified
- Range of values:**the valid range of values that this parameter can assume, shown as a minimum and maximum value. Not applicable to all parameters.
- Multiple instances:**how the values for this parameter must be specified for multiple instances in an Oracle7 Parallel Server. Not applicable to all parameters.
- Ok to change?**notes on changing the parameter value; not specified for all releases

The remaining paragraphs provide a textual description of the parameter and the effects of different settings.

For more information, see references to chapters or books that contain more detailed information on this subject.

Parameter Descriptions

Descriptions of the individual initialization parameters follow in alphabetical order.

Most initialization parameter values are global (on a database-wide basis), not per user, unless otherwise specified.



OSDoc

For more information, see your system release bulletins or other operating system-specific Oracle documentation.

ALWAYS_ANTI_JOIN

Default value: none

Range of values: NESTED_LOOPS/MERGE/HASH

This parameter sets the type of antijoin that the Oracle7 Server uses. The system checks to verify that it is legal to perform an anijoin, and if it is, processes the subquery depending on the value of this parameter. When set to the value NESTED_LOOPS, the Oracle7 Server evaluates the subqueries in the same way as in release 7.2. When set to the value MERGE, the Oracle7 Server uses the sort merge antijoin algorithm. When set to the value HASH, the Oracle7 Server uses the hash antijoin algorithm to evaluate the subquery.

AUDIT_TRAIL

Default value: NONE

Range of values: NONE (FALSE), DB (TRUE), OS

Enables or disables the writing of rows to the audit trail. Audited records are not written if the value is NONE or if the parameter is not present. The OS option enables system-wide auditing and causes audited records to be written to the operating system's audit trail. The DB option enables system-wide auditing and causes audited records to be written to the database audit trail (the SYS.AUD\$ table).

The values TRUE and FALSE are also supported for backward compatibility. TRUE is equivalent to DB, and FALSE is equivalent to NONE.

The SQL AUDIT statements can set auditing options regardless of the setting of this parameter.

For more information, see the *Oracle7 Server Administrator's Guide*.

AUTO_MOUNTING

This is a Trusted Oracle7 Server parameter.

For more information, see the *Trusted Oracle7 Server Administrator's Guide*.

BACKGROUND_DUMP_DEST

Default value: operating system–dependent

Range of values: valid local pathname, directory, or disk

The pathname for a directory where debugging trace files for the background processes (LGWR, DBWR, and so on) are written during Oracle operations.

An ALERT file in the directory specified by BACKGROUND_DUMP_DEST logs significant database events and messages. Anything that affects the database instance–wide or globally is recorded here. This file records all instance startups and shutdowns, messages to the operator console, and errors that cause trace files to be written. It also records every CREATE, ALTER, or DROP operation on a database, tablespace, or rollback segment.

The ALERT file is a normal text file. Its filename is operating system specific. For platforms that support multiple instances, it takes the form ALERT_ sid.LOG. This file grows slowly, but without limit, so the DBA may wish to delete it periodically. The file may be deleted even when the database is running.

For more information, see the *Oracle7 Server Administrator's Guide*.



OSDoc

See your operating system–specific Oracle documentation for the default value.

BLANK_TRIMMING

Default value: FALSE

Range of values: TRUE/FALSE

The initialization parameter BLANK_TRIMMING changes the data assignment semantics of character datatypes. A value of TRUE allows the data assignment of a source character string/variable to a destination character column/variable even though the source length is longer than the destination length. In this case, however, the additional length over the destination length is all blanks. This is in compliance with SQL92 Transitional Level and above semantics. A value of FALSE disallows the data assignment if the source length is longer than the destination length and reverts to SQL92 Entry Level semantics.

CACHE_SIZE_THRESHOLD

This is a Parallel Server parameter.

Default value: 0.1*DB_BLOCK_BUFFERS

Multiple instances: should have the same value

Specifies the maximum size of a cached partition of a table split among the caches of multiple instances. If the partition is larger than the value of this parameter, the table is not split among the instances' caches. The default value of this parameter is 1/10 the number of database blocks in the buffer cache.

For more information, see *Oracle7 Parallel Server Concepts & Administration*.

CHECKPOINT_PROCESS

Default value: FALSE

Range of values: TRUE/FALSE

Multiple instances: can have different values

Setting this parameter to TRUE enables the CKPT background process. You should enable the CKPT process only if the performance of the LGWR process decreases significantly during a checkpoint.

Note: Adjust all calculations that depend on the number of background processes to allow for the CKPT process. For example, increase the value of the PROCESSES parameter by one, and increase the values of other parameters whose default values are derived from PROCESSES if you do not use their default values.

Additional Information: For more information, see SESSIONS on page 1 – 63.

CLEANUP_ROLLBACK_ENTRIES

Default value: 20

The number of undo records processed at one time when rolling back a transaction. Prevents long transactions from freezing out shorter transactions that also need to be rolled back. Normally this parameter will not need modification.

For more information, see the *Oracle7 Server Administrator's Guide*.

CLOSE_CACHED_OPEN_CURSORS

Default value: FALSE

Range of values: TRUE/FALSE

This parameter controls whether cursors opened and cached in memory by PL/SQL are automatically closed at each COMMIT. A value of FALSE signifies that cursors opened by PL/SQL are held open so that subsequent executions need not open a new cursor. If PL/SQL cursors are reused frequently, setting the parameter to FALSE can cause subsequent executions to be faster.

A value of TRUE causes open cursors to be closed at each COMMIT or ROLLBACK. The cursor can then be reopened as needed. If cursors are rarely reused, setting the parameter to TRUE frees memory used by the cursor when the cursor is no longer in use.

COMMIT_POINT_STRENGTH

Default value: operating system–dependent

Range of values: 0 – 255

A value that determines the commit point site in a distributed transaction. The node in the transaction with the highest value for COMMIT_POINT_STRENGTH will be the commit point site. A database's commit point strength should be set relative to the amount of critical shared data in the database. For example, a database on a mainframe computer typically shares more data among users than one on a personal computer. Therefore, COMMIT_POINT_STRENGTH should be set to a higher value for the mainframe computer.

The commit point site stores information about the status of transactions. Other computers in a distributed transaction require this information, so it is desirable to have machines that are always available as commit point sites. Therefore, set COMMIT_POINT_STRENGTH to a higher value on your more available machines.

For more information about two–phase commit, see the *Oracle7 Server Concepts* and *Oracle7 Server Distributed Systems, Volume I*.



OSDoc

See also your operating system–specific Oracle documentation for the default value.

COMPATIBLE

Default value:	release dependent
Range of values:	default release to current release
Multiple instances:	must have the same value

This parameter allows you to use a new release, while at the same time guaranteeing backward compatibility with an earlier release. This is in case it becomes necessary to revert to the earlier release. This parameter specifies the release with which Oracle7 Server must maintain compatibility. Some features of the current release may be restricted. For example, if you run release 7.2.2.0 with compatibility set to 7.1.0.0 in order to guarantee compatibility, you will not be able to use 7.2 features.

When using the standby database and feature, this parameter must have the same value on the primary and standby databases, and the value must be 7.3.0.0.0 or higher.

This parameter allows you to immediately take advantage of the maintenance improvements of a new release in your production systems without testing the new functionality in your environment.

The default value is the earliest release with which compatibility can be guaranteed.

For more information, see *Oracle7 Server Migration*.



See also your operating system specific Oracle documentation for the default value.

OSDoc

COMPATIBLE_NO_RECOVERY

Default value:	release dependent
Range of values:	default version to current version
Multiple instances:	must have the same value

This parameter functions like the COMPATIBLE parameter, except that the earlier version may not be usable on the current database if recovery is needed.

The default value is the earliest version with which compatibility can be guaranteed. In some cases, this version may be earlier than the version specifiable with the COMPATIBLE parameter.

For more information, see the *Oracle7 Server Migration* manual.



See also your operating system-specific Oracle documentation for the default value.

OSDoc

CONTROL_FILES

Default value: operating system–dependent

Range of values: 1 – 8 filenames

One or more names of control files, separated by commas. Oracle Corporation recommends using multiple files on different devices.

For more information, see the *Oracle7 Server Administrator's Guide*.

CPU_COUNT

Default value: automatically set by Oracle

Range of values: 0 – unlimited

OK to change: No

This parameter lists the number of CPUs available to Oracle. Oracle uses it to set the default value of the LOG_SIMULTANEOUS_COPIES parameter. On single–CPU computers, the value of CPU_COUNT is 0.



Warning: On most platforms Oracle automatically sets the value of CPU_COUNT to the number of CPUs available to your Oracle instance. Do not change the value of CPU_COUNT.

If there is heavy contention for latches, change the value of LOG_SIMULTANEOUS_COPIES to twice the number of CPUs you have. Do not change the value of CPU_COUNT.

For more information, see the *Oracle7 Server Administrator's Guide*.



See also your operating system–specific Oracle documentation for information about this parameter.

OSDoc

CURSOR_SPACE_FOR_TIME

Default value: FALSE

Range of values: TRUE/FALSE

Setting this parameter to TRUE causes the database to use more space for cursors to save time. It affects both the shared SQL area and the client's private SQL area.

Shared SQL areas are kept pinned in the shared pool when this parameter's value is TRUE. As a result, shared SQL areas are not aged out of the pool as long as there is an open cursor that references them. Because each active cursor's SQL area is present in memory, execution is faster. Because the shared SQL areas never leave memory while they are

in use, however, you should set this parameter to TRUE only when the shared pool is large enough to hold all cursors simultaneously.

Setting this parameter to TRUE also retains the private SQL area allocated for each cursor between executes instead of discarding it after cursor execution. This saves cursor allocation and initialization time.

For more information, see the *Oracle7 Server Concepts* manual.

DB_BLOCK_BUFFERS

Default value: 32 buffers

Range of values: 4 – O/S specific

The number of database blocks cached in memory in the SGA (one block equals one buffer). This parameter is the most significant determinant of the SGA size and database performance. The advantage of a higher value is that when a user needs a database block, that block is more likely to be in memory, thus reducing I/O. The disadvantage of high values is that more memory is consumed. The size of each buffer is equal to the size of the parameter DB_BLOCK_SIZE.

For more information, see *Oracle7 Server Concepts*.



See also your operating system–specific Oracle documentation for the default value.

OSDoc

DB_BLOCK_CHECKPOINT_BATCH

Default value: 8

Range of values: 0 – derived

The maximum number of blocks that the database writer process will write in one batch that are devoted to checkpoints. Reducing DB_BLOCK_CHECKPOINT_BATCH prevents the I/O system from being flooded with checkpoint writes and allows other modified blocks to be written to disk. Setting it to a higher value allows checkpoints to complete more quickly.

In general, DB_BLOCK_CHECKPOINT_BATCH should be set to a value that allows the checkpoint to complete before the next checkpoint log switch takes place. If a checkpoint log switch takes place every 20 minutes, then this parameter should be set to a value that allows checkpointing to complete within 20 minutes.

Setting DB_BLOCK_CHECKPOINT_BATCH to zero causes the default value to be used. A value larger than the maximum can be specified, but its effect is the same as specifying the maximum.

For more information, see *Oracle7 Server Concepts*.

DB_BLOCK_CHECKSUM

Default value: FALSE

Range of values: TRUE/FALSE

If this parameter is set to TRUE, DBWR and the direct loader will calculate a checksum and store it in the cache header of every data block when writing it to disk. This happens for temporary data blocks that need to be written.



Warning: Setting DB_BLOCK_CHECKSUM to TRUE can cause a performance overhead. Set this parameter to TRUE only under the advice of Oracle Support personnel to diagnose data corruption problems.

For more information, see the *Oracle7 Server Administrator's Guide*.

DB_BLOCK_LRU_EXTENDED_STATISTICS

Default value: 0

Range of values: 0 – dependent on system memory capacity

Disables or enables compilation of statistics in the X\$KCBRBH table, which measures the effects of increasing the number of buffers in the buffer cache in the SGA. When this facility is enabled, it keeps track of the number of disk accesses that would be saved if additional buffers were allocated. A value greater than zero specifies the additional number of buffers (over DB_BLOCK_BUFFERS) for which statistics are kept. This tuning tool should be turned off during normal operation.

When compiling statistics for the X\$KCBRBH table, set this parameter to the maximum size you want to use to evaluate the buffer cache. It should be set to zero otherwise. (Although you can set this value very high, it is not practical to set it to a size beyond your system's memory capacity.)

For more information, see the *Oracle7 Server Administrator's Guide*.

DB_BLOCK_LRU_LATCHES

Default value: CPU_COUNT/2

Range of values: 1 – the number of CPUs

Set this parameter to a value equal to the desired number of LRU latch sets. The value of this parameter represents the upper bound of the number of LRU latch sets. Oracle decides whether to use this value or reduce it based on a number of internal checks. If the parameter is not set, Oracle calculates a value for the number of sets.

DB_BLOCK_LRU_STATISTICS

Default value: FALSE

Range of values: TRUE/FALSE

This parameter disables or enables compilation of statistics in the X\$KCBCBH table, which measures the effect of fewer buffers in the SGA buffer cache.

Set this parameter to TRUE when you want to compile statistics for the X\$KCBCBH table; otherwise, leave it set to FALSE. This parameter is a tuning tool and should be set to FALSE during normal operation.

For more information, see *Oracle7 Server Administrator's Guide* and *Oracle7 Server Tuning*.

DB_BLOCK_SIZE

Default value: operating system–dependent

Range of values: operating system–dependent (1024 – 8192)

Multiple instances: must have the same value

The size in bytes of Oracle database blocks. Typical values are 2048 and 4096. The value for DB_BLOCK_SIZE in effect at CREATE DATABASE time determines the size of the blocks; at all other times the value must be set to the original value.

This parameter affects the maximum value of the FREELISTS storage parameter for tables and indexes.

For more information block size, see *Oracle7 Server Concepts*.



See also your operating system–specific Oracle documentation for the default value.

OSDoc

DB_DOMAIN

- Default value:** WORLD
- Range of values:** any legal string of name components, separated by periods and up to 128 characters long, including periods (see valid characters below)—this value cannot be null
- Multiple instances:** must have the same value

This parameter specifies the extension components of a global database name, consisting of valid identifiers, separated by periods. Specifying DB_DOMAIN as a unique string for every database is highly recommended.

For example, this parameter allows one department to create a database without worrying that it might have the same name as a database created by another department. If one sales department's DB_DOMAIN = "JAPAN.ACME.COM", then their "SALES" database (SALES.JAPAN.ACME.COM) is uniquely distinguished from another database with DB_NAME = "SALES" but with DB_DOMAIN = "US.ACME.COM".

The following characters are valid in a database domain name:

- alphabetic characters
- numbers
- underscore (_)
- sharp (#)

For more information, see the *Oracle7 Server Administrator's Guide*.

DB_FILES

- Default value:** operating system-dependent
- Range of values:** minimum: MAXDATAFILES for the database to be mounted
maximum: operating system-dependent
- Multiple instances:** must have the same value

The maximum number of database files that can be opened at runtime for this database. If you increase the value, you must shut down and restart all instances accessing the database before the new value can take effect.

Reduce the value only if you need SGA space and do not anticipate having more database files.

DB_FILES is similar to the MAXDATAFILES argument for the CREATE DATABASE statement, which sets the absolute maximum number of datafiles at database creation. An instance cannot mount a database unless DB_FILES is equal to or greater than MAXDATAFILES for that database. Greater values are only useful for instances that mount different databases at different times.

For more information, see the *Oracle7 Server Administrator's Guide*.



See also your operating system-specific Oracle documentation for the default value.

OSDoc

DB_FILE_MULTIBLOCK_READ_COUNT

Default value: operating system-dependent

Range of values: operating system-dependent

Used for multi-block I/O, this is the maximum number of blocks read in one I/O operation during a sequential scan. The default is a function of DB_BLOCK_BUFFERS and PROCESSES. Values in the range of 4 to 16 or even 32 are reasonable.

The actual maximums vary by operating system; they are always less than the operating system's maximum I/O size expressed as Oracle blocks ($max_IO_size/DB_BLOCK_SIZE$), and can never be larger than $DB_BLOCK_BUFFERS/4$.

For information on the optimizer, see *Oracle7 Server Tuning*.



See also your operating system-specific Oracle documentation for the default value.

OSDoc

DB_FILE_SIMULTANEOUS_WRITES

Default value: 4

Range of values: 1 – 24

The number of simultaneous writes (“batches”) for each database file when written by DBWR.

If the operating system supports only one write per device and cannot combine writes to adjacent blocks, then the value should be 1. Though the value has no maximum because DBWR writes blocks in groups, it is not useful to use a value larger than 24.

For more information, see *Oracle7 Server Concepts*.



OSDoc

See also your operating system-specific Oracle documentation for the default value.

DB_FILE_STANDBY_NAME_CONVERT

Default value: none

Range of values: *primary pattern, standby pattern*

This parameter is used to convert the filename of a new data file on the primary database to a filename on the standby database. Adding a data file to the primary database necessitates adding a corresponding file to the standby database. When the standby database is updated, this parameter is used to convert the data file name on the primary database to the a data file name on the standby database. The file must exist and be writable on the standby database or the recovery process will halt with an error.

Set the value of this parameter to two strings: the first string is the pattern found in the data file names on the primary database; the second string is the pattern found in the data file names on the standby database.

DB_MOUNT_MODE

This is a Trusted Oracle7 Server parameter.

For more information, see the *Trusted Oracle7 Server Administrator's Guide*.

DB_NAME

Default value: NULL

Range of values: any valid database name

Multiple instances: must have the same value, or else the same value must be specified in STARTUP OPEN *db_name* or ALTER DATABASE *db_name* MOUNT

A database identifier of up to eight characters. If specified, it must correspond to the name specified in the CREATE DATABASE statement. Although the use of DB_NAME is optional, it should generally be set before invoking CREATE DATABASE and then referenced in that statement.

If not specified, a database name must appear on either the STARTUP or the ALTER DATABASE MOUNT command line.

The following are valid characters in a database name:

- alphabetic characters
- numbers
- underscore (_)
- sharp (#)
- dollar symbol (\$)

No other characters are valid. Double quotation marks are removed before processing the database name. They cannot embed other characters in the name.

Lowercase characters are not treated with special significance. They are considered the same as their uppercase counterparts.

For more information, see the *Oracle7 Server Administrator's Guide*.

DBLINK_ENCRYPT_LOGIN

Default value:	FALSE
Range of values:	TRUE/FALSE
Release:	7.1

Signifies whether attempts to connect to other Oracle7 Servers through database links should use encrypted passwords. When you attempt to connect to a database using a password, Oracle encrypts the password before sending it to the database. If the DBLINK_ENCRYPT_LOGIN parameter is TRUE, and the connection fails, Oracle does not reattempt the connection. If this parameter is FALSE, Oracle reattempts the connections using an unencrypted version of the password.

For more information, see the *Oracle7 Server Administrator's Guide*.

DELAYED_LOGGING_BLOCK_CLEANOUTS

Default value:	TRUE
Range of values:	TRUE/FALSE
OK to change?	Yes
Multiple instances:	Need not be identical

This parameter turns on or off the delayed block cleanout feature, which reduces pinging in an Oracle Parallel Server. Keeping this feature set to TRUE sets a fast path, not logging block cleanout at commit time.

Logging the block cleanout occurs at the time of a subsequent change to the block. This generally improves Oracle Parallel Server performance, particularly if block pings are a problem.

When Oracle commits a transaction, each block that the transaction changed is not immediately marked with the commit time. This is done later, upon demand—when the block is read or updated. This is called *block cleanout*.

When block cleanout is done during an update to a current block, the cleanout changes and the redo records are piggybacked with those of the update. In previous releases, when block cleanout was needed during a read to a current block, extra cleanout redo records were generated and the block was dirtied. This has been changed.

As of release 7.3, when a transaction commits, all blocks changed by the transaction are cleaned out immediately. This cleanout performed at commit time is a “fast version” which does not generate redo log records (*delayed logging*) and does not repin the block. Most blocks will be cleaned out in this way, with the exception of blocks changed by long running transactions.

During queries, therefore, the data block’s transaction information is normally up-to-date and the frequency of needing block cleanout is much reduced. Regular block cleanouts are still needed when querying a block where the transactions are still truly active, or when querying a block which was not cleaned out during commit.

Note: As of Oracle Server release 7.3, performing a `SELECT COUNT (*)` no longer does a block cleanout.

During changes (INSERT, DELETE, UPDATE), the cleanout redo log records are generated and piggyback with the redo of the changes.

DISCRETE_TRANSACTIONS_ENABLED

Default value: FALSE

Range of values: TRUE/FALSE

Implements a simpler, faster rollback mechanism that improves performance for certain kinds of transactions. There are strict limits on the kinds of transactions that can occur in discrete mode, but greater efficiency can be obtained for these transactions.

For more information about supplied packages, see the *Oracle7 Server Application Developer’s Guide*.

DISTRIBUTED_LOCK_TIMEOUT

Default value: 60 seconds

Range of values: 1 – unlimited

The amount of time in seconds for distributed transactions to wait for locked resources.

For more information on data concurrency, see *Oracle7 Server Concepts* and *Oracle7 Server Distributed Systems, Volume I*.

DISTRIBUTED_RECOVERY_CONNECTION_HOLD_TIME

Default value: 200 seconds

Range of values: 0 – 1800 seconds

The length of time to hold a remote connection open after a distributed transaction fails, in hope that communication will be restored without having to reestablish the connection. Larger values minimize reconnection time, but they also consume local resources for a longer time period. Values larger than 1800 seconds can be specified. Because the reconnection and recovery background process runs every 30 minutes (1800 seconds) (whether or not a failure occurs), a value of 1800 or larger means that the connection never closes.

For more information, see the *Oracle7 Server Administrator's Guide* and *Oracle7 Server Distributed Systems, Volume I*.

DISTRIBUTED_TRANSACTIONS

Default value: operating system–dependent

Range of values: 0 – TRANSACTIONS

The maximum number of distributed transactions in which this database can concurrently participate. The value of this parameter cannot exceed the value of the parameter TRANSACTIONS.

If network failures are occurring at an abnormally high rate, causing many in–doubt transactions, you may want to decrease this parameter's value temporarily. This limits the number of concurrent distributed transactions, which then reduces the number of in–doubt transactions. Thus, the amount of blocked data and possible heuristic decision making (because of in–doubt transactions) is reduced.

If DISTRIBUTED_TRANSACTIONS is set to 0, no distributed transactions are allowed for the database. The recoverer (RECO) process also does not start when the instance starts up.

For more information, see the *Oracle7 Server Administrator's Guide* and *Oracle7 Server Distributed Systems, Volume I*.



See also your operating system-specific Oracle documentation for the default value.

OSDoc

DML_LOCKS

Default value: derived (4 * TRANSACTIONS)

Range of values: 20 – unlimited, 0

Multiple instances: must all have positive values or must all be 0

The maximum number of DML locks—one for each table modified in a transaction. Value should equal the grand total of locks on tables referenced by all users. For example, if 3 users are modifying data in one table, then 3 entries would be required. If 3 users are modifying data in 2 tables, then 6 entries would be required.

The default value assumes an average of 4 tables referenced per transaction. For some systems, this value may not be enough.

If the value is set to 0, enqueues are disabled and performance is slightly increased. However, you cannot use DROP TABLE, CREATE INDEX, or explicit lock statements such as LOCK TABLE IN EXCLUSIVE MODE. If the value is set to 0 on one instance, it must be set to 0 on all instances of an Oracle Parallel Server.

For more information on data concurrency, see *Oracle7 Server Concepts* and *Oracle7 Server Distributed Systems, Volume I*.

ENQUEUE_RESOURCES

Default value: derived

Range of values: 10 – 65535

An enqueue is a sophisticated locking mechanism which permits several concurrent processes to share known resources to varying degrees. Any object which can be used concurrently can be protected with enqueues. For example, Oracle allows varying levels of sharing on tables: two processes can lock a table in share mode or in share update mode.

Enqueues are platform-specific locking mechanisms. An enqueue allows the user to store a value in the lock, that is, the mode in which the

lock is requested. The operating system lock manager keeps track of the resources locked. If a process cannot be granted the lock because it is incompatible with the mode requested and the lock is requested with wait, the operating system puts the requesting process on a wait queue which is serviced FIFO (first-in, first-out).

One difference between enqueues and latches is that in latches there is no ordered queue of waiters as there is in enqueues. Latch waiters may either use timers to wake up and retry or spin (only in multiprocessors). Since all waiters are concurrently retrying (depending on the scheduler), anyone might get the latch and conceivably the first one to try might be the last one to get the latch.

ENQUEUE_RESOURCES sets the number of resources that can be locked by the lock manager. The default value of ENQUEUE_RESOURCES is derived from the SESSIONS parameter and should be adequate, as long as DML_LOCKS + 20 is less than ENQUEUE_RESOURCES. For three or fewer sessions, the default value is 20. For 4 to 10 sessions, the default value is $((\text{SESSIONS} - 3) * 5) + 20$; and for more than 10 sessions, it is $((\text{SESSIONS} - 10) * 2) + 55$.

If you explicitly set ENQUEUE_RESOURCES to a value higher than DML_LOCKS + 20, then the value you provide is used.

If there are many tables, the value may be increased. Allow one per resource (regardless of the number of sessions or cursors using that resource), not one per lock.

For more information on data concurrency, see *Oracle7 Server Concepts* and *Oracle7 Server Distributed Systems, Volume I*.

EVENT

Default value: NULL

Modifies the scope of ALTER SESSION SET EVENTS commands so that they pertain to an entire instance, instead of to a single session.

EVENT is used to debug the system. This parameter should not usually be altered except at the direction of Oracle technical support personnel.

FIXED_DATE

Default value: NULL

Allows you to set a constant for SYSDATE in the format YYYY-MM-DD-HH24:MI:SS. Also accepts the default Oracle date format, without a time. Specify the value with double quotes (but not

single quotes) or without any quotes; for example, `FIXED_DATE = '30-nov-95'` or `FIXED_DATE = 30-nov-95`. This parameter is useful primarily for testing.

For more information on datatypes, see *Oracle7 Server Concepts*.

GC_DB_LOCKS

This is a Parallel Server parameter.

Default value:	0
Range of values:	1 – unlimited (depending on available memory and operating system)
OK to change?	yes
Multiple instances:	must have identical values

The total number of PCM locks covering data blocks cached in the multiple SGAs of a parallel server.

The value of `GC_DB_LOCKS` must be greater (by at least 1) than the sum of the locks specified with the `GC_FILES_TO_LOCKS` initialization parameter.

`GC_DB_LOCKS` is always rounded up to the next prime number to ensure that PCM locks are available for datafiles not specified in `GC_FILES_TO_LOCKS`. For example, if `GC_DB_LOCKS` has a value of 1000, then 1009 PCM locks are available. New datafiles added while the parallel server is running are covered by the extra nine PCM locks.

This parameter has no effect on an instance running in exclusive mode.

For more information, see *Oracle7 Parallel Server Concepts & Administration*.

GC_DEFAULT_LOCKS

Default value:	0
Range of values:	any integer

This is a Parallel Server parameter. It specifies the translation to use for files that are not mentioned in `GC_FILES_TO_LOCKS`. This parameter is used if releasable locks are enabled with the `GC_RELEASABLE_LOCKS` parameter.

For more information, see *Oracle7 Parallel Server Concepts & Administration*.

GC_FILES_TO_LOCKS

This is a Parallel Server parameter.

Default value: NULL

OK to change? yes

Multiple instances: must have identical values

This parameter controls the mapping of PCM locks to datafiles. To avoid performance problems, you should always change GC_FILES_TO_LOCKS when the size of datafiles change or new datafiles are added. This requires that you shutdown and restart your parallel server.

GC_FILES_TO_LOCKS has the following syntax:

```
GC_FILES_TO_LOCKS = "{file_list=lock_count[!blocks][EACH]}[:]..."
```

where *file_list* is one or more datafiles listed by their file numbers, or ranges of file numbers, with comma separators:

```
filenumber[-filenumber][,filenumber[-filenumber]]...
```

and *lock_count* is the number of PCM locks assigned to *file_list*. A colon (:) separates each clause that assigns a number of PCM locks to *file_list*.

The optional parameter *blocks*, with the “!” separator, specifies the number of contiguous blocks covered by one lock, if it covers multiple blocks; the default value is 1. EACH specifies that each datafile in *file_list* is assigned a separate set of *lock_count* PCM locks. Spaces are not allowed within the quotation marks.

If the number of PCM locks specified for *file_list* is less than the actual number of data blocks in the datafiles, then some PCM locks will cover more datablocks than specified by *lock_count!blocksEACH*.

The value of the GC_DB_LOCKS parameter must be greater (by at least 1) than the sum of *lock_count* for all datafiles specified. The excess PCM locks are assigned to any datafiles not specified in GC_FILES_TO_LOCKS.

To find the correspondence between filenames and file numbers, query the data dictionary view DBA_DATA_FILES.

This parameter has no effect on an instance running in exclusive mode.

For more information, see *Oracle7 Parallel Server Concepts & Administration*.

GC_LCK_PROCS

This is a Parallel Server parameter.

Default value: 1 (ignored when the database is mounted in exclusive mode)

Range of values: 1 – 10, or 0 for a single instance running in exclusive mode

OK to change? yes (1 is usually sufficient)

Multiple instances: must have identical values

The number of background lock processes (LCK0 through LCK9) for an instance in a parallel server. The default of 1 is normally sufficient, but you can increase the value if the distributed lock request rate saturates the lock processes. (Lock requests are asynchronous, but a request is blocked until it knows if the lock can be granted.)

Increase the value of the PROCESSES parameter by one for each LCKn process, and increase the values of other parameters whose default values are derived from PROCESSES if you do not use their defaults.

This parameter has no effect on an instance running in exclusive mode.

For more information, see *Oracle7 Parallel Server Concepts & Administration*.

GC_RELEASABLE_LOCKS

Default value: value of DB_BLOCK_BUFFERS

Range of values: any integer

This is a Parallel Server parameter. It sets the default mode for locking to fine grained and sets the maximum number of locks allocated for fine grained locking.

For more information, see *Oracle7 Parallel Server Concepts & Administration*.

GC_ROLLBACK_LOCKS

This is a Parallel Server parameter.

Default value: 20

OK to change? yes

Multiple instances: must have identical values

For each rollback segment, the number of distributed locks available for simultaneously modified rollback segment blocks. The default is adequate for most applications.

These distributed locks are acquired in exclusive mode by the instance that acquires the rollback segment. They are used to force the instance to write rollback segment blocks to disk when another instance needs a read-consistent version of a block.

This parameter has no effect on an instance running in exclusive mode.

For more information, see *Oracle7 Parallel Server Concepts & Administration*.

GC_ROLLBACK_SEGMENTS

This is a Parallel Server parameter.

Default value: 20

OK to change? yes

Multiple instances: must have identical values

The maximum number of rollback segments system wide. Set this parameter to the total number of rollback segments acquired by all instances in a parallel server, including the SYSTEM rollback segment. To allow for additional instances in the future, or additional rollback segments for the current instances, you can set it to a higher value.

Each rollback segment requires one distributed lock, specified by this parameter, in addition to the number specified by the GC_ROLLBACK_LOCKS parameter. The total number of distributed locks for rollback segments is:

$$(GC_ROLLBACK_SEGMENTS * (GC_ROLLBACK_LOCKS + 1))$$

This parameter has no effect on an instance running in exclusive mode.

For more information, see *Oracle7 Parallel Server Concepts & Administration*.

GC_SAVE_ROLLBACK_LOCKS

This is a Parallel Server parameter.

Default value: 20

OK to change? yes

Multiple instances: must have identical values

This initialization parameter reserves distributed locks for deferred rollback segments, which contain rollback entries for transactions in tablespaces that were taken offline.

The default is adequate for one or two instances but should be increased to 10 per instance for more instances if you need to take tablespaces offline while Oracle is running in parallel mode.

This parameter has no effect on an instance running in exclusive mode.

For more information, see *Oracle7 Parallel Server Concepts & Administration*.

GC_SEGMENTS

This is a Parallel Server parameter.

Default value: 10

OK to change? yes

Multiple instances: must have identical values

The maximum number of segments system wide that may have space management activities performed simultaneously by different instances. The default is adequate for most applications. If tables acquire new extents frequently, you can increase the value to two or three times the number of tables that different instances extend simultaneously.

Each segment that undergoes simultaneous space management in a parallel server requires approximately nine distributed locks dedicated to coordinating space management activities. The total number of distributed locks reserved by this parameter is therefore approximately (9 * GC_SEGMENTS).

This parameter has no effect on an instance running in exclusive mode.

For more information, see *Oracle7 Parallel Server Concepts & Administration*.

GC_TABLESPACES

This is a Parallel Server parameter.

Default value: 5

OK to change? yes

Multiple instances: must have identical values

The maximum number of tablespaces in a parallel server that can be brought from offline to online (or vice versa) concurrently.

For more information, see *Oracle7 Parallel Server Concepts & Administration*.

GLOBAL_NAMES

Default value: FALSE

Range of values: TRUE/FALSE

This parameter determines whether or not a database link is required to have the same name as the database to which it connects. If the value of GLOBAL_NAMES is FALSE, then no check is performed. Oracle recommends setting this parameter to TRUE to ensure the use of consistent naming conventions for databases and links.

For more information, see the *Oracle7 Server Administrator's Guide*.

HASH_AREA_SIZE

Default value: 2 times the value of SORT_AREA_SIZE

Range of values: any integer

This parameter specifies the maximum amount of memory, in bytes, to be used for the hash join. If this parameter is not set, its value defaults to twice the value of the SORT_AREA_SIZE parameter.

You can change the value of this parameter without shutting down your Oracle instance by using the ALTER SESSION command.

HASH_JOIN_ENABLED

Default value: TRUE

Range of values: TRUE/FALSE

This parameter enables or disables the hash join feature. Set this parameter to TRUE to use hash joins. Set this parameter to FALSE to disable hash joins.

You can change the value of this parameter without shutting down your Oracle instance by using the ALTER SESSION command.

HASH_MULTIBLOCK_IO_COUNT

Default value: 1

Range of values: 1 – (65,536/DB_BLOCK_SIZE)

This parameter specifies how many blocks a hash join reads and writes at once. When operating in multi-threaded server mode, however, this parameter is ignored (that is, the default value of 1 is used even if you set the parameter to another value).

The value of DB_BLOCK_SIZE multiplied by the value of HASH_MULTIBLOCK_IO_COUNT should be less than 64 KB.

This parameter strongly affects performance because it controls the number of partitions into which the input is divided. If you change the parameter value, make sure that the following formula remains true:

$$R / M \leq \text{Po2}(M/C)$$

where:

$R = \text{sizeof}(\text{left input to the join})$

$M = \text{HASH_AREA_SIZE} * 0.9$

$\text{Po2}(n) = \text{largest power of 2 that is smaller than } n$

$C = \text{HASH_MULTIBLOCK_IO_COUNT} * \text{DB_BLOCK_SIZE}$

You can change the value of this parameter without shutting down your Oracle instance by using the ALTER SESSION or ALTER SYSTEM commands.

IFILE

Default value: NULL

Range of values: valid parameter filenames

Multiple instances: can have different values

Embeds another parameter file within the current parameter file.
For example:

```
IFILE = COMMON.ORA
```

You can have up to three levels of nesting. In this example, the file COMMON.ORA could contain a second IFILE parameter for the file COMMON2.ORA, which could contain a third IFILE parameter for the file GCPARMS.ORA. You can also include multiple parameter files in one parameter file by listing IFILE several times with different values:

```
IFILE = DBPARMS.ORA  
IFILE = GCPARMS.ORA  
IFILE = LOGPARMS.ORA
```

For more information, see the *Oracle7 Server Administrator's Guide*.

INIT_SQL_FILES

This parameter is obsolete in Oracle Server release 7.3.

INSTANCE_NUMBER

This is a Parallel Server parameter.

Default value:	lowest available number (depends on instance startup order and on the INSTANCE_NUMBER values assigned to other instances)
Range of values:	1 – O/S dependent
OK to change?	yes (can be specified in both parallel and exclusive modes)
Multiple instances:	if specified, instances must have different values

This parameter can be specified in parallel mode or exclusive mode. It specifies a unique number that maps the instance to one group of free space lists for each table created with storage option FREELIST GROUPS.

The INSTANCE option of the ALTER TABLE ALLOCATE EXTENT statement assigns an extent to a particular group of free lists. If you set INSTANCE_NUMBER to the value specified for the INSTANCE option, the instance uses that extent for inserts and updates that expand rows.

For more information, see *Oracle7 Parallel Server Concepts & Administration*.

JOB_QUEUE_INTERVAL

Default value: 60 (seconds)

Range of values: 1 – 3600 (seconds)

Multiple instances: can have different values

Sets the interval between wake-ups for the SNPN background processes of the instance.

This parameter replaces the SNAPSHOT_REFRESH_INTERVAL parameter.

JOB_QUEUE_PROCESSES

Default value: 0

Range of values: 0 .. 36

Multiple instances: can have different values

Sets the number of SNPN background processes per instance, where *n* is 0 to 9 followed by A to Z.

This parameter replaces the SNAPSHOT_REFRESH_PROCESS parameter.

LABEL_CACHE_SIZE

This is a Trusted Oracle7 Server parameter.

For more information, see the *Trusted Oracle7 Server Administrator's Guide*.

LICENSE_MAX_SESSIONS

Default value: 0

Range of values: 0 – number of session licenses

Multiple instances: can have different values

Sets the maximum number of concurrent user sessions allowed simultaneously. When this limit is reached, only users with the RESTRICTED SESSION privilege can connect to the server. Users who are able to connect receive a warning message indicating that the system has reached maximum capacity.

A zero value indicates that concurrent usage (session) licensing is not enforced. If you set this parameter to a non-zero number, you may also want to set LICENSE_SESSIONS_WARNING.

Concurrent usage licensing and user licensing should not both be enabled. Either LICENSE_MAX_SESSIONS or LICENSE_MAX_USERS should always be zero.

Multiple instances can have different values, but the total for all instances mounting a database should be less than or equal to the total number of sessions licensed for that database.

For more information, see the *Oracle7 Server Administrator's Guide*.

LICENSE_MAX_USERS

Default value: 0

Range of values: 0 – number of user licenses

Multiple instances: should have the same values

Sets the maximum number of users you can create in the database. When you reach this limit, you cannot create more users. You can, however, increase the limit.

Concurrent usage (session) licensing and user licensing should not both be enabled. Either LICENSE_MAX_SESSIONS or LICENSE_MAX_USERS, or both, should be zero.

If different instances specify different values for this parameter, the value of the first instance to mount the database takes precedence.

For more information, see the *Oracle7 Server Administrator's Guide*.

LICENSE_SESSIONS_WARNING

Default value: 0

Range of values: 0 – LICENSE_MAX_SESSIONS

Multiple instances: can have different values

Sets a warning limit on the number of concurrent user sessions. When this limit is reached, additional users can connect, but Oracle writes a message in the ALERT file for each new connection. Users with RESTRICTED SESSION privilege who connect after the limit is reached receive a warning message stating that the system is nearing its maximum capacity.

If this parameter is set to zero, no warning is given when approaching the concurrent usage (session) limit. If you set this parameter to a nonzero number, you should also set LICENSE_MAX_SESSIONS.

For more information, see the *Oracle7 Server Administrator's Guide*.

LOG_ARCHIVE_BUFFER_SIZE

- Default value:** operating system–dependent
- Range of values:** 1 – operating system–dependent (in O/S blocks)
- Multiple instances:** can have different values

The size of each archival buffer, in redo log blocks (operating system blocks). The default should be adequate for most applications.

This parameter, with LOG_ARCHIVE_BUFFERS, can tune archiving so that it runs as fast as necessary, but not so fast that it reduces system performance.

For more information, see the *Oracle7 Server Administrator's Guide*.



See also your operating system specific Oracle documentation for the default value.

OSDoc

LOG_ARCHIVE_BUFFERS

- Default value:** operating system–dependent
- Range of values:** operating system–dependent
- Multiple instances:** can have different values

The number of buffers to allocate for archiving. The default should be adequate for most applications.

This parameter, with LOG_ARCHIVE_BUFFER_SIZE, can tune archiving so that it runs as fast as necessary, but not so fast that it reduces system performance.

For more information, see the *Oracle7 Server Administrator's Guide*.



See also your operating system–specific Oracle documentation for the default value.

OSDoc

LOG_ARCHIVE_DEST

- Default value:** operating system–dependent
- Range of values:** any valid path or device name, except raw partitions
- Multiple instances:** can have different values

Applicable only if using the redo log in ARCHIVELOG mode. Use a text string to specify the default location and root of the disk file or tape device when archiving redo log files. (Archiving to tape is not supported on all operating systems.) The value cannot be a raw partition.

To override the destination that this parameter specifies, either specify a different destination for manual archiving or use the Server Manager command `ARCHIVE LOG START filespec` for automatic archiving, where *filespec* is the new archive destination.

For more information, see the *Oracle7 Server Administrator's Guide*.



See your Oracler operating system–specific documentation for the default value and for an example of how to specify the destination path or filename using LOG_ARCHIVE_DEST and LOG_ARCHIVE_FORMAT.

LOG_ARCHIVE_FORMAT

- Default value:** operating system–dependent (length for uppercase variables is also operating system–dependent)
- Range of values:** any valid filename
- Multiple instances:** can have different values, but identical values are recommended

Applicable only if using the redo log in ARCHIVELOG mode. Use a text string and variables to specify the default filename format when archiving redo log files. The string generated from this format is appended to the string specified in the LOG_ARCHIVE_DEST parameter. The following variables can be used in the format:

- %s log sequence number
- %t thread number

Using uppercase letters (for example, %S) for the variables causes the value to be a fixed length padded to the left with zeros.

The following is an example of specifying the archive redo log filename format:

```
LOG_ARCHIVE_FORMAT = "LOG%s_%t.ARC"
```

For more information, see the *Oracle7 Server Administrator's Guide*.



OSDoc

See also your operating system-specific Oracle documentation for the default value and range of values.

LOG_ARCHIVE_START

Default value: FALSE

Range of values: TRUE/FALSE

Multiple instances: can have different values

Applicable only when you use the redo log in ARCHIVELOG mode, LOG_ARCHIVE_START indicates whether archiving should be automatic or manual when the instance starts up. TRUE indicates that archiving is automatic. FALSE indicates that the DBA will archive filled redo log files manually. (The Server Manager command ARCHIVE LOG START or STOP overrides this parameter.)

In ARCHIVELOG mode, if all online redo log files fill without being archived, an error message is issued, and instance operations are suspended until the necessary archiving is performed. This delay is more likely if you use manual archiving. You can reduce its likelihood by increasing the number of online redo log files.

To use ARCHIVELOG mode while creating a database, set this parameter to TRUE. Normally, a database is created in NOARCHIVELOG mode and then altered to ARCHIVELOG mode after creation.

For more information, see the *Oracle7 Server Administrator's Guide*.

LOG_BLOCK_CHECKSUM

Default value: FALSE

Range of values: TRUE/FALSE

If this parameter is TRUE, then every log block will be given a checksum before it is written to the current log. The COMPATIBILITY parameter must be set to 7.2.0 or higher if the parameter is TRUE; otherwise, the instance will not start.

Any logs written with the COMPATIBILITY parameter set to 7.2.0 or higher will not be readable by earlier releases. This compatibility restriction exists even if checksumming is not enabled.



Warning: Setting LOG_BLOCK_CHECKSUM to TRUE can cause a performance overhead. Set this parameter to TRUE only under the advice of Oracle Support personnel to diagnose data corruption problems.

LOG_BUFFER

Default value: operating system–dependent

Range of values: operating system–dependent

The number of bytes allocated to the redo log buffer in the SGA. In general, larger values reduce redo log file I/O, particularly if transactions are long or numerous. In a busy system, the value 65536 or higher would not be unreasonable. The default is set to 4 times the maximum database block size for the host operating system.

For more information, see the *Oracle7 Server Administrator's Guide*.



See also your operating system–specific Oracle documentation for the default value and range of values.

OSDoc

LOG_CHECKPOINT_INTERVAL

Default value: operating system–dependent

Range of values: unlimited (operating–system blocks, not database blocks)

Multiple instances: can have different values

The number of newly filled redo log file blocks needed to trigger a checkpoint. Regardless of this value, a checkpoint always occurs when switching from one online redo log file to another. If the value exceeds the actual redo log file size, checkpoints occur only when switching logs.

The number of times DBWR has been notified to do a checkpoint for a given instance is shown in the cache statistic *dbwr checkpoints*, which is displayed in the System Statistics Monitor of the Server Manager. Additional cache statistics include *background checkpoints started* and *background checkpoints completed*.

For more information, see the *Oracle7 Server Administrator's Guide*.



See also your operating system–specific Oracle documentation for the default value.

OSDoc

LOG_CHECKPOINT_TIMEOUT

Default value:	0 seconds
Range of values:	0 – unlimited
Multiple instances:	can have different values

The amount of time to pass before another checkpoint occurs. The value is specified in seconds. A value of zero disables time-based checkpoints. The time begins at the start of the previous checkpoint, then a checkpoint occurs after the amount of time specified by this parameter.

Note: A checkpoint scheduled to occur because of this parameter is delayed until the completion of the previous checkpoint if the previous checkpoint has not yet completed.

For more information, see the *Oracle7 Server Administrator's Guide*.

LOG_CHECKPOINTS_TO_ALERT

Default value:	NO
Range of values:	YES/NO

This parameter allows you to log your checkpoints to the alert file. This parameter is useful to determine if checkpoints are occurring at the desired frequency.

For more information, see the *Oracle7 Server Concepts* manual.

LOG_ENTRY_PREBUILD_THRESHOLD

Default value:	0 bytes
Range of values:	0 – unlimited
Multiple instances:	can have different values
Ok to change?	yes

The maximum number of bytes of redo data to gather together before copying to the log buffer. A non-zero value forces user processes to prebuild redo information before requesting the redo copy latch. If the value for LOG_SIMULTANEOUS_COPIES is 0, this parameter is ignored.

For multiple-processor systems, it is sometimes beneficial to increase this parameter. Single-processor systems should keep the value at 0.

For systems experiencing latch contention that have fast processors and efficient memory-to-memory copy algorithms, increasing this value will prebuild log entries and reduce the time that the copy latch is held.

Do not increase this value for systems experiencing memory contention.

LOG_FILES

Default value: 255

Range of values: 2 – 255 (must be a minimum of MAXLOGFILES*MAXLOGMEMBERS)

Multiple instances: must have the same value

The maximum log group number. This value specifies the maximum number of redo log files that can be opened at runtime for the database. It also gives the upper limit on the group numbers that can be specified when issuing log-related commands. Reduce the value only if you need SGA space and have fewer redo log files.

For more information, see the *Oracle7 Server Administrator's Guide*.

LOG_FILE_STANDBY_NAME_CONVERT

Default value: none

Range of values: *primary pattern, standby pattern*

This parameter converts the filename of a new log file on the primary database to the filename of a log file on the standby database. Adding a log file to the primary database necessitates adding a corresponding file to the standby database. When the standby database is updated, this parameter is used to convert the log file name on the primary database to the log file name on the standby database. The file must exist and be writable on the standby database or the recovery process will halt with an error.

Set the value of this parameter to two strings: the first string is the pattern found in the log file names on the primary database; the second string is the pattern found in the log file names on the standby database.

LOG_SIMULTANEOUS_COPIES

Default value: CPU_COUNT

Range of values: 0 – unlimited

The maximum number of redo buffer copy latches available to write log entries simultaneously. For good performance, you can have up to twice as many redo copy latches as CPUs. For a single-processor system, set to zero so that all log entries are copied on the redo allocation latch.

If this parameter is set to 0, redo copy latches are turned off, and the parameters LOG_ENTRY_PREBUILD_THRESHOLD and LOG_SMALL_ENTRY_MAX_SIZE are ignored.

You can change the value of this parameter without shutting down your Oracle instance by using the ALTER SESSION command.

For more information, see the *Oracle7 Server Administrator's Guide*.

LOG_SMALL_ENTRY_MAX_SIZE

Default value: operating system-dependent

Range of values: operating system-dependent

The size in bytes of the largest copy to the log buffers that can occur under the redo allocation latch without obtaining the redo buffer copy latch. If the value for LOG_SIMULTANEOUS_COPIES is 0, this parameter is ignored (all writes are “small” and are made without the copy latch).

If the redo entry is copied on the redo allocation latch, the user process releases the latch after the copy. If the redo entry is larger than this parameter, the user process releases the latch after allocating space in the buffer and getting a redo copy latch.

For more information, see the *Oracle7 Server Administrator's Guide*.



OSDoc

See also your operating system-specific Oracle documentation for the default value and range of values.

MAX_COMMIT_PROPAGATION_DELAY

This is a Parallel Server parameter.

Default: 90000

Range of values: 0 – 90000

OK to change? no

Multiple instances: must have identical values

This initialization parameter should not be changed except under a limited set of circumstances specific to the Parallel Server. This parameter indicates the maximum amount of time allowed before the System Change Number (SCN) held in the SGA of an instance is refreshed by LGWR. It determines if the local SCN should be refreshed from the lock value when getting the snapshot SCN for a query. Units are in hundredths of seconds. Under very unusual circumstances involving rapid updates and queries of the same data from different instances, the SCN may not be refreshed in a timely manner. The default value of 90,000 hundredths of a second, or fifteen minutes, is an upper bound that allows the preferred existing high performance mechanism to remain in place.

Change this parameter only when it is absolutely necessary to see the most current version of the database when doing a query.

For more information, see *Oracle7 Parallel Server Concepts & Administration*.

MAX_DUMP_FILE_SIZE

Default value: 500 blocks

Range of values: 0 – 4,000,000

Maximum size in operating system blocks of trace files to be written. Change this limit if you are concerned that trace files may take up too much space.

Oracle silently restricts the maximum value for this parameter to approximately 4,000,000 physical blocks. If the user exceeds this value then MAX_DUMP_FILE_SIZE is set to 4,000,000 physical blocks, which is the maximum Oracle can provide.

For example, if your logical file system block size is 512 bytes and you do not want to exceed 5 MB for the trace file size, you would set the MAX_DUMP_FILE_SIZE to 10,000.

For more information, see the *Oracle7 Server Administrator's Guide*.

MAX_ENABLED_ROLES

Default value: 20

Range of values: 0 – 148

Sets the maximum number of database roles that a user can enable, including sub-roles.

The actual number of roles a user can enable is 2 + the value of MAX_ENABLED_ROLES, because each user has two additional roles, public, and the user's own role. For example, if MAX_ENABLED_ROLES is set to 5, user scott can have 7 roles enabled, the five enabled by MAX_ENABLED_ROLES plus public and scott.

For more information, see the *Oracle7 Server Administrator's Guide*.

MAX_ROLLBACK_SEGMENTS

Default value: 30

Range of values: 1 – 65536

The maximum size of the rollback segment cache in the SGA. The number specified signifies the maximum number of rollback segments that can be kept online (that is, status of INUSE) simultaneously by one instance.

For more information, see the *Oracle7 Server Administrator's Guide*.

MAX_TRANSACTION_BRANCHES

Default value: 8

Range of values: 1 – 32

This parameter controls the number of branches in a distributed transaction. For example, a certain TP monitor uses one branch per server involved in a distributed transaction. Another TP monitor uses one branch per server group involved in a distributed transaction.

The previously fixed maximum number of branches limited the number of servers or server groups involved in a distributed transaction to 8 per Oracle instance. With the MAX_TRANSACTION_BRANCHES parameter, the maximum number of branches can be increased to 32, allowing for 32 servers or server groups per Oracle instance to work on one distributed transaction.

Setting MAX_TRANSACTION_BRANCHES to a lower value reduces shared pool memory usage slightly according to the following equation:

$$\text{MAX_TRANSACTION_BRANCHES} * \text{DISTRIBUTED_TRANSACTIONS} * 72 \text{ bytes}$$

MLS_LABEL_FORMAT

This is a Trusted Oracle7 Server parameter.

For more information, see the *Oracle7 Server Administrator's Guide*.

MTS_DISPATCHERS

Default value: NULL

The configuration of the dispatcher processes created when the instance starts up. The value of this parameter is specified as one or more configuration strings. Each configuration string is a quoted string of two values separated by a comma that specifies the configuration of a group of one or more dispatchers.

The configuration string for each group of dispatcher processes includes the network protocol for that group and the number of dispatcher processes in the group (one or more). Each network protocol that you use on your system requires a separate specification.

You can specify multiple network protocols in a single parameter or in multiple parameters. For example, if you are using TCP/IP and DECNet to connect to the server, you could either specify both in one parameter, as follows:

```
MTS_DISPATCHERS = ("tcp, 1", "decnet, 4")
```

or specify two parameters, as follows:

```
MTS_DISPATCHERS = "tcp, 1"  
MTS_DISPATCHERS = "decnet, 4"
```

In these examples the first configuration string specifies one dispatcher process for the TCP/IP protocol and the second configuration string specifies four dispatcher processes for the DECNet protocol.

Note: If you have multiple MTS_DISPATCHERS parameters, they must be adjacent to each other in your initialization file.

For more information, see the *Oracle7 Server Administrator's Guide*. See also the *Oracle Network Manager Administrator's Guide*.

MTS_LISTENER_ADDRESS

Default value: NULL

The configuration of the Listener process. The Listener process requires an address to listen for connection requests for each network protocol that is used on your system. Addresses are specified as the SQL*Net description of the connection address.



Warning: Each address must be specified with its own parameter. (This differs from the SQL*Net syntax.) For example, if you use TCP/IP as well as DECNet, you would provide specifications similar to the following in your initialization file:

```
MTS_LISTENER_ADDRESS = \
    " (ADDRESS= (PROTOCOL=tcp) (HOST=myhost) (PORT=7002)) "
MTS_LISTENER_ADDRESS = \
    " (ADDRESS= (PROTOCOL=decnet) (NODE=name) (OBJECT=mts)) "
```

Note: If you have multiple MTS_LISTENER_ADDRESS parameters, they must be adjacent to each other in your initialization file.

Address specifications for the Listener process are operating system specific and network protocol specific.

For more information, see the *Oracle7 Server Administrator's Guide*.



OSDoc

See your operating system-specific Oracle documentation and SQL*Net documentation for a description of how to specify addresses for the protocols on your system.

MTS_MAX_DISPATCHERS

Default value: 5

Range of values: operating system-dependent

The maximum number of dispatcher processes allowed to be running simultaneously.

For more information, see the *Oracle7 Server Administrator's Guide*.



OSDoc

See also your operating system-specific Oracle documentation for the default value and range of values.

MTS_MAX_SERVERS

Default value: 20

Range of values: operating system-dependent

The maximum number of shared server processes allowed to be running simultaneously.

For more information, see the *Oracle7 Server Administrator's Guide*.



See also your operating system-specific Oracle documentation for the default value and range of values.

OSDoc

MTS_MULTIPLE_LISTENERS

Default value: FALSE

Range of values: TRUE/FALSE

When this parameter is set to TRUE, the syntax of the MTS_LISTENER_ADDRESS parameter changes to the following:

```
MTS_MULTIPLE_LISTENERS = TRUE
MTS_LISTENER_ADDRESS =
  (ADDRESS_LIST=(ADDRESS=(PROTOCOL=tcp)(PORT=5000)(HOST=zeus))\
  (ADDRESS=(PROTOCOL=decnet)(OBJECT=outa)(NODE=zeus))
```

MTS_SERVERS

Default value: 0

Range of values: operating system-dependent

The number of server processes that you wish to create when an instance is started up.

For more information, see the *Oracle7 Server Administrator's Guide*.



See also your operating system-specific Oracle documentation for the default value and range of values.

OSDoc

MTS_SERVICE

Default value: NULL

This parameter specifies the name of the service you wish to be associated with the dispatcher. Using this name in the CONNECT string allows users to connect to an instance via a dispatcher. Oracle always checks for such a service before establishing a normal database connection.

The name you specify must be unique. It should *not* be enclosed in quotation marks. It is a good idea for this name to be the same as the instance name. That way, if the dispatcher is unavailable for any reason, the CONNECT string will still connect the user to the database.

If not specified, MTS_SERVICE defaults to the value specified by DB_NAME. If DB_NAME also is not specified, the Oracle7 Server returns an error at startup indicating that the value for this parameter is missing.

For more information, see the *Oracle7 Server Administrator's Guide*. See also the *Oracle Network Manager Administrator's Guide*.

NLS_CALENDAR

Default value: Gregorian

Range of values: any valid calendar format name

Many calendar systems are in use throughout the world. NLS_CALENDAR specifies which calendar system Oracle uses.

NLS_CALENDAR can have one of the following values:

- Arabic Hijrah
- Gregorian
- Japanese Imperial
- Persian
- ROC (Republic of China)
- Thai Buddha

For example, if NLS_CALENDAR is set to “Japanese Imperial”, the date format is “YY-MM-DD”, and the date is February 17, 1907, then SYSDATE is displayed as follows:

```
SELECT SYSDATE FROM DUAL;  
SYSDATE  
-----  
07-02-17
```

NLS_CURRENCY

Default value: derived

Range of values: any valid character string, with a maximum of 10 bytes (not including null)

Defines the string to use as the local currency symbol for the L number format element. The default value of this parameter is determined by NLS_TERRITORY.

For example, the following query uses the L format element to return the default local currency symbol for the territory FRANCE:

```
SELECT TO_CHAR(TOTAL, 'L099') "TOTAL"
      FROM ORDERS WHERE CUSTNO = 586;

TOTAL
-----
F635
```

For more information, see the *Oracle7 Server Administrator's Guide*.

NLS_DATE_FORMAT

Default value: derived

Range of values: any valid date format mask but not exceeding a fixed length

Defines the default date format to use with the TO_CHAR and TO_DATE functions. The default value of this parameter is determined by NLS_TERRITORY. The value of this parameter can be any valid date format mask, and the value must be surrounded by double quotation marks. For example:

```
NLS_DATE_FORMAT = "MM/DD/YYYY"
```

The value of this parameter is stored in the tokenized internal date format. Each format element occupies two bytes, and each string occupies the number of bytes in the string plus a terminator byte. Also, the entire format mask has a two-byte terminator. For example, "MM/DD/YY" occupies 12 bytes internally because there are three format elements, two one-byte strings (the two slashes), and the two-byte terminator for the format mask. The tokenized format for the value of this parameter cannot exceed 24 bytes.

For more information, see the *Oracle7 Server Administrator's Guide*.

NLS_DATE_LANGUAGE

Default value: value for NLS_LANGUAGE

Range of values: any valid NLS_LANGUAGE value

Determines the language to use for day and month names and date abbreviations (AM, PM, AD, BC). The default value of this parameter is the language specified by NLS_LANGUAGE.

For more information, see the *Oracle7 Server Administrator's Guide*.

NLS_ISO_CURRENCY

Default value: derived
Range of values: any valid NLS_TERRITORY value

Defines the string to use as the international currency symbol for the C number format element. The default value of this parameter is determined by NLS_TERRITORY. For example, the following query uses the C format element to return the default international currency symbol for the territory FRANCE:

```
SELECT TO_CHAR(TOTAL, 'C099') "TOTAL"
FROM ORDERS WHERE CUSTNO = 586;
```

```
TOTAL
-----
FRF635
```

The value of this parameter can be any valid territory specified in NLS_TERRITORY.

For more information, see the *Oracle7 Server Administrator's Guide*.

NLS_LANGUAGE

Default value: operating system-dependent
Range of values: any valid language name

Defines the default language of the database. Specifies the language to use for messages, the language of day and month names, symbols to use for AD, BC, AM, and PM, and the default sorting mechanism. This parameter has the format:

```
NLS_LANGUAGE = FRENCH
```

Examples of supported languages are American, French, and Japanese.

This parameter determines the default values of the parameters NLS_DATE_LANGUAGE and NLS_SORT. For a complete list of languages, see “Supported Languages” on page 4 – 32.

For more information, see the *Oracle7 Server Administrator's Guide*.



See also your country release notes and operating system-specific Oracle documentation.

NLS_NUMERIC_CHARACTERS

Default value: derived

Defines the characters to use as the group separator and decimal. The group separator is the character that separates integer groups (that is, the thousands, millions, billions, and so on). The decimal separates the integer portion of a number from the decimal portion.

Any character can be the decimal or group separator. The two characters specified must be single-byte, and both characters must be different from each other each other. The characters cannot be any numeric character or any of the following characters: plus (+), hyphen (-), less than sign (<), greater than sign (>).

The characters are specified in the following format:

```
NLS_NUMERIC_CHARACTERS = "<decimal_character><group_separator>"
```

For example, if you wish to specify a comma as the decimal character and a space as the group separator, you would set this parameter as follows:

```
NLS_NUMERIC_CHARACTERS = ", "
```

The default value of this parameter is determined by NLS_TERRITORY.

Note: When the decimal character is not a period (.) or when the group separator is used, numeric literals must appear in quotation marks. For example, with the value of NLS_NUMERIC_CHARACTERS above, the following SQL statement requires quotation marks around the numeric literals:

```
INSERT INTO SIZES ( ITEMID, PRICE, WIDTH )  
VALUES ( 618, '45,50', TO_NUMBER('1 234,11', '9G999D99'));
```

For more information, see the *Oracle7 Server Administrator's Guide*.

NLS_SORT

Default value: derived

Range of values: BINARY or valid linguistic definition name

If the value is BINARY, then the collating sequence for ORDER BY queries is based on the numeric value of characters (a binary sort that requires less system overhead).

If the value is a named linguistic sort, sorting is based on the order of the defined linguistic sort. Most languages supported by the NLS_LANGUAGE parameter also support a linguistic sort with the same name.

Note: Setting NLS_SORT to anything other than BINARY causes a sort to use a full table scan, regardless of the path chosen by the optimizer.

You must use the NLS_SORT operator with comparison operations if you want the linguistic sort behavior.

The default value of this parameter depends on the value of the NLS_LANGUAGE parameter.

For a list of supported linguistic definitions and extended definitions, see page 4 – 38.

For more information, see the *Oracle7 Server Administrator's Guide*.



OSDoc

See also your operating system-specific Oracle documentation for the sorting rules used by the linguistic sorting mechanisms.

NLS_TERRITORY

Default value: operating system-dependent

Range of values: any valid territory name

Specifies the name of the territory whose conventions are to be followed for day and week numbering. Also specifies the default date format, the default decimal character and group separator, and the default ISO and local currency symbols. Supported territories include America, France, Japan, and so on. For a complete list of territories, see “Supported Territories” on page 4 – 33.

This parameter determines the default values for the following parameters: NLS_CURRENCY, NLS_ISO_CURRENCY, NLS_DATE_FORMAT, and NLS_NUMERIC_CHARACTERS.

For more information, see the *Oracle7 Server Administrator's Guide*.



OSDoc

See also your operating system-specific Oracle documentation for the territory-dependent default values for these parameters.

OPEN_CURSORS

Default value: 50

Range of values: 1 – operating system limit

The maximum number of open cursors (context areas) a session can have at once. This parameter does not control a system-wide feature, but rather, the maximum address/memory space used. The control of context areas is specific to the application.

For more information, see the *Oracle7 Server Administrator's Guide*.



See also your operating system-specific Oracle documentation for the range of values.

OSDoc

OPEN_LINKS

Default value: 4

Range of values: 0 – 255

The maximum number of concurrent open connections to remote databases per user process in one session. Value should equal or exceed the number of databases referred to in a single SQL statement that references multiple databases so that all the databases can be open to execute the statement. Value should be increased if many different databases are accessed over time. Thus, if queries alternately access databases A, B, and C and OPEN_LINKS is set to 2, time would be spent waiting while one connection was broken and another made.

This parameter refers only to connections used for distributed transactions. Direct connections to a remote database specified as an application connects are not counted.

If set to 0, then no distributed transactions are allowed.

For more information, see the *Oracle7 Server Administrator's Guide* and *Oracle7 Server Distributed Systems, Volume I*.

OPEN_MOUNTS

This is a Trusted Oracle7 Server parameter.

For more information, see the *Trusted Oracle7 Server Administrator's Guide*.

OPTIMIZER_MODE

Default value: CHOOSE

Range of values: RULE/CHOOSE/FIRST_ROWS/ALL_ROWS

When set to RULE, this parameter causes rule-based optimization to be used unless hints are specified in the query. When set to CHOOSE, the optimizer uses the cost-based approach for a SQL statement if there are statistics in the dictionary for at least one table accessed in the statement. (Otherwise, the rule-based approach is used.)

You can set the goal for cost-based optimization by setting this parameter to `FIRST_ROWS` or `ALL_ROWS`. `FIRST_ROWS` causes the optimizer to choose execution plans that minimize response time. `ALL_ROWS` causes the optimizer to choose execution plans that minimize total execution time. The goal of cost-based optimization can also be set within a session by using `ALTER SESSION SET OPTIMIZER_MODE`. See *Oracle7 Server SQL Reference* for more information about the `ALTER SESSION` command.

For more information about tuning SQL statements, see *Oracle7 Server Tuning*.

For more information about the optimizer, see *Oracle7 Server Concepts* and *Oracle7 Server Tuning*.

OPTIMIZER_PERCENT_PARALLEL

Default value: 0

Range of values: 0 – 100

This parameter defines the amount of parallelism that the optimizer uses in its cost functions. The default of 0 means that the optimizer chooses the best serial plan. A value of 100 means that the optimizer uses each object's degree of parallelism in computing the cost of a full table scan operation.

You can change the value of this parameter without shutting down your Oracle instance by using the `ALTER SESSION` command. Low values favor indexes, and high values favor table scans.

Cost-based optimization will always be used for any query that references an object with a nonzero degree of parallelism. For such queries a `RULE` hint or optimizer mode or goal will be ignored. Use of a `FIRST_ROWS` hint or optimizer mode will override a nonzero setting of `OPTIMIZER_PERCENT_PARALLEL`.

ORACLE_TRACE_COLLECTION_NAME

Default value: operating system specific

Range of values: valid collection name up to 16 characters long

This parameter specifies the Oracle TRACE collection name.

ORACLE_TRACE_COLLECTION_PATH

Default value: operating system specific

Range of values: full directory pathname

This parameter specifies the directory pathname where Oracle TRACE collection definition and data log files are located.

ORACLE_TRACE_COLLECTION_SIZE

Default value: 5242880

Range of values: 0 – 4294967295

This parameter specifies the maximum size, in bytes, of the Oracle TRACE collection data file. Once the collection data file reaches this maximum, the collection is disabled.

ORACLE_TRACE_ENABLE

Default value: FALSE

Range of values: TRUE/FALSE

This parameter disables or enables the Oracle TRACE facility.

ORACLE_TRACE_FACILITY_NAME

Default value: operating system specific

Range of values: valid facility name up to 16 characters long

This parameter specifies the Oracle TRACE facility name.

ORACLE_TRACE_FACILITY_PATH

Default value: operating system specific

Range of values: full directory pathname

This parameter specifies the directory pathname where Oracle TRACE facility definition files are located.

OS_AUTHENT_PREFIX

Default value: operating system–dependent (typically “OPSS”)

This parameter authenticates users attempting to connect to the server with the users’ operating system account name and password. The value of this parameter is concatenated to the beginning of every user’s operating system account. The prefixed username is compared with the Oracle usernames in the database when a connection request is attempted. The default value of this parameter is OPSS for backward compatibility with previous versions. However, you might prefer to set the prefix value to “” (a null string), thereby eliminating the addition of any prefix to operating system account names.

Note: The text of the OS_AUTHENT_PREFIX parameter is case sensitive with some operating systems.

For more information, see the *Oracle7 Server Administrator’s Guide*.



See also your operating system–specific Oracle documentation.

OSDoc

OS_ROLES

Default value: FALSE

Range of values: TRUE/FALSE

Setting this parameter to TRUE causes the database to allow the operating system to identify each username’s roles. When a user attempts to create a session, the username’s security domain is initialized using the roles identified by the operating system. A user can subsequently enable as many roles identified by the operating system as specified by the parameter MAX_OS_ROLES.

If OS_ROLES is equal to TRUE, the operating system completely manages the role grants for all database usernames. Any revokes of roles granted by the operating system are ignored, and any previously granted roles are ignored.

The default value, FALSE, causes roles to be identified and managed by the database.

For more information, see the *Oracle7 Server Administrator’s Guide*.

PARALLEL_DEFAULT_MAX_INSTANCES

Default value: operating system–dependent

Range of values: 0 – number of instances

Multiple instances: should have the same value

Specifies the default number of instances to split a table across for parallel query processing. The value of this parameter is used if the INSTANCES DEFAULT is specified in the PARALLEL clause of a table's definition.

For more information, see *Oracle7 Parallel Server Concepts & Administration*.

PARALLEL_DEFAULT_MAX_SCANS

This parameter is obsolete in Oracle Server release 7.3.

PARALLEL_DEFAULT_SCANSIZE

This parameter is obsolete in Oracle Server release 7.3.

PARALLEL_MAX_SERVERS

Default value: operating system–dependent

Range of values: 0 – 256

Multiple instances: each instance must either have a value of zero or the same value as the other instances

Maximum number of query servers or parallel recovery processes for an instance.

For more information, see *Oracle7 Parallel Server Concepts & Administration*.

PARALLEL_MIN_PERCENT

Default value: 0

Range of values: 0 – 100

This parameter sets the minimum percent of query slaves required for parallel queries. If the number of query slaves specified by the value of PARALLEL_MIN_PERCENT is not available, the query will terminate with an error. If the number of slaves acquired is less than the number of slaves requested times the value of PARALLEL_MIN_PERCENT

divided by 100, then the query will terminate with an error. If this parameter is not set, the query executes with as many slaves as are available.

PARALLEL_MIN_SERVERS

Default value: 0
Range of values: 0 – PARALLEL_MAX_SERVERS
Multiple instances: can have different values

Minimum number of query server processes for an instance. This is also the number of query server processes Oracle creates when the instance is started.

For more information, see *Oracle7 Parallel Server Concepts & Administration*.

PARALLEL_SERVER_IDLE_TIME

Default value: operating system–dependent
Range of values: 0 – unlimited
Multiple instances: can have different values

The amount of idle time after which Oracle terminates a query server process. This value is expressed in minutes.

PARTITION_VIEW_ENABLED

Default value: FALSE
Range of values: TRUE/FALSE
OK to change? Yes

When set to TRUE, the optimizer prunes (or skips) unnecessary table accesses in a partition view. This parameter also changes the way the cost-based optimizer computes statistics on a partition view from statistics on underlying tables.

You can change the value of this parameter without shutting down your Oracle instance by using the ALTER SESSION command.

PRE_PAGE_SGA

Default value:	NO
Range of values:	NO/YES
OK to change?	No

When set to YES, this parameter touches all the SGA pages, causing them to be brought into memory. As a result, it increases instance startup time and user login time, but it can reduce the number of page faults that occur shortly thereafter. The reduction in page faults allows the instance to reach its maximum performance capability quickly rather than through an incremental build up. It is most useful on systems that have sufficient memory to hold all the SGA pages without degrading performance in other areas.

PROCESSES

Default value:	25
Range of values:	6 to operating system-dependent
Multiple instances:	can have different values

For a multiple-process operation, this parameter specifies the maximum number of operating system user processes that can simultaneously connect to an Oracle7 Server. Should include up to 6 for the background processes (or more if GC_LCK_PROCS is non-zero or if you use the dispatcher configuration) plus one for login; so a value of 20 would permit 13 or 14 concurrent users.

The default values of DB_FILE_MULTIBLOCK_READ_COUNT and SESSIONS are derived from PROCESSES. If you alter the value of PROCESSES, you may want to adjust the values of these derived parameters.

For more information, see the *Oracle7 Server Administrator's Guide*.



See also your operating system-specific Oracle documentation for the range of values.

OSDoc

RECOVERY_PARALLELISM

Default value: operating system–dependent
Range of values: operating system–dependent, but cannot exceed PARALLEL_MAX_SERVERS

Specifies the number of processes to participate in instance or media recovery. A value of zero or one indicates that recovery is to be performed serially by one process.

For more information, see *Oracle7 Parallel Server Concepts & Administration*.

REMOTE_DEPENDENCIES_MODE

Default value: TIMESTAMP
Range of values: TIMESTAMP/SIGNATURE

This parameter is used with PL/SQL stored procedures. It specifies how dependencies upon remote stored procedures are to be handled by the database.

If this parameter is set to TIMESTAMP, which is the default setting, the client running the procedure compares the timestamp recorded on the server side procedure with the current timestamp of the local procedure and executes the procedure only if the timestamps match.

If the parameter is set to SIGNATURE, the procedure is allowed to execute as long as the signatures are considered safe. This allows client PL/SQL applications to be run without recompilation.

REMOTE_LOGIN_PASSWORDFILE

Default value: NONE
Range of values: NONE/SHARED/EXCLUSIVE
Multiple instances: should have the same value

Specifies whether Oracle checks for a password file and how many databases can use the password file. Setting the parameter to NONE signifies that Oracle should ignore any password file (and therefore privileged users must be authenticated by the operating system). Setting the parameter to EXCLUSIVE signifies that the password file can be used by only one database and the password file can contain names other than SYS and INTERNAL. Setting the parameter to SHARED

allows more than one database to use a password file. However, the only users recognized by the password file are SYS and INTERNAL.

For more information about secure connections for privileged users, see the *Oracle7 Server Administrator's Guide*.

REMOTE_OS_AUTHENT

Default value: FALSE

Range of values: TRUE/FALSE

Setting this parameter to TRUE allows authentication of remote clients with the value of OS_AUTHENT_PREFIX.

For more information, see the *Oracle7 Server Administrator's Guide*.

REMOTE_OS_ROLES

Default value: FALSE

Range of values: TRUE/FALSE

Setting this parameter to TRUE allows operating system roles for remote clients. The default value, FALSE, causes roles to be identified and managed by the database for remote clients.

For more information, see the *Oracle7 Server Administrator's Guide*.

RESOURCE_LIMIT

Default value: FALSE

Range of values: TRUE/FALSE

Changes the enforcement status of resource limits set in database profiles. A value of FALSE disables the enforcement of resource limits. A value of TRUE enables the enforcement of resource limits.

For more information, see the *Oracle7 Server Administrator's Guide*.

ROLLBACK_SEGMENTS

Default value: NULL (the instance uses public rollback segments by default if you do not specify this parameter)

Range of Values any rollback segment names listed in DBA_ROLLBACK_SEGS except SYSTEM

Multiple instances: must have different values (different instances cannot specify the same rollback segment)

One or more rollback segments to allocate by name to this instance. If ROLLBACK_SEGMENTS is not overridden, an instance acquires all of the rollback segments named in this parameter, even if the number of rollback segments exceeds the minimum number required by the instance (calculated from the ratio TRANSACTIONS / TRANSACTIONS_PER_ROLLBACK_SEGMENT).

Note: Never name the SYSTEM rollback segment as a value for the ROLLBACK_SEGMENTS parameter.

This parameter has the following syntax:

```
ROLLBACK_SEGMENTS = (rbseg_name [, rbseg_name] ... )
```

Although this parameter usually specifies private rollback segments, it can also specify public rollback segments if they are not already in use.

Different instances in an Oracle7 Parallel Server cannot name the same rollback segment for any of the ROLLBACK_SEGMENTS. Query the data dictionary view DBA_ROLLBACK_SEGS to find the name, segment ID number, and status of each rollback segment in the database.

For more information, see the *Oracle7 Server Administrator's Guide*.

ROW_CACHE_CURSORS

Default value: 10

Range of values: 10 – 3300

The number of cached recursive cursors used by the row cache manager for selecting rows from the data dictionary. The default value is sufficient for most systems.

For more information about memory structure and processes, see *Oracle7 Server Concepts*.

ROW_LOCKING

Default value: ALWAYS

Range of values: ALWAYS/DEFAULT/INTENT

Multiple instances: must have the same value

The default of ALWAYS means that only row locks are acquired when a table is updated. DEFAULT is the same as ALWAYS. INTENT means

that only row locks are used on a SELECT FOR UPDATE, but at update time table locks are acquired.

For information about tuning SQL statements, see the *Oracle7 Server Tuning* manual.

SEQUENCE_CACHE_ENTRIES

Default value: 10
Range of values: 10 – 32000
Multiple instances: can have different values

The number of sequences that can be cached in the SGA for immediate access. This cache is managed on a least recently used (LRU) basis, so if a request is made for a sequence that is not in the cache and there are no free entries, the oldest one on the LRU list is deleted and replaced with the newly requested one. Highest concurrency is achieved when this value is set to the highest possible number of sequences that will be used on an instance at one time.

Each entry requires approximately 110 bytes in the SGA for an Oracle7 Parallel Server.

Sequences created with the NOCACHE option do not reside in this cache. They must be written through to the data dictionary on every use.

For more information about managing schema objects, see *Oracle7 Server Administrator's Guide* and *Oracle7 Server Application Developer's Guide*.

SEQUENCE_CACHE_HASH_BUCKETS

This parameter is obsolete in Oracle Server release 7.3.

SERIALIZABLE

Default value: FALSE
Range of values: TRUE/FALSE
Multiple instances: must have the same value

If TRUE, then queries acquire table-level read locks, preventing any update of objects read until the transaction containing the query is committed. This mode of operation provides repeatable reads and ensures that two queries for the same data within the same transaction see the same values.

Setting SERIALIZABLE to TRUE provides ANSI degree three consistency at a considerable cost in concurrency.

For more information about data concurrency, see the *Oracle7 Server Tuning* manual.

SESSION_CACHED_CURSORS

This parameter is obsolete in Oracle Server release 7.3.

SESSIONS

Default value: derived ($1.1 * \text{PROCESSES} + 5$)

The total number of user and system sessions. The default number is greater than PROCESSES to allow for recursive sessions.

The default values of ENQUEUE_RESOURCES and TRANSACTIONS are derived from SESSIONS. If you alter the value of SESSIONS, you may want to adjust the values of ENQUEUE_RESOURCES and TRANSACTIONS.

With the multi-threaded server, you should adjust the value of SESSIONS to approximately $1.1 * (\text{total number of connections})$.

For more information memory structures and processes, see the *Oracle7 Server Concepts* manual.

SHARED_POOL_SIZE

Default value: 3,500,000 bytes

Range of values: 300 Kbytes – operating system-dependent

The size of the shared pool in bytes. The shared pool contains shared cursors and stored procedures. Larger values improve performance in multi-user systems. Smaller values use less memory.

For more information, see the *Oracle7 Server Administrator's Guide*.

SHARED_POOL_RESERVED_MIN_ALLOC

Default value: 5000

Range of values: 5000 – SHARED_POOL_RESERVED_SIZE (in bytes)

This parameter controls allocation of reserved memory. Memory allocations larger than this value can allocate space from the reserved list if a chunk of memory of sufficient size is not found on the shared pool free lists.

The default value is adequate for most systems. If you increase the value, then the Oracle Server will allow fewer allocations from the reserved list and will request more memory from the shared pool list.

SHARED_POOL_RESERVED_SIZE

Default value: 0

Range of values: from SHARED_POOL_RESERVED_MIN_ALLOC to one half of SHARED_POOL_SIZE (in bytes)

This parameter controls the amount of SHARED_POOL_SIZE reserved for large allocations. SHARED_POOL_RESERVED_SIZE must be greater than SHARED_POOL_RESERVED_MIN_ALLOC to create a reserved list.

The default value of 0 represents no reserved shared pool area.

Ideally, this parameter should be large enough to satisfy any request scanning for memory on the reserved list without flushing objects from the shared pool. The amount of operating system memory, however, may constrain the size of the shared pool. In general, you should set SHARED_POOL_RESERVED_SIZE to 10% of SHARED_POOL_SIZE. For most systems, this value will be sufficient if you have already tuned the shared pool.

SNAPSHOT_REFRESH_PROCESS

Default value: 0

Range of values: 0 – 10

Multiple instances: can have different values

This parameter sets the number of snapshot refresh processes per instance. If you wish to have your snapshots updated automatically, you must set this parameter to a value of one or higher. One snapshot refresh process will usually be sufficient unless you have many snapshots that refresh simultaneously.

For more information on managing table snapshots, see *Oracle7 Server Distributed Systems, Volume II*.

SNAPSHOT_REFRESH_INTERVAL

Default value: 60 (one minute)
Range of values: 1 – 3600 seconds (one second to 60 minutes)
Multiple instances: can have different values

This parameter sets the interval between wake-ups for the snapshot refresh process(es) on the instance.

For more information on managing table snapshots, see *Oracle7 Server Distributed Systems, Volume II*.

SORT_AREA_RETAINED_SIZE

Default value: the value of SORT_AREA_SIZE
Range of values: from the value equivalent to one database block to the value of SORT_AREA_SIZE

This parameter specifies the maximum amount, in bytes, of Program Global Area (PGA) memory retained after a sort. This memory is released back to the PGA, not to the operating system, after the last row is fetched from the sort space.

If a sort requires more memory, a temporary segment is allocated and the sort becomes an external (disk) sort. The maximum amount of memory to use for the sort is then specified by SORT_AREA_SIZE instead of by this parameter.

Larger values permit more sorts to be performed in memory. However, multiple sort spaces of this size may be allocated. Usually, only one or two sorts occur at one time, even for complex queries. In some cases, though, additional concurrent sorts are required. Each sort occurs in its own memory area, as specified by SORT_AREA_RETAINED_SIZE.

For more information, see *Oracle7 Server Concepts*.

SORT_AREA_SIZE

Default value: operating system-dependent
Minimum value: the value equivalent to two database blocks

This parameter specifies the maximum amount, in bytes, of Program Global Area (PGA) memory to use for a sort. After the sort is complete and all that remains to do is to fetch the rows out, the memory is released down to the size specified by SORT_AREA_RETAINED_SIZE.

After the last row is fetched out, all memory is freed. The memory is released back to the PGA, not to the operating system.

Increasing SORT_AREA_SIZE size improves the efficiency of large sorts. Multiple allocations never exist; there is only one memory area of SORT_AREA_SIZE for each user process at any time.

The default is usually adequate for most database operations. Only if very large indexes are created might you want to adjust this parameter. For example, if one process is doing all database access, as in a full database import, then an increased value for this parameter may speed the import, particularly the CREATE INDEX statements.

For more information, see *Oracle7 Server Concepts*.



See also your operating system specific Oracle documentation for the default value on your system.

OSDoc

SORT_DIRECT_WRITES

Default value: AUTO

Range of values: AUTO/TRUE/FALSE

SORT_DIRECT_WRITES can improve sort performance if memory and temporary space are abundant on your system.

When set to the default value of AUTO, and if the value of SORT_AREA_SIZE is greater than ten times the buffer size, SORT_DIRECT_WRITES automatically configures the SORT_WRITE_BUFFER_SIZE and SORT_WRITE_BUFFERS parameters. When SORT_DIRECT_WRITES is in AUTO mode, SORT_WRITE_BUFFERS and SORT_WRITE_BUFFER_SIZE have no effect.

When SORT_DIRECT_WRITES is set to TRUE, each sort allocates additional buffers in memory to write directly to disk.

When SORT_DIRECT_WRITES is set to FALSE, the sorts that write to disk write through the buffer cache.

For more information, see *Oracle7 Server Tuning*.

SORT_READ_FAC

Default value: operating system–dependent

SORT_READ_FAC is a unitless ratio that describes the amount of time to read a single database block divided by the block transfer rate. The

value is operating system-specific. You can set the value for your specific disk subsystem using the following equation:

$$\text{sort_read_fac} = \frac{(\text{avg_seek_time} + \text{avg_latency} + \text{blk_transfer_time})}{\text{blk_transfer_time}}$$



OSDoc

See also your operating system-specific Oracle documentation for the default value.

SORT_SPACEMAP_SIZE

Default value: operating system-dependent

The size in bytes of the sort space map in the context area. Only if you have very large indexes should you adjust this parameter. A sort automatically increases its space map if necessary, but it does not necessarily do so when it will make best use of disk storage. The sort makes optimal use of disk storage if SORT_SPACEMAP_SIZE is set to

$$[(\text{total_sort_bytes}) / (\text{sort_area_size})] + 64$$

where *total_sort_bytes* is

$$(\text{number_of_records}) * [\text{sum_of_average_column_sizes} + (2 * \text{number_of_col})]$$

Here, columns include the SELECT list for the ORDER BY, the SELECT list for the GROUP BY, and the key list for CREATE INDEX. Also include 10 bytes for ROWID for CREATE INDEX and GROUP BY or ORDER BY columns not mentioned in the SELECT list for these cases.

For more information on memory structures and processes, see the *Oracle7 Server Concepts*.



OSDoc

See also your operating system-specific Oracle documentation for the default value.

SORT_WRITE_BUFFER_SIZE

Default value: 32768

Range of values: any integer

This parameter sets the size of the sort buffer when the SORT_DIRECT_WRITES parameter is set to TRUE. This parameter is recommended for use with symmetric replication.

SORT_WRITE_BUFFERS

Default value: 2

Range of values: any integer

This parameter sets the number of sort buffers when the SORT_DIRECT_WRITES parameter is set to TRUE. This parameter is recommended for use with symmetric replication.

SQL_TRACE

Default value: FALSE

Range of values: TRUE/FALSE

Disables or enables the SQL trace facility. Setting this parameter to TRUE provides information on tuning that you can use to improve performance. Because the SQL trace facility causes system overhead, you should run the database with the value TRUE only for the purpose of collecting statistics.

You can change the value of this parameter without shutting down your Oracle instance by using the ALTER SESSION command.

For more information about performance diagnostic tools, see *Oracle7 Server Tuning*.

See also the *Oracle7 Server SQL Reference* manual.

SQL92_SECURITY

Default value: FALSE

Range of values: TRUE/FALSE

Release: 7.1

Specifies whether table-level SELECT privileges are required to execute an update or delete that references table column values.

TEMPORARY_TABLE_LOCKS

Default value: derived (= SESSIONS)

Range of values: 0 – operating system-dependent

Determines the number of temporary tables that can be created in the temporary segment space. A temporary table lock is needed any time a sort occurs that is too large to hold in memory, either as the result of a select on a large table with ORDER BY or as a result of sorting a large index. Installations with many users of applications that simultaneously perform several ordered queries on large tables may need to increase this number. Most installations should do well with the default.

For more information, see the *Oracle7 Server Administrator's Guide*.



OSDoc

See also your operating system-specific Oracle documentation for the range of values.

THREAD

Default value: 0

Range of values: 0 – maximum number of declared threads

Multiple instances: if specified, must have different values

This parameter is applicable only to instances that intend to run in parallel (shared) mode.

The number of the redo thread that is to be used by the instance. Any available redo thread number can be used, but an instance cannot use the same thread number as another instance. Also, an instance cannot start when its redo thread is disabled. A value of zero causes an available, enabled public thread to be chosen. An instance cannot mount a database if the thread is used by another instance or if the thread is disabled.

Redo threads are specified with the THREAD option of the ALTER DATABASE ADD LOGFILE command. Redo threads are enabled with the ALTER DATABASE ENABLE [PUBLIC] THREAD command. The PUBLIC keyword signifies that the redo thread may be used by any instance.

Thread 1 is the default thread in exclusive mode. An instance running in exclusive mode can specify THREAD to use the redo log files in a thread other than thread 1.

For more information, see *Oracle7 Parallel Server Concepts & Administration* and *Oracle7 Server SQL Reference*.

TIMED_STATISTICS

Default value: FALSE

Range of values: TRUE/FALSE

By default (when set to FALSE), the Server Manager statistics related to time (from the buffer manager) always are zero and the Server can avoid the overhead of requesting the time from the operating system. To turn on statistics, set the value to TRUE. Should normally be set to FALSE.

For more information about performance diagnostic tools, see *Oracle7 Server Tuning*.

TRANSACTIONS

Default value: derived (1.1 * SESSIONS)

Multiple instances: can have different values

The maximum number of concurrent transactions. Greater values increase the size of the SGA and can increase the number of rollback segments allocated. The default value is greater than PROCESSES to allow for recursive transactions.

For more information about memory structures and processes, see *Oracle7 Server Concepts* and the *Oracle7 Server Administrator's Guide*.

TRANSACTIONS_PER_ROLLBACK_SEGMENT

Default value: 30

Range of values: 1 – operating system–dependent

Multiple instances: can have different values

The number of concurrent transactions allowed per rollback segment. The minimum number of rollback segments acquired at startup is TRANSACTIONS divided by the value for this parameter. For example, if TRANSACTIONS is 101 and this parameter is 10, then the minimum number of rollback segments acquired would be the ratio 101/10, rounded up to 11.

More rollback segments can be acquired if they are named in the parameter ROLLBACK_SEGMENTS.

For more information, see the *Oracle7 Server Administrator's Guide*.



See also your operating system–specific Oracle documentation for the range of values.

OSDoc

USER_DUMP_DEST

Default value: operating system–dependent

Range of values: valid local pathname, directory, or disk

The pathname for a directory where the server will write debugging trace files on behalf of a user process.

For example, this directory might be set to **C:\ORACLE\UTRC** on MS–DOS; to **/oracle/utrc** on UNIX; or to **DISK\$UR3:[ORACLE.UTRC]** on VMS.

For more information about performance diagnostic tools, see *Oracle7 Server Tuning*.



See also your operating system–specific Oracle documentation for the range of values.

OSDoc

UTL_FILE_DIR

Default value: none

Range of values: any valid directory path

This parameter allows DBAs to specify directories that are permitted for PL/SQL file I/O. Each directory must be specified with a separate UTL_FILE_DIR parameter in the INIT.ORA file.

Note that all users may read or write all files specified in the UTL_FILE_DIR parameter(s). This means that all PL/SQL users must be trusted with the information in the directories specified in the UTL_FILE_DIR parameters.

Static Data Dictionary Views

This chapter contains descriptions of the static data dictionary tables and views. To see the current data dictionary on your system, query the view `DICTIONARY`.

See Chapter 3, “Dynamic Performance (V\$) Tables,” for descriptions of the V\$ views.

In Trusted Oracle7 Server, each of the dictionary tables and views contains the column that indicates the label of each row in the table or view. There are also additional dictionary tables and views, some of which have additional columns.

For more information about Trusted Oracle7 data dictionary views, see the *Trusted Oracle7 Server Administrator's Guide*.

Data Dictionary Views

The following is an alphabetical reference of the data dictionary views accessible to all users of an Oracle Server. Most views can be accessed by any user with the CREATE_SESSION privilege.

The data dictionary views that begin with DBA_ are restricted. These views can be accessed only by users with the SELECT_ANY_TABLE privilege. This privilege is assigned to the DBA role when the system is initially installed.

ALL_CATALOG

This view lists all tables, views, synonyms, and sequences accessible to the user.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the object
TABLE_NAME	Name of the object
TABLE_TYPE	Type of the object

ALL_COL_COMMENTS

This view lists comments on columns of accessible tables and views.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the object
TABLE_NAME	Name of the object
COLUMN_NAME	Name of the column
COMMENTS	Comment on the column

ALL_COL_PRIVS

This view lists grants on columns for which the user or PUBLIC is the grantee.

<i>This Column</i>	<i>Represents This</i>
GRANTOR	Name of the user who performed the grant
GRANTEE	Name of the user to whom access was granted
TABLE_SCHEMA	Schema of the object
TABLE_NAME	Name of the object
COLUMN_NAME	Name of the column
PRIVILEGE	Privilege on the column
GRANTABLE	YES if the privileges was granted with ADMIN OPTION; otherwise NO

ALL_COL_PRIVS_MADE

This view lists grants on columns for which the user is owner or grantor.

<i>This Column</i>	<i>Represents This</i>
GRANTEE	Name of the user to whom access was granted
OWNER	Username of the owner of the object
TABLE_NAME	Name of the object
COLUMN_NAME	Name of the column
GRANTOR	Name of the user who performed the grant
PRIVILEGE	Privilege on the column
GRANTABLE	YES if the privilege was granted with ADMIN OPTION; otherwise NO

ALL_COL_PRIVS_RECD

This view lists grants on columns for which the user or PUBLIC is the grantee.

<i>This Column</i>	<i>Represents This</i>
GRANTEE	Name of the user to whom access was granted
OWNER	Username of the owner of the object
TABLE_NAME	Name of the object
COLUMN_NAME	Name of the object
GRANTOR	Name of the user who performed the grant
PRIVILEGE	Privilege on the column
GRANTABLE	YES if the privilege was granted with ADMIN OPTION; otherwise NO
ALL_CONSTRAINTS	

ALL_CONSTRAINTS

This view lists constraint definitions on accessible tables.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the constraint definition
CONSTRAINT_NAME	Name associated with the constraint definition
CONSTRAINT_TYPE	Type of constraint definition: C (check constraint on a table), P (primary key), U (unique key), R (referential integrity), or V (with check option, on a view)
TABLE_NAME	Name associated with table with constraint definition
SEARCH_CONDITION	Text of search condition for table check
R_OWNER	Owner of table used in referential constraint
R_CONSTRAINT_NAME	Name of unique constraint definition for referenced table

<i>This Column</i>	<i>Represents This</i>
DELETE_RULE	Delete rule for a referential constraint: CASCADE / NO ACTION
STATUS	Status of constraint: ENABLED or DISABLED

ALL_CONS_COLUMNS

This view contains information about accessible columns in constraint definitions.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the constraint definition
CONSTRAINT_NAME	Name associated with the constraint definition
TABLE_NAME	Name associated with table with constraint definition
COLUMN_NAME	Name associated with column speci- fied in the constraint definition
POSITION	Original position of column in defini- tion

ALL_DB_LINKS

This view lists database links accessible to the user.

<i>This Column</i>	<i>Represents This</i>
OWNER	Username of the owner of the data- base link
DB_LINK	Name of the database link
USERNAME	Name of user when logging in
HOST	SQL*Net string for connect
CREATED	Creation time of the database link

ALL_DEF_AUDIT_OPTS

This view contains default object-auditing options that will be applied when objects are created.

<i>This Column</i>	<i>Represents This</i>
ALT	Auditing ALTER WHENEVER SUCCESSFUL / UNSUCCESSFUL
AUD	Auditing AUDIT WHENEVER SUCCESSFUL / UNSUCCESSFUL
COM	Auditing COMMENT WHENEVER SUCCESSFUL / UNSUCCESSFUL
DEL	Auditing DELETE WHENEVER SUCCESSFUL / UNSUCCESSFUL
GRA	Auditing GRANT WHENEVER SUCCESSFUL / UNSUCCESSFUL
IND	Auditing INDEX WHENEVER SUCCESSFUL / UNSUCCESSFUL
INS	Auditing INSERT WHENEVER SUCCESSFUL / UNSUCCESSFUL
LOC	Auditing LOCK WHENEVER SUCCESSFUL / UNSUCCESSFUL
REN	Auditing RENAME WHENEVER SUCCESSFUL / UNSUCCESSFUL
SEL	Auditing SELECT WHENEVER SUCCESSFUL / UNSUCCESSFUL
UPD	Auditing UPDATE WHENEVER SUCCESSFUL / UNSUCCESSFUL
REF	Auditing REFERENCES WHENEVER SUCCESSFUL / UNSUCCESSFUL
EXE	Auditing EXECUTE WHENEVER SUCCESSFUL / UNSUCCESSFUL

ALL_DEPENDENCIES

This view lists dependencies between objects accessible to the user.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the object
NAME	Name of object
TYPE	Type of object: PROCEDURE, PACKAGE, FUNCTION, PACKAGE BODY
REFERENCED_OWNER	Owner of the parent object
REFERENCED_NAME	Type of parent object: PROCEDURE, PACKAGE, FUNCTION, PACKAGE BODY
REFERENCED_TYPE	Type of referenced object
REFERENCED_LINK_NAME	Name of the link to the parent object (if remote)

ALL_ERRORS

This view lists current errors on all objects accessible to the user.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the object
NAME	Name of the object
TYPE	Type of object: VIEW, PROCEDURE, PACKAGE, FUNCTION, PACKAGE BODY
SEQUENCE	Sequence number, for ordering
LINE	Line number at which this error occurs
POSITION	Position in the line at which this error occurs
TEXT	Text of the error

ALL_HISTOGRAMS

This view lists histograms on columns of all tables visible to the user.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
OWNER	VARCHAR2(30)	Owner of table
TABLE_NAME	VARCHAR2(30)	Table name
COLUMN_NAME	VARCHAR2(30)	Column name
BUCKET_NUMBER	NUMBER	Bucket number
ENDPOINT_VALUE	NUMBER	Normalized endpoint values for this bucket

ALL_INDEXES

This view contains descriptions of indexes on tables accessible to the user. To gather statistics for this view, use the SQL command ANALYZE.

<i>This Column</i>	<i>Represents This</i>
OWNER	Username of the owner of the index
STATUS	State of the index: DIRECT LOAD or VALID
INDEX_NAME	Name of the index
TABLE_OWNER	Owner of the indexed object
TABLE_NAME	Name of the indexed object
TABLE_TYPE	Type of the indexed object
UNIQUENESS	Uniqueness status of the index: UNIQUE or NONUNIQUE
TABLESPACE_NAME	Name of the tablespace containing the index
INI_TRANS	Initial number of transactions
MAX_TRANS	Maximum number of transactions
INITIAL_EXTENT	Size of the initial extent
NEXT_EXTENT	Size of secondary extents
MIN_EXTENTS	Minimum number of extents allowed in the segment
MAX_EXTENTS	Maximum number of extents allowed in the segment
PCT_INCREASE	Percentage increase in extent size

<i>This Column</i>	<i>Represents This</i>
FREELISTS	Number of process freelists allocated to this segment
PCT_FREE	Minimum percentage of free space in a block
BLEVEL	B-Tree level: depth of the index from its root block to its leaf blocks. A depth of 0 indicates that the root block and leaf block are the same.
LEAF_BLOCKS	Number of leaf blocks in the index
DISTINCT_KEYS	Number of distinct indexed values. For indexes that enforce UNIQUE and PRIMARY KEY constraints, this value is the same as the number of rows in the table (USER_TBLES.NUM_ROWS)
AVG_LEAF_BLOCKS_PER_KEY	Average number of leaf blocks in which each distinct value in the index appears. This statistic is rounded to the nearest integer. For indexes that enforce UNIQUE and PRIMARY KEY constraints, this value is always 1.
AVG_DATA_BLOCKS_PER_KEY	Average number of data blocks in the table that are pointed to by a distinct value in the index. This statistic is the average number of data blocks that contain rows that contain a given value for the indexed columns. This statistic is rounded to the nearest integer.
CLUSTERING_FACTOR	Statistic that represents the amount of order of the rows in the table based on the values of the index. If its value is near the number of blocks, then the table is very well ordered. In such a case, the index entries in a single leaf block tend to point to rows in the same data blocks. If its value is near the number of rows, then the table is very randomly ordered. In such a case, it is unlikely that index entries in the same leaf block point to rows in the same data blocks.

ALL_IND_COLUMNS

This view lists columns of the indexes on accessible tables.

<i>This Column</i>	<i>Represents This</i>
INDEX_OWNER	Index owner
INDEX_NAME	Index name
TABLE_OWNER	Table or cluster owner
TABLE_NAME	Table or cluster name
COLUMN_NAME	Column name
COLUMN_POSITION	Position of column within index
COLUMN_LENGTH	Indexed length of the column

ALL_LABELS

This is a Trusted Oracle7 Server view that lists system labels.

For more information, see the *Trusted Oracle7 Server Administrator's Guide*.

ALL_MOUNTED_DBS

This is a Trusted Oracle7 Server view that lists mounted databases.

For more information, see the *Trusted Oracle7 Server Administrator's Guide*.

ALL_OBJECTS

This view lists objects accessible to the user.

<i>This Column</i>	<i>Represents This</i>
OWNER	Username of the owner of the object
OBJECT_NAME	Name of the object
OBJECT_ID	Object number of the object
OBJECT_TYPE	Type of the object
CREATED	Timestamp for the creation of the object

<i>This Column</i>	<i>Represents This</i>
LAST_DDL_TIME	Timestamp for the last modification of the object resulting from a DDL command (including grants and revokes)
TIMESTAMP	Timestamp for the creation of the object (character data)
STATUS	Status of the object: VALID, INVALID, or N/A

ALL_REFRESH

This view lists all the refresh groups that the user can touch.

<i>This Column</i>	<i>Represents This</i>
ROWNER	Name of the owner of the refresh group
RNAME	Name of the refresh group
REFGROUP	Internal identifier of refresh group
IMPLICIT_DESTROY	Y or N; if Y, then destroy the refresh group when its last item is subtracted
JOB	Identifier of job used to refresh the group automatically
NEXT_DATE	Date that this job will next be re-freshed automatically, if not broken
INTERVAL	A date function used to compute the next NEXT_DATE
BROKEN	Y or N; Y means the job is broken and will never be run

ALL_REFRESH_CHILDREN

This view lists all the objects in refresh groups, where the user can touch the group.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the object in the refresh group
NAME	Name of the object in the refresh group

<i>This Column</i>	<i>Represents This</i>
TYPE	Type of the object in the refresh group
ROWNER	Name of the owner of the refresh group
RNAME	Name of the refresh group
REFGROUP	Internal identifier of refresh group
IMPLICIT_DESTROY	Y or N; if Y, then destroy the refresh group when its last item is subtracted
JOB	Identifier of job used to refresh the group automatically
NEXT_DATE	Date that this job will next be re-freshed automatically, if not broken
INTERVAL	A date function used to compute the next NEXT_DATE
BROKEN	Y or N; Y means the job is broken and will never be run

ALL_SEQUENCES

This view lists descriptions of sequences accessible to the user.

<i>This Column</i>	<i>Represents This</i>
SEQUENCE_OWNER	Name of the owner of the sequence
SEQUENCE_NAME	Sequence name
MIN_VALUE	Minimum value of the sequence
MAX_VALUE	Maximum value of the sequence
INCREMENT_BY	Value by which sequence is incremented
CYCLE_FLAG	Does sequence wrap around on reaching limit
ORDER_FLAG	Are sequence numbers generated in order
CACHE_SIZE	Number of sequence numbers to cache
LAST_NUMBER	Last sequence number written to disk. If a sequence uses caching, the number written to disk is the last number placed in the sequence cache. This number is likely to be greater than the last sequence number that was used.

ALL_SNAPSHOTS

This view lists all snapshots accessible to the user.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the snapshot
NAME	Name of the view used by users and applications for viewing the snapshot
TABLE_NAME	Table the snapshot is stored in. This table has an extra column for the master rowid.
MASTER_VIEW	View of the master table, owned by the snapshot owner, used for refreshes
MASTER_OWNER	Owner of the master table
MASTER	Name of the master table of which this snapshot is a copy
MASTER_LINK	Database link name to the master site
CAN_USE_LOG	YES if this snapshot can use a snapshot log, NO if this snapshot is too complex to use a log
UPDATABLE	Specifies whether the snapshot is updatable. TRUE if updatable, FALSE if not.
LAST_REFRESH	Date and time at the master site of the last refresh
ERROR	The number of failed automatic refreshes since last successful refresh
TYPE	Type of refresh for all automatic refreshes: COMPLETE, FAST, FORCE
NEXT	Date function used to compute next refresh dates
START_WITH	Date function used to compute next refresh dates
REFRESH_GROUP	All snapshots in a given refresh group get refreshed in the same transaction
UPDATE_TRIG	The name of the trigger that fills the UPDATE_LOG

<i>This Column</i>	<i>Represents This</i>
UPDATE_LOG	The table that logs changes made to an updatable snapshots
QUERY	Original query of which this snapshot is an instantiation

ALL_SOURCE

This view lists the text source of all stored objects accessible to the user.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the object
NAME	Name of the object
TYPE	Type of object: PROCEDURE, PACKAGE, FUNCTION, PACKAGE BODY
LINE	Line number of this line of source
TEXT	Text source of the stored object

ALL_SYNONYMS

This view lists all synonyms accessible to the user.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the synonym
SYNONYM_NAME	Name of the synonym
TABLE_OWNER	Owner of the object referenced by the synonym
TABLE_NAME	Name of the object referenced by the synonym
DB_LINK	Name of the database link referenced, if any

ALL_TABLES

This view contains descriptions of tables accessible to the user. To gather statistics for this view, use the SQL command ANALYZE.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the table
TABLE_NAME	Name of the table
TABLESPACE_NAME	Name of the tablespace containing the table
CLUSTER_NAME	Name of the cluster, if any, to which the table belongs
PCT_FREE	Minimum percentage of free space in a block
PCT_USED	Minimum percentage of used space in a block
INI_TRANS	Initial number of transactions
MAX_TRANS	Maximum number of transactions
INITIAL_EXTENT	Size of the initial extent in bytes
NEXT_EXTENT	Size of secondary extents in bytes
MIN_EXTENTS	Minimum number of extents allowed in the segment
MAX_EXTENTS	Maximum number of extents allowed in the segment
PCT_INCREASE	Percentage increase in extent size
FREELISTS	Number of process freelists allocated to this segment
FREELIST_GROUPS	Number of freelist groups allocated to this segment
BACKED_UP	Has table been backed up since last change
NUM_ROWS	Number of rows in the table
BLOCKS	Number of used data blocks in the table
EMPTY_BLOCKS	Number of empty (never used) data blocks in the table
AVG_SPACE	Average amount of free space, in bytes, in a data block allocated to the table

<i>This Column</i>	<i>Represents This</i>
CHAIN_CNT	Number of rows in the table that are chained from one data block to another, or which have migrated to a new block, requiring a link to preserve the old rowid
AVG_ROW_LEN	Average length of a row in the table in bytes
DEGREE	The number of threads per instance for scanning the table
INSTANCES	The number of instances across which the table is to be scanned
CACHE	Whether the table is to be cached in the buffer cache

ALL_TAB_COLUMNS

This view lists the columns of all tables, views, and clusters accessible to the user. To gather statistics for this view, use the SQL command ANALYZE.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the table, view or cluster
TABLE_NAME	Table, view, or cluster name
COLUMN_NAME	Column name
DATA_TYPE	Datatype of the column
DATA_LENGTH	Length of the column in bytes
DATA_PRECISION	Decimal precision for NUMBER datatype; binary precision for FLOAT datatype, NULL for all other datatypes
DATA_SCALE	Digits to right of decimal point in a number
NULLABLE	Specifies whether a column allows NULLs. Value is N if there is a NOT NULL constraint on the column or if the column is part of a PRIMARY KEY.

<i>This Column</i>	<i>Represents This</i>
COLUMN_ID	Sequence number of the column as created
DEFAULT_LENGTH	Length of default value for the column
DATA_DEFAULT	Default value for the column
NUM_DISTINCT	Number of distinct values in each column of the table
LOW_VALUE HIGH_VALUE	The lowest and highest values in the column. These statistics are expressed in hexadecimal notation for the internal representation of the first 32 bytes of the values.
DENSITY	The density of the column (a measure of how distinct the values are). This is calculated as the sum of <i>occurrences</i> ² / <i>elements_sampled</i> ² for each distinct value in the column.

ALL_TAB_COMMENTS

This view lists comments on tables and views accessible to the user.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the object
TABLE_NAME	Name of the object
TABLE_TYPE	Type of the object
COMMENTS	Comment on the object

ALL_TAB_PRIVS

This view lists the grants on objects for which the user or PUBLIC is the grantee.

<i>This Column</i>	<i>Represents This</i>
GRANTOR	Name of the user who performed the grant
GRANTEE	Name of the user to whom access is granted

<i>This Column</i>	<i>Represents This</i>
TABLE_SCHEMA	Schema of the object
TABLE_NAME	Name of the object
PRIVILEGE	Privilege on the object
GRANTABLE	YES if the privilege was granted with ADMIN OPTION; otherwise NO

ALL_TAB_PRIVS_MADE

This view lists user's grants and grants on user's objects.

<i>This Column</i>	<i>Represents This</i>
GRANTEE	Name of the user to whom access was granted
OWNER	Owner of the object
TABLE_NAME	Name of the object
GRANTOR	Name of the user who performed the grant
PRIVILEGE	Privilege on the object
GRANTABLE	YES if the privilege was granted with ADMIN OPTION; otherwise NO

ALL_TAB_PRIVS_RECD

This view lists grants on objects for which the user or PUBLIC is the grantee.

<i>This Column</i>	<i>Represents This</i>
GRANTEE	Name of the user to whom access was granted
OWNER	Owner of the object
TABLE_NAME	Name of the object
GRANTOR	Name of the user who performed the grant
PRIVILEGE	Privilege on the object
GRANTABLE	YES if the privilege was granted with ADMIN OPTION; otherwise NO

ALL_TRIGGERS

This view lists trigger information for triggers owned by the user, triggers on tables owned by the user, or all triggers if the user has the CREATE ANY TRIGGER privilege.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the trigger
TRIGGER_NAME	Name of the trigger
TRIGGER_TYPE	When the trigger fires: BEFORE EACH ROW, AFTER EACH ROW, BEFORE STATEMENT, AFTER STATEMENT
TRIGGERING_EVENT	Statement that fires the trigger: INSERT, UPDATE, DELETE
TABLE_OWNER	Owner of the table on which the trigger is defined
TABLE_NAME	Table on which the trigger is defined
REFERENCING_NAMES	Names used for referencing OLD and NEW column values from within the trigger
WHEN_CLAUSE	WHEN clause. Must evaluate to TRUE for TRIGGER_BODY to execute.
STATUS	Whether the trigger is enabled: ENABLED or DISABLED
DESCRIPTION	Trigger description. Useful for re-creating a trigger creation statement.
TRIGGER_BODY	Statement(s) executed by the trigger when it fires

ALL_TRIGGER_COLS

This view shows usage of columns in triggers owned by user, on tables owned by user, or on all triggers if the user has tech CREATE ANY TRIGGER privilege.

<i>This Column</i>	<i>Represents This</i>
TRIGGER_OWNER	Owner of the trigger
TRIGGER_NAME	Name of the trigger
TABLE_OWNER	Owner of the table on which the trigger is defined

<i>This Column</i>	<i>Represents This</i>
TABLE_NAME	Table on which the trigger is defined
COLUMN_NAME	Name of the column used in the trigger
COLUMN_LIST	Column specified in UPDATE clause: Y/N
COLUMN_USAGE	How the column is used in the trigger. All applicable combinations of NEW, OLD, IN, OUT, and IN OUT.

ALL_UPDATABLE_COLUMNS

This view contains a description of all columns that are updatable in a join view.

<i>This Column</i>	<i>Datatype</i>	<i>Null?</i>	<i>Represents This</i>
OWNER	VARCHAR2(30)	not null	Table owner
TABLE_NAME	VARCHAR2(30)	not null	Table name
COLUMN_NAME	VARCHAR2(30)	not null	Column name
UPDATABLE	VARCHAR2(3)		Is the column updatable?

ALL_USERS

This view contains information about all users of the database.

<i>This Column</i>	<i>Represents This</i>
USERNAME	Name of the user
USER_ID	ID number of the user
CREATED	User creation date

ALL_VIEWS

This view lists the text of views accessible to the user.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the view
VIEW_NAME	Name of the view

<i>This Column</i>	<i>Represents This</i>
TEXT_LENGTH	Length of the view text
TEXT	View text

AUDIT_ACTIONS

This view contains descriptions for audit trail action type codes.

<i>This Column</i>	<i>Represents This</i>
ACTION	Numeric audit trail action type code
NAME	Name of the type of audit trail action

CATALOG

This view is included for compatibility with Oracle version 5. Use of this view is not recommended.

CAT

This is a synonym for USER_CATALOG.

CHAINED_ROWS

This view is the default table for the ANALYZE LIST CHAINED ROWS command.

<i>This Column</i>	<i>Represents This</i>
OWNER_NAME	Table owner
TABLE_NAME	Table name
CLUSTER_NAME	Cluster the table is in, if any
HEAD_ROWID	RowID the chained row is accessed by
TIMESTAMP	Date/time that the ANALYZE command was issued

CLU

This is a synonym for USER_CLUSTERS.

CODE_PIECES

This view is accessed to create the ALL_OBJECT_SIZE, DBA_OBJECT_SIZE, and USER_OBJECT_SIZE views.

CODE_SIZE

This view is accessed to create the ALL_OBJECT_SIZE, DBA_OBJECT_SIZE, and USER_OBJECT_SIZE views.

COL

This view is included for compatibility with Oracle version 5. Use of this view is not recommended.

COLS

This is a synonym for USER_TAB_COLUMNS.

COLUMN_PRIVILEGES

This view lists grants on columns for which the user is the grantor, grantee, or owner, or PUBLIC is the grantee.

This view is included for compatibility with Oracle version 6. Use of this view is not recommended.

<i>This Column</i>	<i>Represents This</i>
GRANTEE	Name of the user to whom access was granted
OWNER	Username of the object's owner
TABLE_NAME	Name of the object
COLUMN_NAME	Name of the column
GRANTOR	Name of the user who performed the grant
INSERT_PRIV	Permission to insert into the column
UPDATE_PRIV	Permission to update the column
REFERENCES_PRIV	Permission to reference the column
CREATED	Timestamp for the grant

DBA_2PC_NEIGHBORS

This view contains information about incoming and outgoing connections for pending transactions.

<i>This Column</i>	<i>Represents This</i>
LOCAL_TRAN_ID	Local identifier of a transaction
IN_OUT	IN for incoming connections, OUT for outgoing
DATABASE	IN: client database name; OUT: outgoing database link
DBUSER_OWNER	IN: name of local user; OUT: owner of database link
DBID	The database ID at the other end of the connection
SESS#	Session number at this database of the connection
BRANCH	Transaction branch ID at this database of the connection

DBA_2PC_PENDING

This view contains information about distributed transactions awaiting recovery.

<i>This Column</i>	<i>Represents This</i>
LOCAL_TRAN_ID	String of form: <i>n.n.n</i> ; <i>n</i> is a number
GLOBAL_TRAN_ID	Globally unique transaction ID
STATE	Collecting, prepared, committed, forced commit, or forced rollback
MIXED	YES => part of the transaction committed and part rolled back
ADVICE	C for commit, R for rollback, else null
TRAN_COMMENT	Text for “commit work comment <i>text</i> ”
FAIL_TIME	Value of SYSDATE when the row was inserted (tx or system recovery)
FORCE_TIME	Time of manual force decision (null if not forced locally)
RETRY_TIME	Time automatic recovery (RECO) last tried to recover the transaction

<i>This Column</i>	<i>Represents This</i>
OS_USER	Operating system-specific name for the end-user
OS_TERMINAL	Operating system-specific name for the end-user terminal
HOST	Name of the host machine for the end-user
DB_USER	Oracle user name of the end-user at the topmost database
COMMIT#	Global commit number for committed transactions

DBA_ANALYZE_OBJECTS

This view lists all the objects that have been analyzed.

<i>This Column</i>	<i>Represents This</i>
OBJECT_NAME	Name of the object
OBJECT_TYPE	Type of the object

DBA_AUDIT_EXISTS

This view lists audit trail entries produced by AUDIT NOT EXISTS and AUDIT EXISTS.

<i>This Column</i>	<i>Represents This</i>
OS_USERNAME	Operating system login username of the user whose actions were audited
USERNAME	Name (not ID number) of the user whose actions were audited
USERHOST	Numeric instance ID for the Oracle instance from which the user is accessing the database
TERMINAL	Identifier of the user's terminal
TIMESTAMP	Timestamp for the creation of the audit trail entry
OWNER	Intended creator of the non-existent object
OBJ_NAME	Name of the object affected by the action

<i>This Column</i>	<i>Represents This</i>
ACTION_NAME	Name of the action type corresponding to the numeric code in the ACTION column in DBA_AUDIT_TRAIL
NEW_OWNER	Owner of the object named in the NEW_NAME column
NEW_NAME	New name of an object after a RENAME or the name of the underlying object
OBJ_PRIVILEGE	Object privileges granted or revoked by a GRANT or REVOKE statement
SYS_PRIVILEGE	System privileges granted or revoked by a GRANT or REVOKE statement
GRANTEE	Name of grantee specified in a GRANT or REVOKE statement
SESSIONID	Numeric ID for each Oracle session
ENTRYID	Numeric ID for each audit trail entry in the session
STATEMENTID	Numeric ID for each statement run
RETURNCODE	Oracle Server message code generated by the action. Some useful values: zero the action succeeded 2004 security violation

DBA_AUDIT_OBJECT

This view contains audit trail records for all objects in the system.

<i>This Column</i>	<i>Represents This</i>
OS_USERNAME	Operating system login username of the user whose actions were audited
USERNAME	Name (not ID number) of the user whose actions were audited
USERHOST	Numeric instance ID for the Oracle instance from which the user is accessing the database
TERMINAL	Identifier of the user's terminal

<i>This Column</i>	<i>Represents This</i>
TIMESTAMP	Timestamp for the creation of the audit trail entry or login time for the CONNECT statement
OWNER	Creator of the object affected by the action
OBJ_NAME	Name of the object affected by the action
ACTION_NAME	Name of the action type corresponding to the numeric code in the ACTION column in DBA_AUDIT_TRAIL
NEW_OWNER	Owner of the object named in the NEW_NAME column
NEW_NAME	New name of an object after a RENAME or the name of the underlying object
SES_ACTIONS	Session summary (a string of 11 characters, one for each action type in the order ALTER, AUDIT, COMMENT, DELETE, GRANT, INDEX, INSERT, LOCK, RENAME, SELECT, and UPDATE. The characters are: – for none, S for success, F for failure, and B for both)
COMMENT_TEXT	Text comment on the audit trail, inserted by the application
SESSIONID	Numeric ID for each Oracle session
ENTRYID	Numeric ID for each audit trail entry in the session
STATEMENTID	Numeric ID for each statement run
RETURNCODE	Oracle Server message code generated by the action. Some useful values: zero the action succeeded 2004 security violation
PRIV_USED	System privilege used to execute the action

<i>This Column</i>	<i>Represents This</i>
OBJECT_LABEL	Optional Trusted Oracle7 Server label associated with the object being audited
SESSION_LABEL	Optional Trusted Oracle7 Server label associated with the session

DBA_AUDIT_SESSION

This view lists all audit trail records concerning CONNECT and DISCONNECT.

<i>This Column</i>	<i>Represents This</i>
OS_USERNAME	Operating system login username of the user whose actions were audited
USERNAME	Name (not ID number) of the user whose actions were audited
USERHOST	Numeric instance ID for the Oracle instance from which the user is accessing the database
TERMINAL	Identifier of the user's terminal
TIMESTAMP	Timestamp for the creation of the audit trail entry or login time for the CONNECT statement
ACTION_NAME	Name of the action type corresponding to the numeric code in the ACTION column in DBA_AUDIT_TRAIL
LOGOFF_TIME	Timestamp for user logoff
LOGOFF_LREAD	Logical reads for the session
LOGOFF_PREAD	Physical reads for the session
LOGOFF_LWRITE	Logical writes for the session
LOGOFF_DLOCK	Deadlocks detected during the session
SESSIONID	Numeric ID for each Oracle session

<i>This Column</i>	<i>Represents This</i>
RETURNCODE	Oracle Server message code generated by the action. Some useful values: zero the action succeeded 2004 security violation
SESSION_LABEL	Optional Trusted Oracle7 Server label associated with the session

DBA_AUDIT_STATEMENT

This view lists audit trail records concerning GRANT, REVOKE, AUDIT, NOAUDIT, and ALTER SYSTEM statements.

<i>This Column</i>	<i>Represents This</i>
OS_USERNAME	Operating system login username of the user whose actions were audited
USERNAME	Name (not ID number) of the user whose actions were audited
USERHOST	Numeric instance ID for the Oracle instance from which the user is accessing the database
TERMINAL	Identifier of the user's terminal
TIMESTAMP	Timestamp for the creation of the audit trail entry or login time for the CONNECT statement
OWNER	Creator of the object affected by the action
OBJ_NAME	Name of object affected by the action
ACTION_NAME	Name of the action type corresponding to the numeric code in the ACTION column in DBA_AUDIT_TRAIL
NEW_NAME	New name of an object after a RENAME or the name of the underlying object
OBJ_PRIVILEGE	Object privileges granted or revoked by a GRANT or REVOKE statement
SYS_PRIVILEGE	System privileges granted or revoked by a GRANT or REVOKE statement

<i>This Column</i>	<i>Represents This</i>
ADMIN_OPTION	Signifies the role or system privilege was granted with ADMIN option
GRANTEE	Name of grantee specified in a GRANT or REVOKE statement
AUDIT_OPTION	Auditing option set with the AUDIT statement
SES_ACTIONS	Session summary (a string of 11 characters, one for each action type in the order ALTER, AUDIT, COMMENT, DELETE, GRANT, INDEX, INSERT, LOCK, RENAME, SELECT, and UPDATE. The characters are: – for none, S for success, F for failure, and B for both)
COMMENT_TEXT	Text comment on the audit trail, inserted by the application
SESSIONID	Numeric ID for each Oracle session
ENTRYID	Numeric ID for each audit trail entry in the session
STATEMENTID	Numeric ID for each statement run
RETURNCODE	Oracle Server message code generated by the action. Some useful values: zero the action succeeded 2004 security violation
PRIV_USED	System privilege used to execute the action
SESSION_LABEL	Optional Trusted Oracle7 Server label associated with the session

DBA_AUDIT_TRAIL

This view lists all audit trail entries.

<i>This Column</i>	<i>Represents This</i>
OS_USERNAME	Operating system login username of the user whose actions were audited
USERNAME	Name (not ID number) of the user whose actions were audited

<i>This Column</i>	<i>Represents This</i>
USERHOST	Numeric instance ID for the Oracle instance from which the user is accessing the database
TERMINAL	Identifier of the user's terminal
TIMESTAMP	Timestamp for the creation of the audit trail entry or login time for the CONNECT statement
OWNER	Creator of the object affected by the action
OBJ_NAME	Name of the object affected by the action
ACTION	Numeric type code corresponding to the action
ACTION_NAME	Name of the action type corresponding to the numeric code in the ACTION column
NEW_OWNER	Owner of the object named in the NEW_NAME column
NEW_NAME	New name of an object after a RENAME or the name of the underlying object
OBJ_PRIVILEGE	Object privileges granted or revoked by a GRANT or REVOKE statement
SYS_PRIVILEGE	System privileges granted or revoked by a GRANT or REVOKE statement
ADMIN_OPTION	Signifies the role or system privilege was granted with ADMIN option
GRANTEE	Name of grantee specified in a GRANT or REVOKE statement
AUDIT_OPTION	Auditing option set with the AUDIT statement
SES_ACTIONS	Session summary (a string of 11 characters, one for each action type in the order ALTER, AUDIT, COMMENT, DELETE, GRANT, INDEX, INSERT, LOCK, RENAME, SELECT, and UPDATE. The characters are: – for none, S for success, F for failure, and B for both)
LOGOFF_TIME	Timestamp for user logoff

<i>This Column</i>	<i>Represents This</i>
LOGOFF_LREAD	Logical reads for the session
LOGOFF_PREAD	Physical reads for the session
LOGOFF_LWRITE	Logical writes for the session
LOGOFF_DLOCK	Deadlocks detected during the session
COMMENT_TEXT	Text comment on the audit trail entry, providing more information about the statement audited
SESSIONID	Numeric ID for each Oracle session
ENTRYID	Numeric ID for each audit trail entry in the session
STATEMENTID	Numeric ID for each statement run
RETURNCODE	Oracle Server message code generated by the action. Some useful values: zero the action succeeded 2004 security violation
PRIV_USED	System privilege used to execute the action
OBJECT_LABEL	Optional Trusted Oracle7 Server label associated with the object being audited
SESSION_LABEL	Optional Trusted Oracle7 Server label associated with the session

DBA_BLOCKERS

This view lists all sessions that have someone waiting on a lock they hold that are not themselves waiting on a lock.

<i>This Column</i>	<i>Represents This</i>
SESSION_ID	Session holding a lock

DBA_CATALOG

This view lists all database tables, views, synonyms, and sequences.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the object
TABLE_NAME	Name of the object
TABLE_TYPE	Type of the object

DBA_CLUSTERS

This view contains description of all clusters in the database.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the cluster
CLUSTER_NAME	Name of the tablespace containing the cluster
TABLESPACE_NAME	Name of the tablespace containing the cluster
PCT_FREE	Minimum percentage of free space in a block
PCT_USED	Minimum percentage of used space in a block
KEY_SIZE	Estimated size of cluster key plus associated rows
INI_TRANS	Initial number of transactions
MAX_TRANS	Maximum number of transactions
INITIAL_EXTENT	Size of the initial extent in bytes
NEXT_EXTENT	Size of secondary extents in bytes
MIN_EXTENTS	Minimum number of extents allowed in the segment
MAX_EXTENTS	Maximum number of extents allowed in the segment
PCT_INCREASE	Percentage increase in extent size
FREELISTS	Number of process freelists allocated to this segment
FREELIST_GROUPS	Number of freelist groups allocated to this segment

<i>This Column</i>	<i>Represents This</i>
AVG_BLOCKS_PER_KEY	Average number of blocks containing rows with a given cluster key
CLUSTER_TYPE	Type of cluster: b-tree index or hash
FUNCTION	If a hash cluster, the hash function
HASHKEYS	If a hash cluster, the number of hash keys (hash buckets)
DEGREE	The number of threads per instance for scanning the table
INSTANCES	The number of instances across which the table is to be scanned
CACHE	Whether the table is to be cached in the buffer cache

DBA_CLU_COLUMNS

This view lists mappings of table columns to cluster columns.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the cluster
CLUSTER_NAME	Cluster name
CLU_COLUMN_NAME	Key column in the cluster
TABLE_NAME	Clustered table name
TAB_COLUMN_NAME	Key column in the table

DBA_COL_COMMENTS

This view lists comments on columns of all tables and views.

<i>This Column</i>	<i>Represents This</i>
OWNER	Name of the owner of the object
TABLE_NAME	Name of the object
COLUMN_NAME	Name of the column
COMMENTS	Comment on the object

DBA_COL_PRIVS

This view lists all grants on columns in the database.

<i>This Column</i>	<i>Represents This</i>
GRANTEE	Name of the user to whom access was granted
OWNER	Username of the owner of the object
TABLE_NAME	Name of the object
COLUMN_NAME	Name of the column
GRANTOR	Name of the user who performed the grant
PRIVILEGE	Column privilege
GRANTABLE	Privilege is grantable

DBA_CONSTRAINTS

This view contains constraint definitions on all tables.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the table
CONSTRAINT_NAME	Name associated with constraint definition
CONSTRAINT_TYPE	Type of constraint definition
TABLE_NAME	Name associated with table with constraint definition
SEARCH_CONDITION	Text of search condition for table check
R_OWNER	Owner of table used in referential constraint
R_CONSTRAINT_NAME	Owner of table used in referential constraint
DELETE_RULE	The delete rule for a referential constraint
STATUS	Enforcement status of constraint: ENABLED or DISABLED

DBA_CONS_COLUMNS

This view contains information about accessible columns in constraint definitions.

<i>This Column</i>	<i>Represents This</i>
CONSTRAINT_NAME	Name associated with the constraint definition
TABLE_NAME	Name associated with table with constraint definition
COLUMN_NAME	Name associated with column specified in the constraint definition
POSITION	Original position of column in definition

DBA_DATA_FILES

This view contains information about database files.

<i>This Column</i>	<i>Represents This</i>
FILE_NAME	Name of the database file
FILE_ID	ID of the database file
TABLESPACE_NAME	Name of the tablespace to which the file belongs
BYTES	Size of the file in bytes
BLOCKS	Size of the file in Oracle blocks
STATUS	File status: AVAILABLE or INVALID (INVALID means that the file number is not in use, for example, a file in a tablespace that was dropped)

DBA_DB_LINKS

This view lists all database links in the database.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the database link
DB_LINK	Name of the database link
USERNAME	Name of user to log in as

<i>This Column</i>	<i>Represents This</i>
HOST	SQL*Net string for connect
CREATED	Creation time of the database link

DBA_DDL_LOCKS

This view lists all DDL locks held in the database and all outstanding requests for a DDL lock.

<i>This Column</i>	<i>Represents This</i>
SESSION_ID	Session identifier
OWNER	Owner of the lock
NAME	Name of the lock
TYPE	Lock type: Cursor, Table/Procedure, Body, Trigger, Index, Cluster
MODE_HELD	Lock mode: None, Null, Share, Exclusive
MODE_REQUESTED	Lock request type: None, Null, Share, Exclusive

DBA_DEPENDENCIES

This view lists dependencies to and from objects.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the object
NAME	Name of the object
TYPE	Type of the object
REFERENCED_OWNER	Owner of referenced object (remote owner if remote object)
REFERENCED_NAME	Name of referenced object
REFERENCED_TYPE	Type of referenced object
REFERENCED_LINK_NAME	Name of dblink if this is a remote object

DBA_DML_LOCKS

This view lists all DML locks held in the database and all outstanding requests for a DML lock.

<i>This Column</i>	<i>Represents This</i>
SESSION_ID	Session holding or acquiring the lock
OWNER	Owner of the lock
NAME	Name of the lock
MODE_HELD	Lock mode: see Table 2 – 1
MODE_REQUESTED	Lock request type: see Table 2 – 1

The following table describes DML lock mode values that are valid for the MODE_HELD column.

Lock Mode	Description
ROW-S (SS)	Row share
ROW-X (SX)	Row exclusive
SHARE	Share
S/ROW-X (SSX)	Share row exclusive
EXCLUSIVE	Exclusive
NONE	MODE_HELD: Lock requested, not yet obtained MODE_REQUESTED: Lock identifier obtained, lock not held or requested

Table 2 – 1 DML Lock Modes

DBA_FREE_SPACE_COALESCED

This view contains statistics on coalesced space in tablespaces.

<i>This Column</i>	<i>Datatype</i>	<i>Null?</i>	<i>Represents This</i>
TABLESPACE_NAME	VARCHAR2(30)	not null	Name of tablespace
TOTAL_EXTENTS	NUMBER		Total number of free extents in tablespace
EXTENTS_COALESCED	NUMBER		Total number of coalesced free extents in tablespace
PERCENT_EXTENTS_COALESCED	NUMBER		Percentage of coalesced free extents in tablespace
TOTAL_BYTES	NUMBER		Total number of free bytes in tablespace

<i>This Column</i>	<i>Datatype</i>	<i>Null?</i>	<i>Represents This</i>
BYTES_COALESCED	NUMBER		Total number of coalesced free bytes in tablespace
TOTAL_BLOCKS	NUMBER		Total number of free Oracle blocks in tablespace
BLOCKS_COALESCED	NUMBER		Total number of coalesced free Oracle blocks in tablespace
PERCENT_BLOCKS_COALESCED	NUMBER		Percentage of coalesced free Oracle blocks in tablespace

DBA_ERRORS

This view lists current errors on all stored objects in the database.

<i>This Column</i>	<i>Represents This</i>
OWNER	The owner of the object
NAME	Name of the object
TYPE	Type of object: VIEW, PROCEDURE, FUNCTION, PACKAGE, or PACKAGE BODY
SEQUENCE	Sequence number used for ordering purposes
LINE	Line number at which this error occurs
POSITION	Position in the line at which this error occurs
TEXT	Text of the error

DBA_EXP_FILES

This view contains a description of export files.

<i>This Column</i>	<i>Represents This</i>
EXP_VERSION	Version number of the export session
EXP_TYPE	Type of export file: full, cumulative, or incremental
FILE_NAME	Name of the export file
USER_NAME	Name of user who executed export
TIMESTAMP	Timestamp of the export session

DBA_EXP_OBJECTS

This view lists objects that have been incrementally exported.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of exported object
OBJECT_NAME	Name of exported object
OBJECT_TYPE	Type of exported object
CUMULATIVE	Timestamp of last cumulative export
INCREMENTAL	Timestamp of last incremental export
EXPORT_VERSION	The ID of the export session

DBA_EXP_VERSION

This view contains the version number of the last export session.

<i>This Column</i>	<i>Represents This</i>
EXP_VERSION	Version number of the last export session

DBA_EXTENTS

This view lists the extents comprising all segments in the database.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the segment associated with the extent
SEGMENT_NAME	Name of the segment associated with the extent
SEGMENT_TYPE	Type of the segment
TABLESPACE_NAME	Name of the tablespace containing the extent
EXTENT_ID	Extent number in the segment
FILE_ID	Name of the file containing the extent
BLOCK_ID	Starting block number of the extent
BYTES	Size of the extent in bytes
BLOCKS	Size of the extent in Oracle blocks

DBA_FREE_SPACE

This view lists the free extents in all tablespaces.

<i>This Column</i>	<i>Represents This</i>
TABSPACE_NAME	Name of the tablespace containing the extent
FILE_ID	ID number of the file containing the extent
BLOCK_ID	Starting block number of the extent
BYTES	Size of the extent in bytes
BLOCKS	Size of the extent in Oracle blocks

DBA_HISTOGRAMS

This view lists histograms on columns of all tables.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
OWNER	VARCHAR2(30)	Owner of table
TABLE_NAME	VARCHAR2(30)	Table name
COLUMN_NAME	VARCHAR2(30)	Column name
BUCKET_NUMBER	NUMBER	Bucket number
ENDPOINT_VALUE	NUMBER	Normalized endpoint values for this bucket

DBA_INDEXES

This view contains descriptions for all indexes in the database. To gather statistics for this view, use the SQL command ANALYZE.

<i>This Column</i>	<i>Represents This</i>
AVG_LEAF_BLOCKS_PER_KEY	The average number of leaf blocks per key
AVG_DATA_BLOCKS_PER_KEY	The average number of data blocks per key
CLUSTERING_FACTOR	A measurement of the amount of (dis)order of the table this index is for
STATUS	Whether index is in Direct Load State
OWNER	Username of the owner of the index

<i>This Column</i>	<i>Represents This</i>
INDEX_NAME	Name of the index
TABLE_OWNER	Owner of the indexed object
TABLE_NAME	Name of the indexed object
TABLE_TYPE	Type of the indexed object
UNIQUENESS	Uniqueness status of the index: UNIQUE or NONUNIQUE
TABLESPACE_NAME	Name of the tablespace containing the index
INI_TRANS	Initial number of transactions
MAX_TRANS	Maximum number of transactions
INITIAL_EXTENT	Size of the initial extent
NEXT_EXTENT	Size of secondary extents
MIN_EXTENTS	Minimum number of extents allowed in the segment
PCT_INCREASE	Percentage increase in extent size
FREELISTS	Number of process freelists allocated to this segment
PCT_FREE	Minimum percentage of free space in a block
BLEVEL	B-Tree level: depth of the index from its root block to its leaf blocks. A depth of 0 indicates that the root block and leaf block are the same.
LEAF_BLOCKS	The number of leaf blocks in the index
DISTINCT_KEYS	The number of distinct keys in the index

DBA_IND_COLUMNS

This view contains descriptions of the columns comprising the indexes on all tables and clusters.

<i>This Column</i>	<i>Represents This</i>
INDEX_OWNER	Index owner
INDEX_NAME	Index name
TABLE_OWNER	Table or cluster owner

<i>This Column</i>	<i>Represents This</i>
TABLE_NAME	Table or cluster name
COLUMN_NAME	Column name
COLUMN_POSITION	Position of column within index
COLUMN_LENGTH	Indexed length of the column

DBA_JOBS

This view lists all jobs in the database.

For more information, see the *Oracle7 Server Administrator's Guide*.

<i>This Column</i>	<i>Represents This</i>
JOB	Identifier of job. Neither import/export nor repeated executions change it.
LOG_USER	USER who was logged in when the job was submitted
PRIV_USER	USER whose default privileges apply to this job
SCHEMA_USER	Default schema used to parse the job For example, if the SCHEMA_USER is SCOTT and you submit the procedure HIRE_EMP as a job, Oracle looks for SCOTT.HIRE_EMP.
LAST_DATE	Date that this job last successfully executed
LAST_SEC	Same as LAST_DATE. This is when the last successful execution started.
THIS_DATE	Date that this job started executing (usually null if not executing)
THIS_SEC	Same as THIS_DATE. This is when the last successful execution started.
NEXT_DATE	Date that this job will next be executed
NEXT_SEC	Same as NEXT_DATE. The job becomes due for execution at this time.
TOTAL_TIME	Total wallclock time spent by the system on this job, in seconds
BROKEN	If Y, no attempt is made to run this job. See DBMS_JOBQ.BROKEN (JOB).

<i>This Column</i>	<i>Represents This</i>
INTERVAL	A date function, evaluated at the start of execution, becomes next NEXT_DATE
FAILURES	How many times has this job started and failed since its last success?
WHAT	Body of the anonymous PL/SQL block that this job executes
CURRENT_SESSION_LABEL	Trusted Oracle7 Server label of the current session as seen by the job. Applies to Trusted Oracle7 Server only.
CLEARANCE_HI	Highest level of clearance available to the job. Applies to Trusted Oracle7 Server only.
CLEARANCE_LO	Lowest level of clearance available to the job. Applies to Trusted Oracle7 Server only.
NLS_ENV	ALTER SESSION parameters describing the NLS environment of the job
MISC_ENV	Other session parameters that apply to this job

DBA_JOBS_RUNNING

This view lists all jobs in the database that are currently running. This view joins V\$LOCK and JOB\$.

<i>This Column</i>	<i>Represents This</i>
SID	Identifier of process that is executing the job. See V\$LOCK on page NO TAG.
JOB	Identifier of job. This job is currently executing.
FAILURES	How many times has this job started and failed since its last success?
LAST_DATE	Date that this job last successfully executed
LAST_SEC	Same as LAST_DATE. This is when the last successful execution started.

<i>This Column</i>	<i>Represents This</i>
THIS_DATE	Date that this job started executing (usually null if not executing)
THIS_SEC	Same as THIS_DATE. This is when the last successful execution started.

DBA_LOCKS

This view lists all locks or latches held in the database, and all outstanding requests for a lock or latch.

<i>This Column</i>	<i>Represents This</i>
SESSION_ID	Session holding or acquiring the lock
TYPE	Lock type
MODE HELD	Lock mode
MODE REQUESTED	Lock mode requested
LOCK_ID1	Type-specific lock identifier, part 1
LOCK_ID2	Type-specific lock identifier, part 2
DEGREE	The number of threads per instance for scanning the cluster
INSTANCES	The number of instances across which the cluster is to be scanned
CACHE	Whether the cluster is to be cached in the buffer cache

DBA_OBJECTS

This view lists all objects in the database.

<i>This Column</i>	<i>Represents This</i>
OWNER	Username of the owner of the object
OBJECT_NAME	Name of the object
OBJECT_ID	Object number of the object
OBJECT_TYPE	Type of the object
CREATED	Timestamp for the creation of the object

<i>This Column</i>	<i>Represents This</i>
LAST_DDL_TIME	Timestamp for the last DDL change (including GRANT and REVOKE) to the object
TIMESTAMP	Timestamp for the specification of the object
STATUS	Status of the object

DBA_OBJECT_SIZE

This view lists the sizes, in bytes, of various PL/SQL objects.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the object
NAME	Name of the object
TYPE	Type of the object: TABLE, VIEW, SYNONYM, SEQUENCE, PROCEDURE, FUNCTION, PACKAGE, or PACKAGE BODY
SOURCE_SIZE	Size of the source in bytes
PARSED_SIZE	Size of the parsed form of the object in bytes
CODE_SIZE	Code size in bytes
ERROR_SIZE	Size of error messages in bytes

DBA_OBJ_AUDIT_OPTS

This view lists auditing options for all tables and views.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the object
OBJECT_NAME	Name of the object
OBJECT_TYPE	Type of the object
ALT	Auditing ALTER WHENEVER SUCCESSFUL / UNSUCCESSFUL
AUD	Auditing AUDIT WHENEVER SUCCESSFUL / UNSUCCESSFUL
COM	Auditing COMMENT WHENEVER SUCCESSFUL / UNSUCCESSFUL

<i>This Column</i>	<i>Represents This</i>
DEL	Auditing DELETE WHENEVER SUCCESSFUL / UNSUCCESSFUL
GRA	Auditing GRANT WHENEVER SUCCESSFUL / UNSUCCESSFUL
IND	Auditing INDEX WHENEVER SUCCESSFUL / UNSUCCESSFUL
INS	Auditing INSERT WHENEVER SUCCESSFUL / UNSUCCESSFUL
LOC	Auditing LOCK WHENEVER SUCCESSFUL / UNSUCCESSFUL
REN	Auditing RENAME WHENEVER SUCCESSFUL / UNSUCCESSFUL
SEL	Auditing SELECT WHENEVER SUCCESSFUL / UNSUCCESSFUL
UPD	Auditing UPDATE WHENEVER SUCCESSFUL / UNSUCCESSFUL
REF	Auditing REFERENCE WHENEVER SUCCESSFUL / UNSUCCESSFUL (not used)
EXE	Auditing EXE WHENEVER SUCCESSFUL / UNSUCCESSFUL

DBA_PRIV_AUDIT_OPTS

This view describes current system privileges being audited across the system and by user.

<i>This Column</i>	<i>Represents This</i>
USER_NAME	User name if by user auditing, else null for system-wide auditing
PRIVILEGE	Name of the system privilege being audited
SUCCESS	Mode for WHENEVER SUCCESSFUL system auditing
FAILURE	Mode for WHENEVER NOT SUCCESSFUL system auditing

DBA_PROFILES

This view displays all profiles and their limits.

<i>This Column</i>	<i>Represents This</i>
PROFILE	Profile name
RESOURCE_NAME	Resource name
LIMIT	Limit placed on this resource for this profile

DBA_RCHILD

This view lists all the children in any refresh group.

<i>This Column</i>	<i>Represents This</i>
REFGROUP	Internal identifier of refresh group
OWNER	Owner of the object in the refresh group
NAME	Name of the object in the refresh group
TYPE	Type of the object in the refresh group

DBA_REFRESH

This view lists all the refresh groups.

<i>This Column</i>	<i>Represents This</i>
ROWNER	Name of the owner of the refresh group
RNAME	Name of the refresh group
REFGROUP	Internal identifier of refresh group
IMPLICIT_DESTROY	Y or N; if Y, then destroy the refresh group when its last item is removed
JOB	Identifier of job used to refresh the group automatically
NEXT_DATE	Date that this job will next be re-freshed automatically, if not broken

<i>This Column</i>	<i>Represents This</i>
INTERVAL	A date function used to compute the next NEXT_DATE
BROKEN	Y or N; Y means the job is broken and will never be run

DBA_REFRESH_CHILDREN

This view lists all the objects in refresh groups.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the object in the refresh group
NAME	Name of the object in the refresh group
TYPE	Type of the object in the refresh group
ROWNER	Name of the owner of the refresh group
RNAME	Name of the refresh group
REFGROUP	Internal identifier of refresh group
IMPLICIT_DESTROY	Y or N; if Y, then destroy the refresh group when its last item is removed
JOB	Identifier of job used to refresh the group automatically
NEXT_DATE	Date that this job will next be re-freshed automatically, if not broken
INTERVAL	A date function used to compute the next NEXT_DATE
BROKEN	Y or N; Y means the job is broken and will never be run

DBA_RGROUP

This view lists all refresh groups. This view is not a join.

<i>This Column</i>	<i>Represents This</i>
REFGROUP	Internal identifier of refresh group
OWNER	Owner of the object in the refresh group

<i>This Column</i>	<i>Represents This</i>
NAME	Name of the object in the refresh group
IMPLICIT_DESTROY	Y or N; if Y, then destroy the refresh group when its last item is removed
JOB	Identifier of job used to refresh the group automatically

DBA_ROLES

This view lists all roles that exist in the database.

<i>This Column</i>	<i>Represents This</i>
ROLE	Role name
PASSWORD_REQUIRED	Indicates if the role requires a password to be enabled

DBA_ROLE_PRIVS

This view lists roles granted to users and roles.

<i>This Column</i>	<i>Represents This</i>
GRANTEE	Grantee name, user or role receiving the grant
GRANTED_ROLE	Granted role name
ADMIN_OPTION	Grant was with the ADMIN option: YES/NO
DEFAULT_ROLE	Role is designated as a DEFAULT ROLE for the user: YES/NO

DBA_ROLLBACK_SEGS

This view contains descriptions of rollback segments.

<i>This Column</i>	<i>Represents This</i>
SEGMENT_NAME	Name of the rollback segment
OWNER	Owner of the rollback segment
TABLESPACE_NAME	Name of the tablespace containing the rollback segment
SEGMENT_ID	ID number of the rollback segment

<i>This Column</i>	<i>Represents This</i>
FILE_ID	ID number of the file containing the segment head
BLOCK_ID	ID number of the block containing the segment header
INITIAL_EXTENT	Initial extent size in bytes
NEXT_EXTENT	Secondary extent size in bytes
MIN_EXTENTS	Minimum number of extents
MAX_EXTENTS	Maximum number of extent
PCT_INCREASE	Percent increase for extent size
STATUS	Rollback segment status
INSTANCE_NUM	Rollback segment owning parallel server instance number

DBA_SEGMENTS

This view contains information about storage allocated for all database segments.

<i>This Column</i>	<i>Represents This</i>
OWNER	Username of the segment owner
SEGMENT_NAME	Name, if any, of the segment
SEGMENT_TYPE	Type of segment: TABLE, CLUSTER, INDEX, ROLLBACK, DEFERRED ROLLBACK, TEMPORARY, or CACHE
TABLESPACE_NAME	Name of the tablespace containing the segment
HEADER_FILE	ID of the file containing the segment header
HEADER_BLOCK	ID of the block containing the segment header
BYTES	Size in bytes, of the segment
BLOCKS	Size, in Oracle blocks, of the segment
EXTENTS	Number of extents allocated to the segment
INITIAL_EXTENT	Size in bytes of the initial extent of the segment

<i>This Column</i>	<i>Represents This</i>
NEXT_EXTENT	Size in bytes of the next extent to be allocated to the segment
MIN_EXTENTS	Minimum number of extents allowed in the segment
MAX_EXTENTS	Maximum number of extents allowed in the segment
PCT_INCREASE	Percent by which to increase the size of the next extent to be allocated
FREELISTS	Number of process freelists allocated to this segment
FREELIST_GROUPS	Number of freelist groups allocated to this segment

DBA_SEQUENCES

This view contains descriptions of all SEQUENCES in the database.

<i>This Column</i>	<i>Represents This</i>
SEQUENCE_OWNER	Name of the owner of the sequence
SEQUENCE_NAME	Sequence name
MIN_VALUE	Minimum value of the sequence
MAX_VALUE	Maximum value of the sequence
INCREMENT_BY	Value by which sequence is incremented
CYCLE_FLAG	Does sequence wrap around on reaching limit?
ORDER_FLAG	Are sequence numbers generated in order?
CACHE_SIZE	Number of sequence numbers to cache
LAST_NUMBER	Last sequence number written to disk

DBA_SNAPSHOTS

This view lists all snapshots in the database.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the snapshot
NAME	The view used by users and applications for viewing the snapshot
TABLE_NAME	Table the snapshot is stored in; has an extra column for the master rowid
MASTER_VIEW	View of the master table, owned by the snapshot owner, used for refreshes
MASTER_OWNER	Owner of the master table
MASTER	Name of the master table of which this snapshot is a copy
MASTER_LINK	Database link name to the master site
CAN_USE_LOG	If NO, this snapshot is complex and will never use a log
UPDATABLE	If NO, the snapshot is read only
LAST_REFRESH	SYSDATE from the master site at the time of the last refresh
ERROR	The number of failed automatic refreshes since last successful refresh
TYPE	The type of refresh (complete, fast, force) for all automatic refreshes
NEXT	The date function used to compute next refresh dates
START_WITH	The date function used to compute next refresh dates
REFRESH_GROUP	All snapshots in a given refresh group get refreshed in the same transaction
UPDATE_TRIG	The name of the trigger that fills the UPDATE_LOG
UPDATE_LOG	The table that logs changes made to an updatable snapshots
QUERY	The original query of which this snapshot is an instantiation

DBA_SNAPSHOT_LOGS

This view lists all snapshot logs in the database.

<i>This Column</i>	<i>Represents This</i>
LOG_OWNER	Owner of the snapshot log
MASTER	Name of the master table of which the log logs changes
LOG_TABLE	Log table; holds rowids and time-stamps of rows that changed in the master
LOG_TRIGGER	An after-row trigger on the master which inserts rows into the log
CURRENT_SNAPSHOTS	One date per snapshot; the date the snapshot of the master last refreshed

DBA_SOURCE

This view contains source of all stored objects in the database.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the object
NAME	Name of the object
TYPE	Type of the object: PROCEDURE, FUNCTION, PACKAGE, or PACKAGE BODY
LINE	Line number of this line of source
TEXT	Source text

DBA_STMT_AUDIT_OPTS

This view contains information which describes current system auditing options across the system and by user.

<i>This Column</i>	<i>Represents This</i>
USER_NAME	User name if by user auditing, else null for system-wide auditing
AUDIT_OPTION	Name of the system auditing option

<i>This Column</i>	<i>Represents This</i>
SUCCESS	Mode for WHENEVER SUCCESSFUL system auditing
FAILURE	Mode for WHENEVER NOT SUCCESSFUL system auditing

DBA_SYNONYMS

This view lists all synonyms in the database.

<i>This Column</i>	<i>Represents This</i>
OWNER	Username of the owner of the synonym
SYNONYM_NAME	Name of the synonym
TABLE_OWNER	Owner of the object referenced by the synonym
TABLE_NAME	Name of the object referenced by the synonym
DB_LINK	Name of the database link referenced in a remote synonym

DBA_SYS_PRIVS

This view lists system privileges granted to users and roles.

<i>This Column</i>	<i>Represents This</i>
GRANTEE	Grantee name, user, or role receiving the grant
PRIVILEGE	System privilege
ADMIN_OPTION	Grant was with the ADMIN option

DBA_TABLES

This view contains descriptions of all tables in the database. To gather statistics for this view, use the SQL command ANALYZE.

<i>This Column</i>	<i>Represents This</i>
EMPTY_BLOCKS	The number of empty (never used) data blocks in the table
AVG_SPACE	The average available free space in the table
CHAIN_CNT	The number of chained rows in the table
AVG_ROW_LEN	The average row length, including row overhead
DEGREE	The number of threads per instance for scanning the table
INSTANCES	The number of instances across which the table is to be scanned
CACHE	Whether the table is to be cached in the buffer cache
OWNER	Owner of the table
TABLE_NAME	Name of the table
TABLESPACE_NAME	Name of the tablespace containing the table
CLUSTER_NAME	Name of the cluster, if any, to which the table belongs
PCT_FREE	Minimum percentage of free space in a block
PCT_USED	Minimum percentage of used space in a block
INI_TRANS	Initial number of transactions
MAX_TRANS	Maximum number of transactions
INITIAL_EXTENT	Size of the initial extent in bytes
NEXT_EXTENT	Size of secondary extents in bytes
MIN_EXTENTS	Minimum number of extents allowed in the segment
MAX_EXTENTS	Maximum number of extents allowed in the segment
PCT_INCREASE	Percentage increase in extent size

<i>This Column</i>	<i>Represents This</i>
FREELISTS	Number of process freelists allocated to this segment
FREELIST_GROUPS	Number of freelist groups allocated to this segment
BACKED_UP	Has table been backed up since last modification?
NUM_ROWS	The number of rows in the table
BLOCKS	The number of used data blocks in the table

DBA_TABLESPACES

This view contains descriptions of all tablespaces.

<i>This Column</i>	<i>Represents This</i>
TABLESPACE_NAME	Tablespace name
INITIAL_EXTENT	Default initial extent size
NEXT_EXTENT	Default incremental extent size
MIN_EXTENTS	Default minimum number of extents
MAX_EXTENTS	Default maximum number of extents
PCT_INCREASE	Default percent increase for extent size
STATUS	Tablespace status: ONLINE, OFFLINE, or READ ONLY

DBA_TAB_COLUMNS

This view contains information which describes columns of all tables, views, and clusters. To gather statistics for this view, use the SQL command ANALYZE.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the table, view, or cluster
TABLE_NAME	Table, view, or cluster name
COLUMN_NAME	Column name
DATA_TYPE	Datatype of the column
DATA_LENGTH	Length of the column in bytes

<i>This Column</i>	<i>Represents This</i>
DATA_PRECISION	Decimal precision for NUMBER data-type; binary precision for FLOAT data-type; NULL for all other datatypes
DATA_SCALE	Digits to right of decimal point in a number
NULLABLE	Does column allow NULL values?
COLUMN_ID	Sequence number of the column as created
DEFAULT_LENGTH	Length of default value for the column
NUM_DISTINCT	The number of distinct values for the column
LOW_VALUE	The smallest value for the column, expressed in hexadecimal notation for the internal representation of the first 32 bytes of the value
HIGH_VALUE	The highest value for the column, expressed in hexadecimal notation for the internal representation of the first 32 bytes of the value
DENSITY	The density of the column (a measure of how distinct the values are). The density is calculated as the sum of <i>occurrences</i> ² / <i>elements_sampled</i> ² for each distinct value in the column.

DBA_TAB_COMMENTS

This view contains comments on all tables and views in the database.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the object
TABLE_NAME	Name of the object
TABLE_TYPE	Type of the object
COMMENTS	Comment on the object

DBA_TAB_PRIVS

This view lists all grants on objects in the database.

<i>This Column</i>	<i>Represents This</i>
GRANTEE	User to whom access was granted
OWNER	Owner of the object
TABLE_NAME	Name of the object
GRANTOR	Name of the user who performed the grant
PRIVILEGE	Table Privilege
GRANTABLE	Privilege is grantable

DBA_TRIGGERS

This view lists all triggers in the database.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the trigger
TRIGGER_NAME	Name of the trigger
TRIGGER_TYPE	When the trigger fires: BEFORE EACH ROW, AFTER EACH ROW, BEFORE STATEMENT, AFTER STATEMENT
TRIGGERING_EVENT	Statement that will fire the trigger: INSERT, UPDATE and/or DELETE
TABLE_OWNER	Owner of the table with which this trigger is associated
REFERENCING_NAMES	Names used for referencing OLD and NEW values within the trigger
WHEN_CLAUSE	WHEN clause must evaluate to true in order for triggering body to execute
STATUS	If DISABLED, then trigger will not fire
DESCRIPTION	Trigger description, useful for re-creating trigger creation statement
TRIGGER_BODY	Action taken by this trigger when it fires

DBA_TRIGGER_COLS

This view lists column usage in all triggers.

<i>This Column</i>	<i>Represents This</i>
TRIGGER_OWNER	Owner of the trigger
TRIGGER_NAME	Name of the trigger
TABLE_OWNER	Owner of the table
TABLE_NAME	Name of the table on which the trigger is defined
COLUMN_NAME	Name of the column used in trigger definition
COLUMN_LIST	Is column specified in UPDATE OF clause?
COLUMN_USAGE	Usage of column within trigger body

DBA_TS_QUOTAS

This view lists tablespace quotas for all users.

<i>This Column</i>	<i>Represents This</i>
TABLESPACE_NAME	Tablespace name
USERNAME	User with resource rights on the tablespace
BYTES	Number of bytes charged to the user
MAX_BYTES	User's quota in bytes, or -1 if no limit.
BLOCKS	Number of Oracle blocks charged to the user
MAX_BLOCKS	User's quota in Oracle blocks, or -1 if no limit.

DBA_UPDATABLE_COLUMNS

This view contains a description of columns that are updatable by the database administrator in a join view.

See *Oracle7 Server Concepts* for information on updatable join views.

<i>This Column</i>	<i>Datatype</i>	<i>Null?</i>	<i>Represents This</i>
OWNER	VARCHAR2(30)	not null	Table owner
TABLE_NAME	VARCHAR2(30)	not null	Table name
COLUMN_NAME	VARCHAR2(30)	not null	Column name
UPDATABLE	VARCHAR2(3)		Is the column updatable?

DBA_USERS

This view lists information about all users of the database.

<i>This Column</i>	<i>Represents This</i>
USERNAME	Name of the user
USER_ID	ID number of the user
PASSWORD	Encrypted password
DEFAULT_TABLESPACE	Default tablespace for data
TEMPORARY_TABLESPACE	Default tablespace for temporary table
CREATED	User creation date
PROFILE	User resource profile name

DBA_VIEWS

This view contains the text of all views in the database.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the view
VIEW_NAME	Name of the view
TEXT_LENGTH	Length of the view text
TEXT	View text

DBMS_ALERT_INFO

This view lists registered alerts.

<i>This Column</i>	<i>Represents This</i>
NAME	Name of the alert
SID	Session ID of a session waiting for this alert
CHANGED	Boolean flag to indicate that an alert has been signaled. Y: Alert signaled N: No alert.
MESSAGE	Optional message passed by signaler

DBMS_LOCK_ALLOCATED

This view lists user-allocated locks.

<i>This Column</i>	<i>Represents This</i>
NAME	Name of the lock
LOCKID	Lock identifier number
EXPIRATION	Planned lock expiration date (updates whenever the allocation procedure is run)

DEFCALL

This view contains information on deferred remote procedure calls.

<i>This Column</i>	<i>Datatype</i>	<i>Null?</i>	<i>Represents This</i>
CALLNO	NUMBER	not null	UID of call, orders calls in transaction
DEFERRED_TRAN_DB	VARCHAR2(128)	not null	Origin DB
DEFERRED_TRAN_ID	VARCHAR2(22)	not null	Transaction ID
GROUPNAME	VARCHAR2(30)		Group name
SCHEMANAME	VARCHAR2(30)		Schema name
PACKAGENAME	VARCHAR2(30)		Package name
PROCNAME	VARCHAR2(30)		Procedure name
ARGCOUNT	NUMBER		Number of arguments

DEPTREE

This view, created by DEPTREE.SQL, contains information on the object dependency tree. For user SYS, this view shows shared cursors (and only shared cursors) that depend on the object. For all other users, it shows objects other than shared cursors. Other users may access SYS.DEPTREE for information on shared cursors.

<i>This Column</i>	<i>Represents This</i>
NESTED_LEVEL	Nesting level in the dependency tree
TYPE	Object type
OWNER	Object owner
NAME	Object name
SEQ#	Sequence number in the dependency tree. Used for ordering queries. (See also: the IDEPTREE view on page 2 – 64.)

DICT

This is a synonym for DICTIONARY.

DICTIONARY

This view contains descriptions of data dictionary tables and views.

<i>This Column</i>	<i>Represents This</i>
TABLE_NAME	Name of the object
COMMENTS	Text comment on the object

DICT_COLUMNS

This view contains descriptions of columns in data dictionary tables and views.

<i>This Column</i>	<i>Represents This</i>
TABLE_NAME	Name of the object that contains the column
COLUMN_NAME	Name of the column
COMMENTS	Text comment on the column

ERROR_SIZE

This view is accessed to create the ALL_OBJECT_SIZE, DBA_OBJECT_SIZE, and USER_OBJECT_SIZE views.

EXCEPTIONS

This view contains information on violations of integrity constraints.

<i>This Column</i>	<i>Represents This</i>
ROW_ID	Row that caused the violation
OWNER	Owner of the table
TABLE_NAME	Name of the table
CONSTRAINT	Integrity constraint that was violated

FILE_LOCK

This is a Parallel Server view.

This view shows the mapping of PCM locks to datafiles as specified in initialization parameter GC_FILES_TO_LOCKS.

<i>This Column</i>	<i>Represents This</i>
FILE_ID	Datafile identifier number (to find file name, query DBA_DATA_FILES or V\$DBFILES)
FILE_NAME	The datafile name
TS_NAME	The tablespace name for the datafile
START_LK	The first lock corresponding to the datafile
NLOCKS	The number of PCM locks allocated to the datafile
BLOCKING	The number of blocks protected by a PCM lock on the datafile

For more information, see *Oracle7 Parallel Server Concepts & Administration*.

FILE_PING

This is a Parallel Server view.

This view shows the number of blocks pinged per datafile. You can use this information to determine access usage of existing datafiles for better settings of GC_FILES_TO_LOCKS.

<i>This Column</i>	<i>Represents This</i>
FILE_ID	Datafile identifier number (to find file name, query DBA_DATA_FILES or V\$DBFILES)
FILE_NAME	The datafile name
TS_NAME	The tablespace name for the datafile
FREQUENCY	The ping count.

For more information, see *Oracle7 Parallel Server Concepts & Administration*.

GLOBAL_NAME

This view contains one row that shows the global name of the current database.

<i>This Column</i>	<i>Represents This</i>
GLOBAL_NAME	Global name of the database

IDEPTREE

This view, created by DEPTREE.SQL, lists the indented dependency tree. It is a pre-sorted, pretty-print version of DEPTREE.

<i>This Column</i>	<i>Represents This</i>
NESTED_LEVEL	Nesting level in the dependency tree
TYPE	Object type
OWNER	Object owner
NAME	Object name

IND

This is a synonym for USER_INDEXES.

INDEX_HISTOGRAM

This view contains information from the VALIDATE INDEX command.

<i>This Column</i>	<i>Represents This</i>
REPEAT_COUNT	Number of times that one or more index keys is repeated in the table
KEYS_WITH_REPEAT_COUNT	Number of index keys that are repeated that many times

INDEX_STATS

This view stores information from the last VALIDATE INDEX command.

<i>This Column</i>	<i>Represents This</i>
HEIGHT	Height of the B-tree
BLOCKS	Blocks allocated to the segment
NAME	Name of the index
LF_ROWS	Number of leaf rows (values in the index)
LF_BLKs	Number of leaf blocks in the B-tree
LF_ROWS_LEN	Sum of the lengths of all the leaf rows
LF_BLK_LEN	Usable space in a leaf block
BR_ROWS	Number of branch rows in the B-tree
BR_BLKs	Number of branch blocks in the B-tree
BR_ROWS_LEN	Sum of the lengths of all the branch blocks in the B-tree
BR_BLK_LEN	Usable space in a branch block
DEL_LF_ROWS	Number of deleted leaf rows in the index
DEL_LF_ROWS_LEN	Total length of all deleted rows in the index
DISTINCT_KEYS	Number of distinct keys in the index (may include rows that have been deleted)
MOST_REPEATED_KEY	How many times the most repeated key is repeated (may include rows that have been deleted)

<i>This Column</i>	<i>Represents This</i>
BTREE_SPACE	Total space currently allocated in the B-tree
USED_SPACE	Total space that is currently being used in the B-tree
PCT_USED	Percent of space allocated in the B-tree that is being used
ROWS_PER_KEY	Average number of rows per distinct key (this figure is calculated without consideration of deleted rows)
BLKS_GETS_PER_ACCESS	Expected number of consistent mode block reads per row, assuming that a randomly chosen row is accessed using the index. Used to calculate the number of consistent reads that will occur during an index scan.

LOADER_COL_INFO

This is a SQL*LOADER view used for direct loads.

For more information, see *Oracle7 Server Utilities*.

LOADER_CONSTRAINT_INFO

This is a SQL*LOADER view used for direct loads.

For more information, see *Oracle7 Server Utilities*.

LOADER_FILE_TS

This is a SQL*LOADER view used for direct loads.

For more information, see *Oracle7 Server Utilities*.

LOADER_INDCOL_INFO

This is a SQL*LOADER view used for direct loads.

For more information, see *Oracle7 Server Utilities*.

LOADER_IND_INFO

This is a SQL*LOADER view used for direct loads.
For more information, see *Oracle7 Server Utilities*.

LOADER_PARAM_INFO

This is a SQL*LOADER view used for direct loads.
For more information, see *Oracle7 Server Utilities*.

LOADER_TAB_INFO

This is a SQL*LOADER view used for direct loads.
For more information, see *Oracle7 Server Utilities*.

LOADER_TRIGGER_INFO

This is a SQL*LOADER view used for direct loads.
For more information, see *Oracle7 Server Utilities*.

NLS_DATABASE_PARAMETERS

This view lists permanent NLS parameters of the database.

<i>This Column</i>	<i>Represents This</i>
PARAMETER	Parameter name
VALUE	Parameter value

NLS_INSTANCE_PARAMETERS

This view lists NLS parameters of the instance.

<i>This Column</i>	<i>Represents This</i>
PARAMETER	Parameter name
VALUE	Parameter value

NLS_SESSION_PARAMETERS

This view lists NLS parameters of the user session.

<i>This Column</i>	<i>Represents This</i>
PARAMETER	Parameter name
VALUE	Parameter value

OBJ

This is a synonym for USER_OBJECTS.

PARSED_PIECES

This view is accessed to create the ALL_OBJECT_SIZE, DBA_OBJECT_SIZE, and USER_OBJECT_SIZE views.

PARSED_SIZE

This view is accessed to create the ALL_OBJECT_SIZE, DBA_OBJECT_SIZE, and USER_OBJECT_SIZE views.

PLAN_TABLE

This view is the default table for results of the EXPLAIN PLAN statement. It is created by UTLXPLAN.SQL, and it contains one row for each step in the execution plan.

<i>This Column</i>	<i>Represents This</i>
STATEMENT_ID	Optional statement identifier specified in the EXPLAIN PLAN statement
TIMESTAMP	Date and time that the EXPLAIN PLAN statement was issued
REMARKS	Place for comments that can be added to the steps of the execution plan

<i>This Column</i>	<i>Represents This</i>
OPERATION	Name of the operation performed at this step
OPTIONS	Options used for the operation performed at this step
OBJECT_NODE	Name of the database link used to reference the object
OBJECT_OWNER	Owner of the object
OBJECT_NAME	Name of the object
OBJECT_INSTANCE	Numbered position of the object name in the original SQL statement
OBJECT_TYPE	Descriptive modifier that further describes the type of object
SEARCH_COLUMNS	Not currently used
ID	Identification number for this step in the execution plan
PARENT_ID	ID of the next step that operates on the results of this step
POSITION	Order of processing for steps with the same parent ID. For cost-based optimization, the value in the first row of the plan is the statement's execution cost. For rule-based optimization, the value is null in the first row.
OTHER	Additional information on this step

PRODUCT_COMPONENT_VERSION

This view contains version and status information for component products.

<i>This Column</i>	<i>Represents This</i>
PRODUCT	Product name
VERSION	Version number
STATUS	Status of release

PSTUBTBL

This table contains information on stubs generated by the PSTUB utility so that a FORMS 3.0 client can call stored procedures in an Oracle database.

Note: The contents of this table are intended only for use by the PSTUB utility.

<i>This Column</i>	<i>Represents This</i>
USERNAME	Schema part of the identifier of a stored procedure
DBNAME	Database link part of the identifier of a stored procedure
LUN	Library unit name part of the identifier of a stored procedure
LUTYPE	Type of the stored procedure
LINENO	Line number of the stub
LINE	Text of the stub

PUBLICSYN

This view contains information on public synonyms.

<i>This Column</i>	<i>Represents This</i>
SNAME	Name of the synonym
CREATOR	Owner of the synonym
TNAME	Table of which this is a synonym
DATABASE	Database in which the table resides
TABTYPE	Type of table

PUBLIC_DEPENDENCY

This view lists dependencies to and from objects, by object number.

<i>This Column</i>	<i>Represents This</i>
OBJECT_ID	Object number
REFERENCED_OBJECT_ID	Referenced object (the parent object)

REPCAT\$_REPOBJECT

This view contains information on replicated objects.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
SNAME	VARCHAR2(30)	Owner of replicated object
ONAME	VARCHAR2(30)	Replicated object name
TYPE	INTEGER	Object type
ID	NUMBER	Object ID
OBJECT_COMMENT	VARCHAR2(80)	Comments
STATUS	INTEGER	This column is maintained independently at each replication site
GNAME	VARCHAR2(30)	Replicated object group name

RESOURCE_COST

This view lists the cost for each resource.

<i>This Column</i>	<i>Represents This</i>
RESOURCE_NAME	Name of the resource
UNIT_COST	Cost of the resource

RESOURCE_MAP

This view contains descriptions for resources. It maps the resource name to the resource number..

<i>This Column</i>	<i>Represents This</i>
RESOURCE#	Numeric resource code
NAME	Name of resource

ROLE_ROLE_PRIVS

This view contains information about roles granted to other roles.
(Information is only provided about roles to which the user has access.)

<i>This Column</i>	<i>Represents This</i>
ROLE	Name of the role
GRANTED_ROLE	Role that was granted
ADMIN_OPTION	Signifies that the role was granted with ADMIN option

ROLE_SYS_PRIVS

This view contains information about system privileges granted to roles.
(Information is only provided about roles to which the user has access.)

<i>This Column</i>	<i>Represents This</i>
ROLE	Name of the role
PRIVILEGE	System privilege granted to the role
ADMIN_OPTION	Signifies the grant was with the ADMIN option

ROLE_TAB_PRIVS

This view contains information about table privileges granted to roles.
(Information is only provided about roles to which the user has access.)

<i>This Column</i>	<i>Represents This</i>
ROLE	Name of the role
OWNER	Owner of the object
TABLE_NAME	Name of the object
COLUMN_NAME	Name of the column, if applicable
PRIVILEGE	Object privilege granted to the role
GRANTABLE	YES if the role was granted with ADMIN OPTION; otherwise NO

SEQ

This is a synonym for USER_SEQUENCES.

SESSION_PRIVS

This view lists the privileges that are currently available to the user.

<i>This Column</i>	<i>Represents This</i>
PRIVILEGE	Name of the privilege

SESSION_ROLES

This view lists the roles that are currently enabled to the user.

<i>This Column</i>	<i>Represents This</i>
ROLE	Name of the role

SOURCE_SIZE

This view is accessed to create the ALL_OBJECT_SIZE, DBA_OBJECT_SIZE, and USER_OBJECT_SIZE views.

STMT_AUDIT_OPTION_MAP

This view contains information about auditing option type codes.

<i>This Column</i>	<i>Represents This</i>
OPTION#	Numeric auditing option type code
NAME	Name of the auditing option

SYN

This is a synonym for USER_SYNONYMS.

SYNONYMS

This view is included for compatibility with Oracle version 5. Use of this view is not recommended.

SYSCATALOG

This view is included for compatibility with Oracle version 5. Use of this view is not recommended.

SYSFILES

This view is included for compatibility with Oracle version 5. Use of this view is not recommended.

SYSSEGOBJ

This view is included for compatibility with Oracle version 5. Use of this view is not recommended.

SYSTEM_PRIVILEGE_MAP

This view contains information about system privilege codes.

<i>This Column</i>	<i>Represents This</i>
PRIVILEGE	Numeric privilege type code
NAME	Name of the type of privilege

SYS_OBJECTS

This view maps object IDs to object types and segment DBAs.

<i>This Column</i>	<i>Represents This</i>
OBJECT_TYPE_ID	Type of the object
SEGMENT_TYPE_ID	Type of segment: TABLE, CLUSTER, INDEX, ROLLBACK, DEFERRED ROLLBACK, TEMPORARY, CACHE
OBJECT_ID	Object identifier
HEADER_FILE	ID of the file containing the segment header
HEADER_BLOCK	ID of the block containing the segment header

TAB

This view is included for compatibility with Oracle version 5. Use of this view is not recommended.

TABLE_PRIVILEGES

This view contains information on grants on objects for which the user is the grantor, grantee, or owner, or PUBLIC is the grantee.

This view is included for compatibility with Oracle version 6. Use of this view is not recommended.

<i>This Column</i>	<i>Represents This</i>
GRANTEE	Name of the user to whom access is granted
OWNER	Owner of the object
TABLE_NAME	Name of the object
GRANTOR	Name of the user who performed the grant
SELECT_PRIV	Permission to select from the object
INSERT_PRIV	Permission to insert into the object
DELETE_PRIV	Permission to delete from the object
UPDATE_PRIV	Permission to update the object
REFERENCES_PRIV	Permission to reference the object
ALTER_PRIV	Permission to alter the object
INDEX_PRIV	Permission to create or drop an index on the object
CREATED	Timestamp for the grant

TABLE_PRIVILEGE_MAP

This view contains information about access privilege codes.

<i>This Column</i>	<i>Represents This</i>
PRIVILEGE	Numeric privilege (auditing option) type code
NAME	Name of the type of privilege (auditing option)

TABS

This is a synonym for USER_TABLES.

TABQUOTAS

This view is included for compatibility with Oracle version 5. Use of this view is not recommended.

USER_AUDIT_OBJECT

This view, created by CATAUDIT.SQL, lists audit trail records for statements concerning objects.

<i>This Column</i>	<i>Represents This</i>
OS_USERNAME	Operating system login username of the user whose actions were audited
USERNAME	Name (not ID number) of the user whose actions were audited
USERHOST	Numeric instance ID for the Oracle instance from which the user is accessing the database
TERMINAL	Identifier for the user's terminal
TIMESTAMP	Timestamp for the creation of the audit trail entry or login time for the CONNECT statement
OWNER	Creator of object affected by the action
OBJ_NAME	Name of the object affected by the action
ACTION_NAME	Name of the action type corresponding to the numeric code in ACTION
NEW_OWNER	Owner of the object named in the NEW_NAME column
NEW_NAME	New name of an object renamed by a RENAME statement

<i>This Column</i>	<i>Represents This</i>
SES_ACTIONS	Session summary (a string of 11 characters, one for each action type, in the order Alter, Audit, Comment, Delete, Grant, Index, Insert, Lock, Rename, Select, and Update; coded: for none, S for success, F for failure, and B for both)
COMMENT_TEXT	Text comment on the audit trail entry (inserted by an application program)
SESSIONID	Numeric ID for each Oracle session
ENTRYID	Numeric ID for each audit trail entry in the session
STATEMENTID	Numeric ID for each statement run (a statement may cause many actions)
RETURNCODE	Oracle message code generated by the action (zero if the action succeeded)
PRIV_USED	System privilege used to execute the action
OBJECT_LABEL	Optional Trusted Oracle7 Server label associated with the object being audited
SESSION_LABEL	Trusted Oracle7 Server label associated with the user session

USER_AUDIT_SESSION

This view, created by CATAUDIT.SQL, lists all audit trail records concerning connections and disconnections for the user.

<i>This Column</i>	<i>Represents This</i>
OS_USERNAME	Operating system logon user name of the user whose actions were audited
USERNAME	Name (not ID number) of the user whose actions were audited
USERHOST	Numeric instance ID for the Oracle instance from which the user is accessing the database
TERMINAL	Identifier for the user's terminal

<i>This Column</i>	<i>Represents This</i>
TIMESTAMP	Timestamp for the creation of the audit trail entry or login time for the CONNECT statement
ACTION_NAME	Name of the action type corresponding to the numeric code in ACTION
LOGOFF_TIME	Timestamp for user logoff
LOGOFF_LREAD	Logical reads for the session
LOGOFF_PREAD	Physical reads for the session
LOGOFF_LWRITE	Logical writes for the session
LOGOFF_DLOCK	Deadlocks detected during the session
SESSIONID	Numeric ID for each Oracle session
RETURNCODE	Oracle message code generated by the action (zero if the action succeeded)
SESSION_LABEL	Trusted Oracle7 Server label associated with the user session

USER_AUDIT_STATEMENT

This view, created by CATAUDIT.SQL, lists audit trail entries for the following statements issued by the user: GRANT, REVOKE, AUDIT, NOAUDIT, and ALTER SYSTEM.

<i>This Column</i>	<i>Represents This</i>
OS_USERNAME	Operating system logon username of the user whose actions were audited
USERNAME	Name (not ID number) of the user whose actions were audited
USERHOST	Numeric instance ID for the Oracle instance from which the user is accessing the database
TERMINAL	Identifier for the user's terminal
TIMESTAMP	Timestamp for the creation of the audit trail entry or login time for the CONNECT statement
OWNER	Creator of object affected by the action
OBJ_NAME	Name of the object affected by the action

<i>This Column</i>	<i>Represents This</i>
ACTION_NAME	Name of the action type corresponding to the numeric code in ACTION
NEW_NAME	New name of an object after a RENAME
OBJ_PRIVILEGE	Object privileges granted/revoked by a GRANT/REVOKE statement
SYS_PRIVILEGE	System privileges granted/revoked by a GRANT/REVOKE statement
ADMIN_OPTION	Signifies the role or system privilege was granted with ADMIN option
GRANTEE	Username of the grantee specified in a GRANT/REVOKE statement
AUDIT_OPTION	Auditing option set with the AUDIT statement
SES_ACTIONS	Session summary (a string of 11 characters, one for each action type, in the order Alter, Audit, Comment, Delete, Grant, Index, Insert, Lock, Rename, Select, and Update; coded: for none, S for success, F for failure, and B for both)
COMMENT_TEXT	Text comment on the audit trail entry (inserted by an application program)
SESSIONID	Numeric ID for each Oracle session
ENTRYID	Numeric ID for each audit trail entry in the session
STATEMENTID	Numeric ID for each statement run (a statement may cause many actions)
RETURNCODE	Oracle message code generated by the action (zero if the action succeeded)
PRIV_USED	System privilege used to execute the action
SESSION_LABEL	Trusted Oracle7 Server label associated with the user session

USER_AUDIT_TRAIL

This view, created by CATAUDIT.SQL, lists audit trail entries relevant to the user.

<i>This Column</i>	<i>Represents This</i>
OS_USERNAME	Operating system logon username of the user whose actions were audited
USERNAME	Name (not ID number) of the user whose actions were audited
USERHOST	Numeric instance ID for the Oracle instance from which the user is accessing the database
TERMINAL	Identifier for the user's terminal
TIMESTAMP	Timestamp for the creation of the audit trail entry or login time for the CONNECT statement
OWNER	Creator of object affected by the action
OBJ_NAME	Name of object affected by the action
ACTION	Numeric type code corresponding to the action name
ACTION_NAME	Name of the action type corresponding to the numeric code in ACTION
NEW_OWNER	Owner of the object named in the NEW_NAME column
NEW_NAME	New name of an object renamed by a RENAME statement
OBJ_PRIVILEGE	Object privileges granted/revoked by a GRANT/REVOKE statement
SYS_PRIVILEGE	System privileges granted/revoked by a GRANT/REVOKE statement
ADMIN_OPTION	Signifies the role or system privilege was granted with ADMIN option
GRANTEE	Username of the grantee specified in a GRANT/REVOKE statement
AUDIT_OPTION	Auditing option set with the AUDIT statement

<i>This Column</i>	<i>Represents This</i>
SES_ACTIONS	Session summary (a string of 11 characters, one for each action type, in the order Alter, Audit, Comment, Delete, Grant, Index, Insert, Lock, Rename, Select, and Update; coded: for none, S for success, F for failure, and B for both)
LOGOFF_TIME	Timestamp for user logoff
LOGOFF_LREAD	Logical reads for the session
LOGOFF_PREAD	Physical reads for the session
LOGOFF_LWRITE	Logical writes for the session
LOGOFF_DLOCK	Deadlocks detected during the session
COMMENT_TEXT	Text comment on the audit trail entry, providing more information about the statement audited
SESSIONID	Numeric ID for each Oracle session
ENTRYID	Numeric ID for each audit trail entry in the session
STATEMENTID	Numeric ID for each statement run (a statement can cause many actions)
RETURNCODE	Oracle message code generated by the action (zero if the action succeeded)
PRIV_USED	System privilege used to execute the action
OBJECT_LABEL	Optional Trusted Oracle7 Server label associated with the object being audited
SESSION_LABEL	Trusted Oracle7 Server label associated with the user session

USER_CATALOG

This view lists tables, views, synonyms, and sequences owned by the user.

<i>This Column</i>	<i>Represents This</i>
TABLE_NAME	Name of the object
TABLE_TYPE	Type of the object

USER_CLUSTERS

This view contains descriptions of user's own clusters.

<i>This Column</i>	<i>Represents This</i>
CLUSTER_NAME	Name of the cluster
TABLESPACE_NAME	Name of the tablespace containing the cluster
PCT_FREE	Minimum percentage of free space in a block
PCT_USED	Minimum percentage of used space in a block
KEY_SIZE	Estimated size of cluster key plus associated rows
INI_TRANS	Initial number of transactions
MAX_TRANS	Maximum number of transactions
INITIAL_EXTENT	Size of the initial extent in bytes
NEXT_EXTENT	Size of secondary extents in bytes
MIN_EXTENTS	Minimum number of extents allowed in the segment
MAX_EXTENTS	Maximum number of extents allowed in the segment
PCT_INCREASE	Percentage increase in extent size
FREELISTS	Number of process freelists allocated to this segment
FREELIST_GROUPS	Number of freelist groups allocated to this segment
AVG_BLOCKS_PER_KEY	Number of blocks in the table divided by number of hash keys
CLUSTER_TYPE	Type of cluster: b-tree index or hash
FUNCTION	If a hash cluster, the hash function
HASHKEYS	If a hash cluster, the number of hash keys (hash buckets)
DEGREE	The number of threads per instance for scanning the cluster
INSTANCES	The number of instances across which the cluster is to be scanned
CACHE	Whether the cluster is to be cached in the buffer cache

USER_CLU_COLUMNS

This view contains a mapping of columns in user's tables to cluster columns.

<i>This Column</i>	<i>Represents This</i>
CLUSTER_NAME	Cluster name
CLU_COLUMN_NAME	Key column in the cluster
TABLE_NAME	Clustered table name
TAB_COLUMN_NAME	Key column in the table

USER_COL_COMMENTS

This view lists comments on columns of user's tables and views.

<i>This Column</i>	<i>Represents This</i>
TABLE_NAME	Object name
COLUMN_NAME	Column name
COMMENTS	Comment on the column

USER_COL_PRIVS

This view lists grants on columns for which the user is the owner, grantor, or grantee.

<i>This Column</i>	<i>Represents This</i>
GRANTEE	Name of the user to whom access was granted
OWNER	Owner of the object
TABLE_NAME	Name of the object
COLUMN_NAME	Name of the column
GRANTOR	Name of the user who performed the grant
PRIVILEGE	Privilege on the column
GRANTABLE	YES if the privilege was granted with ADMIN OPTION; otherwise NO

USER_COL_PRIVS_MADE

This view lists all grants on columns of objects owned by the user.

<i>This Column</i>	<i>Represents This</i>
GRANTEE	Name of the user to whom access was granted
TABLE_NAME	Name of the object
COLUMN_NAME	Name of the column
GRANTOR	Name of the user who performed the grant
PRIVILEGE	Privilege on the column
GRANTABLE	YES if the privilege was granted with ADMIN OPTION; otherwise NO

USER_COL_PRIVS_RECD

This view lists grants on columns for which the user is the grantee.

<i>This Column</i>	<i>Represents This</i>
OWNER	Username of the owner of the object
TABLE_NAME	Name of the object
COLUMN_NAME	Name of the column
GRANTOR	Name of the user who performed the grant
PRIVILEGE	Privilege on the column
GRANTABLE	YES if the privilege was granted with ADMIN OPTION; otherwise NO

USER_CONSTRAINTS

This view lists constraint definitions on user's tables.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the constraint definition
CONSTRAINT_NAME	Name associated with the constraint definition

<i>This Column</i>	<i>Represents This</i>
CONSTRAINT_TYPE	Type of constraint definition: C (check constraint on a table) P (primary key) U (unique key) R (referential integrity) V (with check option on a view)
TABLE_NAME	Name associated with table with constraint definition
SEARCH_CONDITION	Text of search condition for table check
R_OWNER	Owner of table used in referential constraint
R_CONSTRAINT_NAME	Name of unique constraint definition for referenced table
DELETE_RULE	The delete rule for a referential constraint: CASCADE, NO ACTION
STATUS	Status of constraint: ENABLED, DISABLED

USER_CONS_COLUMNS

This view contains information about columns in constraint definitions owned by the user.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the constraint definition
CONSTRAINT_NAME	Name associated with the constraint definition
TABLE_NAME	Name associated with table with constraint definition
COLUMN_NAME	Name associated with column specified in the constraint definition
POSITION	Original position of column in definition

USER_DB_LINKS

This view contains information on database links owned by the user.

<i>This Column</i>	<i>Represents This</i>
DB_LINK	Name of the database link
USERNAME	Name of user to log in as
PASSWORD	Password for login
HOST	SQL*Net string for connect
CREATED	Creation time of the database link

USER_DEPENDENCIES

This view lists dependencies to and from a user's objects.

<i>This Column</i>	<i>Represents This</i>
NAME	Name of the object
TYPE	Type of object: PROCEDURE, PACKAGE, FUNCTION, PACKAGE BODY
REFERENCED_OWNER	Owner of the parent object
REFERENCED_NAME	Name of the parent object
REFERENCED_TYPE	Type of the parent object: PROCEDURE, PACKAGE, FUNCTION, PACKAGE BODY
REFERENCED_LINK_NAME	Name of the link to the parent object (if remote)

USER_ERRORS

This view lists current errors on all a user's stored objects.

<i>This Column</i>	<i>Represents This</i>
NAME	Name of the object
TYPE	Type of object: PROCEDURE, PACKAGE, FUNCTION, PACKAGE BODY
SEQUENCE	Sequence number, for ordering
LINE	Line number at which this error occurs

<i>This Column</i>	<i>Represents This</i>
POSITION	Position in the line at which this error occurs
TEXT	Text of the error

USER_EXTENTS

This view lists extents of the segments belonging to a user's objects.

<i>This Column</i>	<i>Represents This</i>
SEGMENT_NAME	Name of the segment associated with the extent
SEGMENT_TYPE	Type of the segment
TABLESPACE_NAME	Name of the tablespace containing the extent
EXTENT_ID	Extent number in the segment
BYTES	Size of the extent in bytes
BLOCKS	Size of the extent in Oracle blocks

USER_FREE_SPACE

This view lists the free extents in tablespaces accessible to the user.

<i>This Column</i>	<i>Represents This</i>
TABLESPACE_NAME	Name of the tablespace containing the extent
FILE_ID	ID number of the file containing the extent
BLOCK_ID	Starting block number of the extent
BYTES	Size of the extent in bytes
BLOCKS	Size of the extent in Oracle blocks

USER_HISTOGRAMS

This view lists histograms on columns of user's tables.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
TABLE_NAME	VARCHAR2(30)	Table name
COLUMN_NAME	VARCHAR2(30)	Column name
BUCKET_NUMBER	NUMBER	Bucket number
ENDPOINT_VALUE	NUMBER	Normalized endpoint values for this bucket

USER_INDEXES

This view contains descriptions of the user's own indexes. To gather statistics for this view, use the SQL command ANALYZE.

<i>This Column</i>	<i>Represents This</i>
STATUS	State of the index: DIRECT LOAD or VALID
INDEX_NAME	Name of the index
TABLE_OWNER	Owner of the indexed object
TABLE_NAME	Name of the indexed object
TABLE_TYPE	Type of the indexed object
UNIQUENESS	Uniqueness status of the index: UNIQUE or NONUNIQUE
TABLESPACE_NAME	Name of the tablespace containing the index
INI_TRANS	Initial number of transactions
MAX_TRANS	Maximum number of transactions
INITIAL_EXTENT	Size of the initial extent in bytes
NEXT_EXTENT	Size of secondary extents in bytes
MIN_EXTENTS	Minimum number of extents allowed in the segment
MAX_EXTENTS	Maximum number of extents allowed in the segment
PCT_INCREASE	Percentage increase in extent size
PCT_FREE	Minimum percentage of free space in a block

<i>This Column</i>	<i>Represents This</i>
FREELISTS	Number of process freelists allocated in this segment
FREELIST_GROUPS	Number of freelist groups allocated to this segment
BLEVEL	B-Tree level: depth of the index from its root block to its leaf blocks. A depth of 0 indicates that the root block and leaf block are the same.
LEAF_BLOCKS	Number of leaf blocks in the index.
DISTINCT_KEYS	Number of distinct indexed values. For indexes that enforce UNIQUE and PRIMARY KEY constraints, this value is the same as the number of rows in the table USER_TABLES.NUM_ROWS.
AVG_LEAF_BLOCKS_PER_KEY	Average number of leaf blocks in which each distinct value in the index appears. This statistic is rounded to the nearest integer. For indexes that enforce UNIQUE and PRIMARY KEY constraints, this value is always 1.
AVG_DATA_BLOCKS_PER_KEY	Average number of data blocks in the table that are pointed to by a distinct value in the index. This statistic is the average number of data blocks that contain rows that contain a given value for the indexed column(s). This statistic is rounded to the nearest integer.
CLUSTERING_FACTOR	This statistic represents the amount of order of the rows in the table based on the values of the index. If its value is near the number of blocks, then the table is very well ordered. In such a case, the index entries in a single leaf block tend to point to rows in the same data blocks. If its value is near the number of rows, then the table is very randomly ordered. In such a case, it is unlikely that index entries in the same leaf block point to rows in the same data blocks.

USER_IND_COLUMNS

This view lists columns of the user's indexes or on user's tables.

<i>This Column</i>	<i>Represents This</i>
INDEX_NAME	Index name
TABLE_NAME	Table or cluster name
COLUMN_NAME	Column name
COLUMN_POSITION	Position of column within index
COLUMN_LENGTH	Indexed length of the column

USER_JOBS

This view lists all jobs owned by the user.

For more information, see the *Oracle7 Server Administrator's Guide*.

<i>This Column</i>	<i>Represents This</i>
JOB	Identifier of job. Neither import/export nor repeated executions change it.
LOG_USER	USER who was logged in when the job was submitted
PRIV_USER	USER whose default privileges apply to this job
SCHEMA_USER	Default schema used to parse the job For example, if the SCHEMA_USER is SCOTT and you submit the procedure HIRE_EMP as a job, Oracle looks for SCOTT.HIRE_EMP.
LAST_DATE	Date this job last successfully executed
LAST_SEC	Same as LAST_DATE. This is when the last successful execution started.
THIS_DATE	Date that this job started executing (usually null if not executing)
THIS_SEC	Same as THIS_DATE. This is when the last successful execution started.
NEXT_DATE	Date that this job will next be executed
NEXT_SEC	Same as NEXT_DATE. The job becomes due for execution at this time.

<i>This Column</i>	<i>Represents This</i>
TOTAL_TIME	Total wallclock time spent by the system on this job, in seconds
BROKEN	If Y, no attempt is being made to run this job. See DBMS_JOBQ.BROKEN (JOB).
INTERVAL	A date function, evaluated at the start of execution, becomes next NEXT_DATE
FAILURES	How many times has this job started and failed since its last success?
WHAT	Body of the anonymous PL/SQL block that this job executes
CURRENT_SESSION_LABEL	Trusted Oracle7 Server label of the current session as seen by the job. Applies to Trusted Oracle7 Server only.
CLEARANCE_HI	Highest level of clearance available to the job. Applies to Trusted Oracle7 Server only.
CLEARANCE_LO	Lowest level of clearance available to the job. Applies to Trusted Oracle7 Server only.
NLS_ENV	ALTER SESSION parameters describing the NLS environment of the job
MISC_ENV	Other session parameters that apply to this job

USER_OBJECTS

This view lists objects owned by the user.

<i>This Column</i>	<i>Represents This</i>
OBJECT_NAME	Name of the object
OBJECT_ID	Object number of the object
OBJECT_TYPE	Type of the object
CREATED	Timestamp for the creation of the object
LAST_DDL_TIME	Timestamp of the last DDL command applied to the object (including grants and revokes)

<i>This Column</i>	<i>Represents This</i>
TIMESTAMP	Timestamp for the creation of the object (character data)
STATUS	Status of the object: VALID, INVALID

USER_OBJECT_SIZE

This view lists the user's PL/SQL objects.

<i>This Column</i>	<i>Represents This</i>
NAME	Name of the object
TYPE	Type of the object: PROCEDURE, PACKAGE, or PACKAGE BODY
SOURCE_SIZE	Size of source code in bytes
PARSED_SIZE	Size of parsed code in bytes
CODE_SIZE	Size of compiled code in bytes
ERROR_SIZE	Size of error messages in bytes

USER_OBJ_AUDIT_OPTS

This view, created by CATAUDIT.SQL, lists auditing options for user's own tables and views.

<i>This Column</i>	<i>Represents This</i>
OBJECT_NAME	Name of the object
OBJECT_TYPE	Type of the object: TABLE or VIEW
ALT	Auditing ALTER WHENEVER SUCCESSFUL / UNSUCCESSFUL
AUD	Auditing AUDIT WHENEVER SUCCESSFUL / UNSUCCESSFUL
COM	Auditing COMMENT WHENEVER SUCCESSFUL / UNSUCCESSFUL
DEL	Auditing DELETE WHENEVER SUCCESSFUL / UNSUCCESSFUL
GRA	Auditing GRANT WHENEVER SUCCESSFUL / UNSUCCESSFUL
IND	Auditing INDEX WHENEVER SUCCESSFUL / UNSUCCESSFUL

<i>This Column</i>	<i>Represents This</i>
INS	Auditing INSERT WHENEVER SUCCESSFUL / UNSUCCESSFUL
LOC	Auditing LOCK WHENEVER SUCCESSFUL / UNSUCCESSFUL
REN	Auditing RENAME WHENEVER SUCCESSFUL / UNSUCCESSFUL
SEL	Auditing SELECT WHENEVER SUCCESSFUL / UNSUCCESSFUL
UPD	Auditing UPDATE WHENEVER SUCCESSFUL / UNSUCCESSFUL
REF	Auditing REFERENCES WHENEVER SUCCESSFUL / UNSUCCESSFUL
EXE	Auditing EXECUTE WHENEVER SUCCESSFUL / UNSUCCESSFUL

USER_REFRESH

This view lists all the refresh groups.

<i>This Column</i>	<i>Represents This</i>
ROWNER	Name of the owner of the refresh group
RNAME	Name of the refresh group
REFGROUP	Internal identifier of refresh group
IMPLICIT_DESTROY	Y or N; if Y, then destroy the refresh group when its last item is removed
JOB	Identifier of job used to refresh the group automatically
NEXT_DATE	Date that this job will next be re-freshed automatically, if not broken
INTERVAL	A date function used to compute the next NEXT_DATE
BROKEN	Y or N; Y means the job is broken and will never be run

USER_REFRESH_CHILDREN

This view lists all the objects in refresh groups, where the user owns the refresh group.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the object in the refresh group
NAME	Name of the object in the refresh group
TYPE	Type of the object in the refresh group
ROWNER	Name of the owner of the refresh group
RNAME	Name of the refresh group
REFGROUP	Internal identifier of refresh group
IMPLICIT_DESTROY	Y or N; if Y, then destroy the refresh group when its last item is removed
JOB	Identifier of job used to refresh the group automatically
NEXT_DATE	Date that this job will next be refreshed automatically, if not broken
INTERVAL	A date function used to compute the next NEXT_DATE
BROKEN	Y or N; Y means the job is broken and will never be run

USER_RESOURCE_LIMITS

This view displays the resource limits for the current user.

<i>This Column</i>	<i>Represents This</i>
RESOURCE_NAME	Name of the resource
LIMIT	Limit placed on this resource

USER_ROLE_PRIVS

This view lists roles granted to the user.

<i>This Column</i>	<i>Represents This</i>
USERNAME	Name of the user, or PUBLIC
GRANTED_ROLE	Name of the role granted to user
ADMIN_OPTION	Granted with ADMIN option: YES/NO
DEFAULT_ROLE	Role is designated as the user's default role: YES/NO
OS_GRANTED	Granted by the operating system: Y/N (occurs if configuration parameter OS_ROLES = TRUE)

USER_SEGMENTS

This view lists information about storage allocation for database segments belonging to a user's objects.

<i>This Column</i>	<i>Represents This</i>
SEGMENT_NAME	Name of the segment, if any
SEGMENT_TYPE	Type of segment: TABLE, CLUSTER, INDEX, ROLLBACK, DEFERRED ROLLBACK, TEMPORARY, CACHE
TABLESPACE_NAME	Name of the tablespace containing the segment
BYTES	Size of the segment in bytes
BLOCKS	Size of the segment in Oracle blocks
EXTENTS	Number of extents allocated to the segment
INITIAL_EXTENT	Size of the initial extent in Oracle blocks
NEXT_EXTENT	Size of the next extent to be allocated in Oracle blocks
MIN_EXTENTS	Minimum number of extents allowed in the segment
MAX_EXTENTS	Maximum number of extents allowed in the segment
PCT_INCREASE	Percent by which to increase the size of the next extent to be allocated

<i>This Column</i>	<i>Represents This</i>
FREELISTS	Number of process freelists allocated to this segment
FREELIST_GROUPS	Number of freelist groups allocated to this segment

USER_SEQUENCES

This view lists descriptions of the user's sequences.

<i>This Column</i>	<i>Represents This</i>
SEQUENCE_NAME	SEQUENCE name
MIN_VALUE	Minimum value of the sequence
MAX_VALUE	Maximum value of the sequence
INCREMENT_BY	Value by which the sequence is incremented
CYCLE_FLAG	Does sequence wraparound on reaching limit
ORDER_FLAG	Are sequence numbers generated in order
CACHE_SIZE	Number of sequence numbers to cache
LAST_NUMBER	Last sequence number written to disk. If a sequence uses caching, the number written to disk is the last number placed in the sequence cache. This number is likely to be greater than the last sequence number that was actually used. This value is <i>not</i> continuously updated during database operation. It is intended for use after a warm start or import.

USER_SNAPSHOTS

This view lists snapshots the user can view.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the snapshot
NAME	Name of the view used by users and applications for viewing the snapshot

<i>This Column</i>	<i>Represents This</i>
TABLE_NAME	Table in which the snapshot is stored. This table has an extra column for the master rowid
MASTER_VIEW	View of the master table, owned by the snapshot owner, used for refreshes
MASTER_OWNER	Owner of the master table
MASTER	Name of the master table of which this snapshot is a copy
MASTER_LINK	Database link name to the master site
CAN_USE_LOG	YES if this snapshot can use a snapshot log, NO if this snapshot is too complex to use a log
UPDATABLE	Specifies whether the snapshot is updatable. TRUE if updatable, FALSE if not.
LAST_REFRESH	Date and time at the master site of the last refresh
ERROR	The number of failed automatic refreshes since last successful refresh
TYPE	Type of refresh for all automatic refreshes: COMPLETE, FAST, FORCE
NEXT	Date function used to compute next refresh dates
START_WITH	Date function used to compute next refresh dates
REFRESH_GROUP	All snapshots in a given refresh group get refreshed in the same transaction
UPDATE_TRIG	The name of the trigger that fills the UPDATE_LOG
UPDATE_LOG	The table that logs changes made to an updatable snapshots
QUERY	Original query of which this snapshot is an instantiation

USER_SNAPSHOT_LOGS

This view lists all snapshot logs owned by the user.

<i>This Column</i>	<i>Represents This</i>
LOG_OWNER	Owner of the snapshot log
MASTER	Name of the master table for which the log records changes
LOG_TABLE	Log table that holds the rowids and timestamps of rows that changed in the master table
LOG_TRIGGER	An after-row trigger on the master that inserts rows into the log
CURRENT_SNAPSHOTS	Date and time when the snapshot of the master was last refreshed

USER_SOURCE

This view contains text source of all stored objects belonging to the user.

<i>This Column</i>	<i>Represents This</i>
NAME	Name of the object
TYPE	Type of object: PROCEDURE, PACKAGE, FUNCTION, PACKAGE BODY
LINE	Line number of this line of source
TEXT	Text source of the stored object

USER_SYNONYMS

This view lists the user's private synonyms.

<i>This Column</i>	<i>Represents This</i>
SYNONYM_NAME	Name of the synonym
TABLE_OWNER	Owner of the object referenced by the synonym
TABLE_NAME	Name of the object referenced by the synonym
DB_LINK	Database link referenced in a remote synonym

USER_SYS_PRIVS

This view lists system privileges granted to the user.

<i>This Column</i>	<i>Represents This</i>
USERNAME	Name of the user, or PUBLIC
PRIVILEGE	System privilege granted to the user
ADMIN_OPTION	Signifies the privilege was granted with ADMIN option

USER_TABLES

This view contains description of the user's tables. To gather statistics for this view, use the SQL command ANALYZE.

<i>This Column</i>	<i>Represents This</i>
TABLE_NAME	Name of the table
TABLESPACE_NAME	Name of the tablespace containing the table
CLUSTER_NAME	Name of the cluster, if any, to which the table belongs
PCT_FREE	Minimum percentage of free space in a block
PCT_USED	Minimum percentage of used space in a block
INI_TRANS	Initial number of transactions
MAX_TRANS	Maximum number of transactions
NEXT_EXTENT	Size of secondary extents in bytes
MIN_EXTENTS	Minimum number of extents allowed in the segment
MAX_EXTENTS	Maximum number of extents allowed in the segment
PCT_INCREASE	Percentage increase in extent size
FREELISTS	Number of process freelists allocated to this segment
FREELIST_GROUPS	Number of freelist groups allocated to this segment
BACKED_UP	Has table been backed up since last modification

<i>This Column</i>	<i>Represents This</i>
NUM_ROWS	Number of rows in the table
BLOCKS	Number of used data blocks in the table
EMPTY_BLOCKS	Number of empty (never used) data blocks in the table
AVG_SPACE	Average amount of free space (in bytes) in a data block allocated to the table
CHAIN_CNT	Number of rows in the table that are chained from one data block to another or that have migrated to a new block, requiring a link to preserve the old rowid
AVG_ROW_LEN	Average length of a row in the table in bytes
DEGREE	The number of threads per instance for scanning the table
INSTANCES	The number of instances across which the table is to be scanned
CACHE	Whether the table is to be cached in the buffer cache

USER_TABLESPACES

This view contains descriptions of accessible tablespaces.

<i>This Column</i>	<i>Represents This</i>
TABLESPACE_NAME	Tablespace name
INITIAL_EXTENT	Default initial extent size
NEXT_EXTENT	Default incremental extent size
MIN_EXTENTS	Default minimum number of extents
MAX_EXTENTS	Default maximum number of extents
PCT_INCREASE	Default percent increase for extent size
STATUS	Tablespace status: ONLINE, OFFLINE, or INVALID (tablespace has been dropped)

USER_TAB_COLUMNS

This view contains information about columns of user's tables, views, and clusters. To gather statistics for this view, use the SQL command ANALYZE.

<i>This Column</i>	<i>Represents This</i>
TABLE_NAME	Table, view, or cluster name
COLUMN_NAME	Column name
DATA_TYPE	Datatype of the column
DATA_LENGTH	Maximum length of the column in bytes
DATA_PRECISION	Decimal precision for NUMBER datatype; binary precision for FLOAT datatype; NULL for all other datatypes
DATA_SCALE	Digits to right of decimal point in a number
NULLABLE	Does column allow NULLs? Value is n if there is a NOT NULL constraint on the column or if the column is part of a PRIMARY KEY.
COLUMN_ID	Sequence number of the column as created
DEFAULT_LENGTH	Length of default value for the column
DATA_DEFAULT	Default value for the column
NUM_DISTINCT	Number of distinct values in each column of the table
LOW_VALUE HIGH_VALUE	The lowest and highest values in the column. These statistics are expressed in hexadecimal notation for the internal representation of the first 32 bytes of the values.
DENSITY	The density of the column (a measure of how distinct the values are). The density is calculated as the sum of <i>occurrences</i> ² / <i>elements_sampled</i> ² for each distinct value in the column.

USER_TAB_COMMENTS

This view contains comments on the tables and views owned by the user.

<i>This Column</i>	<i>Represents This</i>
TABLE_NAME	Name of the object
TABLE_TYPE	Type of the object: TABLE or VIEW
COMMENTS	Comment on the object

USER_TAB_PRIVS

This view contains information on grants on objects for which the user is the owner, grantor, or grantee.

<i>This Column</i>	<i>Represents This</i>
GRANTEE	Name of the user to whom access was granted
OWNER	Owner of the object
TABLE_NAME	Name of the object
GRANTOR	Name of the user who performed the grant
PRIVILEGE	Privilege on the object
GRANTABLE	YES if the privileges was granted with ADMIN OPTION; otherwise NO

USER_TAB_PRIVS_MADE

This view contains information about all grants on objects owned by the user.

<i>This Column</i>	<i>Represents This</i>
GRANTEE	Name of the user to whom access was granted
TABLE_NAME	Name of the object
GRANTOR	Name of the user who performed the grant
PRIVILEGE	Privilege on the object
GRANTABLE	YES if the privilege was granted with ADMIN OPTION; otherwise NO

USER_TAB_PRIVS_RECD

This view contains information about grants on objects for which the user is the grantee.

<i>This Column</i>	<i>Represents This</i>
OWNER	Owner of the object
TABLE_NAME	Name of the object
GRANTOR	Name of the user who performed the grant
PRIVILEGE	Privilege on the object
GRANTABLE	YES if the privilege was granted with ADMIN OPTION; otherwise NO

USER_TRIGGERS

This view contains descriptions of the user’s triggers.

<i>This Column</i>	<i>Represents This</i>
TRIGGER_NAME	Name of the trigger
TRIGGER_TYPE	When the trigger fires: BEFORE EACH ROW, AFTER EACH ROW, BEFORE STATEMENT, AFTER STATEMENT
TRIGGERING_EVENT	Statement that fires the trigger: INSERT, UPDATE, DELETE
TABLE_OWNER	Owner of the table on which the trigger is defined
TABLE_NAME	Table on which the trigger is defined
REFERENCING_NAMES	Names used for referencing to OLD and NEW values within the trigger
WHEN_CLAUSE	WHEN clause. Must evaluate to TRUE for TRIGGER_BODY to execute.
STATUS	Whether the trigger is enabled: ENABLED or DISABLED
DESCRIPTION	Trigger description. Useful for re-creating a trigger creation statement.
TRIGGER_BODY	Statement(s) executed by the trigger when it fires

USER_TRIGGER_COLS

This view shows usage of columns in triggers owned by the user or on one of the user's tables.

<i>This Column</i>	<i>Represents This</i>
TRIGGER_OWNER	Owner of the trigger
TRIGGER_NAME	Name of the trigger
TABLE_OWNER	Owner of the table on which the trigger is defined
TABLE_NAME	Table on which the trigger is defined
COLUMN_NAME	Name of the column used in the trigger
COLUMN_LIST	Column specified in UPDATE clause: Y/N
COLUMN_USAGE	How the column is used in the trigger. All applicable combinations of NEW, OLD, IN, OUT, and IN OUT.

USER_TS_QUOTAS

This view contains information about tablespace quotas for the user.

<i>This Column</i>	<i>Represents This</i>
TABLESPACE_NAME	Tablespace name
BYTES	Number of bytes charged to the user
MAX_BYTES	User's quota in bytes, or -1 for UNLIMITED
BLOCKS	Number of Oracle blocks charged to the user
MAX_BLOCKS	User's quota in Oracle blocks, or -1 for UNLIMITED

USER_UPDATABLE_COLUMNS

This view contains a description of columns that are updatable to the user in a join view.

<i>This Column</i>	<i>Datatype</i>	<i>Null?</i>	<i>Represents This</i>
OWNER	VARCHAR2(30)	not null	Table owner
TABLE_NAME	VARCHAR2(30)	not null	Table name
COLUMN_NAME	VARCHAR2(30)	not null	Column name
UPDATABLE	VARCHAR2(3)		Is the column updatable?

USER_USERS

This view contains information about the current user.

<i>This Column</i>	<i>Represents This</i>
USERNAME	Name of the user
USER_ID	ID number of the user
DEFAULT_TABLESPACE	Default tablespace for data
TEMPORARY_TABLESPACE	Default tablespace for temporary tables
CREATED	User creation date

USER_VIEWS

This view contains the text of views owned by the user.

<i>This Column</i>	<i>Represents This</i>
VIEW_NAME	Name of the view
TEXT_LENGTH	Length of the view text
TEXT	View text

Dynamic Performance (V\$) Tables

This chapter describes the dynamic performance tables, which are also known as V\$ views.

The following topics are included in this chapter:

- Dynamic Performance Tables
- Table Descriptions

Dynamic Performance Tables

The Oracle7 Server contains a set of underlying tables that are maintained by the Server and accessible to the DBA user SYS. These tables are called *dynamic performance tables* because they are continuously updated while a database is open and in use, and their contents relate primarily to performance.

Although these tables appear to be regular database tables, they are not. Like ROWIDs and ROWNUMs, these tables may be selected from, but never updated or altered.

The file CATALOG.SQL contains definitions of the views and public synonyms for the dynamic performance tables. You must run CATALOG.SQL to create these views and synonyms.

V\$ Views

Views created on the dynamic performance tables are identified by the prefix V_\$. Public synonyms for these views have the prefix V\$. DBAs or users should only access the V\$ objects, not the V_\$ objects.

The dynamic performance tables are used by Server Manager, which is the primary interface for accessing information about system performance.



Suggestion: Once the instance is started, the V\$ views are accessible. The database does not have to be mounted or open. One important consequence of this fact is that the V\$LOG view can be used to identify log files needed for recovery.



Warning: Information about the dynamic performance tables is presented for completeness only; this information does not imply a commitment to support these tables in the future.

Access to the Dynamic Performance Tables

After installation, only username SYS has access to the dynamic performance tables. However, access to these tables is required for any user needing to view the MONITOR displays available in command-line mode of Server Manager.

Granting Access to All Tables

The UTLMONTR.SQL script can be run to grant access to PUBLIC on all of the dynamic performance tables needed to view MONITOR displays.



For information on running UTLMONTR.SQL on your system, see your operating system specific Oracle documentation.

OSDoc

Granting Access on Selected Tables

If any user other than SYS wants to use Server Manager's MONITOR functions, that user needs access to one or more of the dynamic performance tables.

For more information, see *Oracle7 Server Utilities*.

Table Descriptions

This section lists the columns and public synonyms for the dynamic performance tables.

FILEXT\$

FILEXT\$ is created the first time you turn on the AUTOEXTEND characteristic for a datafile.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
FILE#	NUMBER	File identifier
MAXEXTEND	NUMBER	Value from the MAXSIZE parameter
INC	NUMBER	Value from the NEXT parameter

For more information, see the *Oracle7 Server Administrator's Guide*.

V\$ACCESS

This view shows objects in the database that are currently locked and the sessions that are accessing them

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
SID	NUMBER	Session number that is accessing an object
OWNER	VARCHAR2	Owner of the object
OBJECT	VARCHAR2	Name of the object
OB_TYP	NUMBER	Type identifier for the object

V\$ACTIVE_INSTANCES

This view maps instance names to instance numbers for all instances that have the database currently mounted.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
INST_NUMBER	NUMBER	The instance number
INST_NAME	VARCHAR2(60)	The instance name

V\$ARCHIVE

This view contains information on archive logs for each thread in the database system. Each row provides information for one thread.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
GROUP#	NUMBER	Log file group number
THREAD#	NUMBER	Log file thread number
SEQUENCE#	NUMBER	Log file sequence number
CURRENT	VARCHAR2	Archive log currently in use
FIRST_CHANGE#	NUMBER	First SCN stored in the current log

V\$BACKUP

This view shows the backup status of all online datafiles.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
FILE#	NUMBER	File identifier
STATUS	VARCHAR2	File status: NOT ACTIVE, ACTIVE (backup in progress), OFFLINE NORMAL, or description of an error
CHANGE#	NUMBER	System change number when backup started
TIME	VARCHAR2	Time the backup started

V\$BGPROCESS

This view describes the background processes.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
PADDR	RAW(4)	Address of the process state object
NAME	VARCHAR2	Name of this background process
DESCRIPTION	VARCHAR2	Description of the background process
ERROR	NUMBER	Error encountered

V\$BH

This is a Parallel Server view.

This view gives the status and number of pings for every buffer in the SGA.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
FILE#	NUMBER	Datafile identifier number (to find filename, query DBA_DATA_FILES or V\$DBFILES)
BLOCK	NUMBER	Block number
STATUS	VARCHAR2(1)	FREE= not currently in use XCUR=exclusive SCUR=shared current CR=consistent read READ=being read from disk MREC=in media recovery mode IREC=in instance recovery mode
XNC	NUMBER	Number of PCM lock conversions due to contention with another instance
LOCK_ELEMENT_ADDR	RAW(4)	The address of the lock element that contains the PCM lock that is covering the buffer. If more than one buffer has the same address, then these buffers are covered by the same PCM lock.
DIRTY	VARCHAR2(1)	Y = block modified.
TEMP	VARCHAR2(1)	Y = temporary block
PING	VARCHAR2(1)	Y = block pinged
STALE	VARCHAR2(1)	Y = block is stale
DIRECT	VARCHAR2(1)	Y = direct block
NEW	VARCHAR2(1)	Y = new block

For more information, see the *Oracle7 Parallel Server Concepts & Administration*.

V\$CACHE

This is a Parallel Server view.

This view contains information from the block header of each block in the SGA of the current instance as related to particular database objects.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
FILE#	NUMBER	Datafile identifier number (to find filename, query DBA_DATA_FILES or V\$DBFILES)
BLOCK#	NUMBER	Block number
STATUS	VARCHAR2(1)	Status of block: FREE = not currently in use XCUR = exclusive SCUR = shared current CR = consistent read READ = being read from disk MREC = in media recovery mode IREC = in instance recovery mode
XNC	NUMBER	Number of PCM lock conversions due to contention with another instance
NAME	VARCHAR2(30)	Name of the database object containing the block
KIND	VARCHAR2(12)	Type of database object: TABLE CLUSTER INDEX UNDO = rollback segment
OWNER#	NUMBER	Owner number
LOCK_ELEMENT_ADDR	RAW(4)	The address of the lock element that contains the PCM lock that is covering the buffer. If more than one buffer has the same address, then these buffers are covered by the same PCM lock.

For more information, see the *Oracle7 Parallel Server Concepts & Administration*.

V\$CACHE_LOCK

This is a Parallel Server view.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
FILE#	NUMBER	Datafile identifier number (to find filename, query DBA_DATA_FILES or V\$DBFILES)
BLOCK#	NUMBER	Block number
STATUS	VARCHAR2(4)	Status of block: FREE = not currently in use XCUR = exclusive SCUR = shared current CR = consistent read READ = being read from disk MREC = in media recovery mode IREC = in instance recovery mode
XNC	NUMBER	Number of parallel cache management (PCM) lock conversions due to contention with another instance
NAME	VARCHAR2(30)	Name of the database object containing the block
KIND	VARCHAR2(12)	Type of database object: TABLE CLUSTER INDEX UNDO = rollback segment
OWNER#	NUMBER	Owner number
LOCK_ELEMENT_ADDR	RAW(4)	The address of the lock element that contains the PCM lock that is covering the buffer. If more than one buffer has the same address, then these buffers are covered by the same PCM lock.
INDX	NUMBER	Platform specific lock manager identifier
CLASS	NUMBER	Platform specific lock manager identifier

V\$CACHE_LOCK is similar to V\$CACHE, except for the platform specific lock manager identifiers. This information may be useful if the platform specific lock manager provides tools for monitoring the PCM lock operations that are occurring. For example, first query to find the

lock element address using INDX and CLASS, then query V\$BH to find the buffers that are covered by the lock.

For more information, see *Oracle7 Parallel Server Concepts & Administration*.

V\$CIRCUIT

This view contains information about virtual circuits, which are user connections to the database through dispatchers and servers.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
CIRCUIT	RAW(4)	Circuit address
DISPATCHER	RAW(4)	Current dispatcher process address
SERVER	RAW(4)	Current server process address
WAITER	RAW(4)	Address of server process that is waiting for the (currently busy) circuit to become available
SADDR	RAW(4)	Address of session bound to the circuit
STATUS	VARCHAR2	Status of the circuit: BREAK (currently interrupted), EOF (about to be removed), OUTBOUND (an outward link to aremote database), NORMAL (normal circuit into the local database)
QUEUE	VARCHAR2	Queue the circuit is currently on: COMMON (on the common queue, waiting to be picked up by a server process), DISPATCHER (waiting for the dispatcher), SERVER (currently being serviced), OUTBOUND (waiting to establish an outbound connection), NONE (idle circuit)
MESSAGE0	NUMBER	Size in bytes of the messages in the first message buffer
MESSAGE1	NUMBER	Size in bytes of the messages in the second message buffer.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
MESSAGES	NUMBER	Total number of messages that have gone through this circuit
BYTES	NUMBER	Total number of bytes that have gone through this circuit
BREAKS	NUMBER	Total number of breaks (interruptions) for this circuit

V\$COMPATIBILITY

This view shows features in use by the database instance that may prevent downgrading to a previous release. This is the dynamic (SGA) version of this information, and may not reflect features that other instances have used, and may include temporary incompatibilities (like UNDO segments) that will not exist after the database is shut down cleanly.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
TYPE_ID	VARCHAR2(8)	Internal feature identifier
RELEASE	VARCHAR2(60)	Release in which that feature appeared
DESCRIPTION	VARCHAR2(64)	Description of the feature

V\$COMPATSEG

This view lists the permanent features in use by the database that will prevent moving back to an earlier release.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
TYPE_ID	VARCHAR2(8)	Internal feature identifier
RELEASE	VARCHAR2(60)	Release in which that feature appeared. The software must be able to interpret data formats added in that release
UPDATED	VARCHAR2(60)	Release that first used the feature

V\$CONTROLFILE

This view lists the names of the control files.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
STATUS	VARCHAR2(7)	INVALID if the name cannot be determined, which should not occur. NULL if the name can be determined.
NAME	VARCHAR2(257)	The name of the control file.

V\$DATABASE

This view contains database information from the control file.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
NAME	VARCHAR2	Name of the database
CREATED	VARCHAR2	Creation date
LOG_MODE	VARCHAR2	Archive log mode: NOARCHIVELOG or ARCHIVELOG
CHECKPOINT_CHANGE#	NUMBER	Last SCN checkpointed
ARCHIVE_CHANGE#	NUMBER	Last SCN archived

V\$DATAFILE

This view contains datafile information from the control file.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
FILE#	NUMBER	File identification number
STATUS	VARCHAR2	Type of file (system or user) and its status. Values: OFFLINE, ONLINE, SYSTEM, RECOVER, SYSOFF (an offline file from the SYSTEM tablespace).
ENABLED	VARCHAR2(10)	Describes how accessible the file is from SQL. It is one of the values in the following table.
CHECKPOINT_CHANGE#	NUMBER	SCN at last checkpoint
BYTES	NUMBER	Size in bytes

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
CREATE_BYTES	NUMBER	Size when created, in bytes
NAME	VARCHAR2	Name of the file

The following table describes values that can be entered in the V\$DATAFILE ENABLED column.

ENABLED Column Value	Description
DISABLED	No SQL access allowed
READ ONLY	No SQL updates allowed
READ WRITE	Full access allowed
UNKNOWN	Should not occur unless the control file is corrupted

Table 3 – 1 ENABLED Column Values

V\$DBFILE

This view lists all datafiles making up the database. This view is retained for historical compatibility. Use of V\$DATAFILE is recommended instead.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
FILE#	NUMBER	File identifier
NAME	VARCHAR2	Name of file

V\$DBLINK

This view describes all open database links (links with IN_TRANSACTION = YES). These database links must be committed or rolled back before being closed.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
DB_LINK	VARCHAR2(128)	Name of the database link
OWNER_ID	NUMBER	Owner of the database link UID
LOGGED_ON	VARCHAR2(3)	Whether the database link is currently logged on
HETEROGENEOUS	VARCHAR2(3)	Whether the database link is heterogeneous
PROTOCOL	VARCHAR2(6)	Communication protocol for the database link

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
OPEN_CURSORS	NUMBER	Whether there are open cursors for the database link
IN_TRANSACTION	VARCHAR2(3)	Whether the database link is currently in a transaction
UPDATE_SENT	VARCHAR2(3)	Whether there has been an update on the database link
COMMIT_POINT_STRENGTH	NUMBER	Commit point strength of the transactions on the database link

V\$DB_OBJECT_CACHE

This view shows database objects that are cached in the library cache. Objects include tables, indexes, clusters, synonym definitions, PL/SQL procedures and packages, and triggers.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
OWNER	VARCHAR2	Owner of the object
NAME	VARCHAR2	Name of the object
DB_LINK	VARCHAR2	Database link name, if any
NAMESPACE	VARCHAR2	Library cache namespace of the object: TABLE/PROCEDURE, BODY, TRIGGER, INDEX, CLUSTER, OBJECT
TYPE	VARCHAR2	Type of the object: INDEX, TABLE, CLUSTER, VIEW, SET, SYNONYM, SEQUENCE, PROCEDURE, FUNCTION, PACKAGE, PACKAGE BODY, TRIGGER, CLASS, OBJECT, USER, DBLINK
SHARABLE_MEM	NUMBER	Amount of sharable memory in the shared pool consumed by the object
LOADS	NUMBER	Number of times the object has been loaded. This count also increases when an object has been invalidated
EXECUTIONS	NUMBER	Not used. To see actual execution counts, see V\$SQL_AREA on page 3 – 64.
LOCKS	NUMBER	Number of users currently locking this object

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
PINS	NUMBER	Number of users currently pinning this object
KEPT	VARCHAR2(3)	YES or NO, depending on whether this object has been “kept” (permanently pinned in memory) with the PL/SQL procedure DBMS_SHARED_POOL.KEEP

V\$DB_PIPES

This view shows the pipes that are currently in this database

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
OWNERID	NUMBER	The owner of the pipe if this is a private pipe; null otherwise.
NAME	VARCHAR2	The name of the pipe; for example, scott.pipe
TYPE	VARCHAR2	PUBLIC or PRIVATE
SIZE	NUMBER	The amount of memory the pipe uses

V\$DISPATCHER

This view provides information on the dispatcher processes.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
NAME	VARCHAR2	Name of the dispatcher process
NETWORK	VARCHAR2	Network protocol supported by this dispatcher. For example, TCP or DECNET.
PADDR	RAW(4)	Process address
STATUS	VARCHAR2	Dispatcher status: WAIT (idle), SEND (sending a message connection), RECEIVE (receiving a message), CONNECT (establishing a connection), DISCONNECT (handling a disconnect request), BREAK (handling a break), OUTBOUND (establishing an outbound connection)

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
ACCEPT	VARCHAR2	Whether this dispatcher is accepting new connections: YES, NO
MESSAGES	NUMBER	Number of messages processed by this dispatcher
BYTES	NUMBER	Size in bytes of messages processed by this dispatcher
BREAKS	NUMBER	Number of breaks occurring in this connection
OWNED	NUMBER	Number of circuits owned by this dispatcher
CREATED	NUMBER	Number of circuits created by this dispatcher
IDLE	NUMBER	Total idle time for this dispatcher in hundredths of a second
BUSY	NUMBER	Total busy time for this dispatcher in hundredths of a second
LISTENER	NUMBER	The most recent Oracle error number the dispatcher received from the listener

V\$ENABLEDPRIVS

This view shows which privileges are enabled. These privileges can be found in the table SYS.SYSTEM_PRIVILEGES_MAP.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
PRIV_NUMBER	NUMBER	Numeric identifier of enabled privileges

V\$EVENT_NAME

This view contains information about wait events.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
EVENT#	NUMBER	The number of the wait event
NAME	VARCHAR2(64)	The name of the wait event
PARAMETER1	VARCHAR2(64)	The description of the first parameter for the wait event

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
PARAMETER2	VARCHAR2(64)	The description of the second parameter for the wait event
PARAMETER3	VARCHAR2(64)	The description of the third parameter for the wait event

V\$FALSE_PING

This is a Parallel Server view.

This view shows buffers that may be getting false pings. That is, buffers pinged more than 100 times that are protected by the same lock as another buffer that pinged more than 100 times. Buffers identified as getting false pings can be remapped in GC_FILES_TO_LOCKS to reduce lock collisions.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
FILE#	NUMBER	Datafile identifier number (to find filename, query DBA_DATA_FILES or V\$DBFILES)
BLOCK#	NUMBER	Block number
STATUS	VARCHAR2(1)	Status of block: FREE = not currently in use XCUR = exclusive SCUR = shared current CR = consistent read READ = being read from disk MREC = in media recovery mode IREC = in instance recovery mode
XNC	NUMBER	Number of PCM lock conversions due to contention with another instance
NAME	VARCHAR2(30)	Name of the database object containing the block
KIND	VARCHAR2(12)	Type of database object: TABLE CLUSTER INDEX UNDO = rollback segment

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
OWNER#	NUMBER	Owner number
LOCK_ELEMENT_ADDR	RAW(4)	The address of the lock element that contains the PCM lock that is covering the buffer. If more than one buffer has the same address, then these buffers are covered by the same PCM lock.

For more information, see *Oracle7 Parallel Server Concepts & Administration*.

V\$FILESTAT

This view contains information about file read/write statistics.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
FILE#	NUMBER	Number of the file
PHYRDS	NUMBER	Number of physical reads done
PHYWRTS	NUMBER	Number of physical writes done
PHYBLKRD	NUMBER	Number of physical blocks read
PHYBLKWRT	NUMBER	Number of physical blocks written
READTIM	NUMBER	Time (in milliseconds) spent doing reads if the TIMED_STATISTICS parameter is TRUE; 0 if FALSE
WRITETIM	NUMBER	Time (in milliseconds) spent doing writes if the TIMED_STATISTICS parameter is TRUE; 0 if FALSE

V\$FIXED_TABLE

This view shows all dynamic performance tables, views, and derived tables in the database.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
NAME	VARCHAR2	Name of the object
OBJECT_ID	NUMBER	Identifier of the fixed object
TYPE	VARCHAR2	Object type: TABLE, VIEW
TABLE_NUM	NUMBER	Number that identifies the dynamic performance table if it is of type TABLE

V\$FIXED_VIEW_DEFINITION

This view contains the definitions of all the fixed views (views beginning with VS). Use this table with caution. Oracle tries to keep the behavior of fixed views the same from release to release, but the definitions of the fixed views can change without notice. Use these definitions to optimize your queries by using indexed columns of the dynamic performance tables.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
VIEW_NAME	VARCHAR2(30)	The name of the fixed view
VIEW_DEFINITION	VARCHAR2(2000)	The definition of the fixed view

V\$INDEXED_FIXED_COLUMN

This view shows the columns in dynamic performance tables (XS tables) that are indexed. The XS tables can change without notice. Use this view only to write queries against fixed views (VS views) more efficiently.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
TABLE_NAME	VARCHAR2(30)	The name of the dynamic performance table that is indexed
INDEX_NUMBER	NUMBER	Number that distinguishes to which index a column belongs

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
COLUMN_NAME	VARCHAR2(30)	Name of the column that is being indexed
COLUMN_POSITION	NUMBER	Position of the column in the index key (this is mostly relevant for multicolumn indexes)

V\$INSTANCE

This view shows the state of the current instance.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
KEY	VARCHAR2	Name of state variable, from Table 3 – 2
VALUE	NUMBER	Value of state variable

The following table lists names and values of state variables.

Instance State Variable	Value
RESTRICTED MODE	0 (False), 4096 (True)
SHUTDOWN PENDING	0 (False), 1 (True)
STARTUP TIME–JULIAN	Start time and date in Julian format
STARTUP TIME–SECONDS	Number of seconds since midnight on the startup date

Table 3 – 2 State Variables

V\$LATCH

This view lists statistics for non-parent latches and summary statistics for parent latches. That is, the statistics for a parent latch include counts from each of its children.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
ADDR	RAW(4)	Address of latch object
LATCH#	NUMBER	Latch number
LEVEL#	NUMBER	Latch level
NAME	VARCHAR2(64)	Latch name
GETS	NUMBER	Number of times gotten wait
MISSSES	NUMBER	Number of times gotten wait but failed first try

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
SLEEPS	NUMBER	Number of times slept when wanted wait
IMMEDIATE_GETS	NUMBER	Number of times gotten without wait
IMMEDIATE_MISSES	NUMBER	Number of time failed to get without wait
WAITERS_WOKEN	NUMBER	How many times a waiter was woken
WAITS_HOLDING_LATCH	NUMBER	Number of waits while holding a different latch
SPIN_GETS	NUMBER	Gets that missed first try but succeeded on spin
SLEEP1	NUMBER	Waits that slept 1 time
SLEEP2	NUMBER	Waits that slept 2 times
SLEEP3	NUMBER	Waits that slept 3 times
SLEEP4	NUMBER	Waits that slept 4 times
SLEEP5	NUMBER	Waits that slept 5 times
SLEEP6	NUMBER	Waits that slept 6 times
SLEEP7	NUMBER	Waits that slept 7 times
SLEEP8	NUMBER	Waits that slept 8 times
SLEEP9	NUMBER	Waits that slept 9 times
SLEEP10	NUMBER	Waits that slept 10 times
SLEEP11	NUMBER	Waits that slept 11 times

V\$LATCHHOLDER

This view contains information about the current latch holders.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
PID	NUMBER	Identifier of process holding the latch
SID	NUMBER	Identifier of the session that owns the latch
LADDR	RAW(4)	Latch address
NAME	VARCHAR2	Name of latch being held

V\$LATCHNAME

This view contains information about decoded latch names for the latches shown in V\$LATCH. The rows of V\$LATCHNAME have a one-to-one correspondence to the rows of V\$LATCH.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
LATCH#	NUMBER	Latch number
NAME	VARCHAR2(64)	Latch name

V\$LATCH_CHILDREN

This view contains statistics about child latches. This view includes all columns of V\$LATCH plus the CHILD# column. Note that child latches have the same parent if their LATCH# columns match each other.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
ADDR	RAW(4)	Address of latch object
LATCH#	NUMBER	Latch number for a parent latch
CHILD#	NUMBER	Child number of a parent latch shown in LATCH#
LEVEL#	NUMBER	Latch level
NAME	VARCHAR2(64)	Latch name
GETS	NUMBER	Number of times gotten wait
MISSES	NUMBER	Number of times gotten wait but failed first try
SLEEPS	NUMBER	Number of times slept when wanted wait
IMMEDIATE_GETS	NUMBER	Number of times gotten without wait
IMMEDIATE_MISSES	NUMBER	Number of time failed to get without wait
WAITERS_WOKEN	NUMBER	How many times a waiter was woken
WAITS_HOLDING_LATCH	NUMBER	Number of waits while holding a different latch
SPIN_GETS	NUMBER	Gets that missed first try but succeeded on spin
SLEEP n	NUMBER	Waits that slept n times

V\$SLATCH_MISSES

This view contains statistics about missed attempts to acquire a latch.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
PARENT_NAME	VARCHAR2	Latch name of a parent latch
WHERE	VARCHAR2	Location that attempted to acquire the latch
NWFAIL_COUNT	NUMBER	Number of times that no-wait acquisition of the latch failed
SLEEP_COUNT	NUMBER	Number of times that acquisition attempts caused sleeps

V\$SLATCH_PARENT

This view contains statistics about the parent latch. The columns of V\$SLATCH_PARENT are identical to those in V\$SLATCH (see page 3 – 18).

V\$LIBRARYCACHE

This view contains statistics about library cache performance and activity.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
NAMESPACE	VARCHAR2(15)	The library cache namespace
GETS	NUMBER	The number of times a lock was requested for objects of this namespace
GETHITS	NUMBER	The number of times an object's handle was found in memory
GETHITRATIO	NUMBER	The ratio of GETHITS to GETS
PINS	NUMBER	The number of times a pin was requested for objects of this namespace

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
PINHITS	NUMBER	The number of times all of the meta data pieces of the library object were found in memory
PINHITRATIO	NUMBER	The ratio of PINHITS to PINS
RELOADS	NUMBER	Any pin of an object that is not the first pin performed since the object handle was created, and which requires loading the object from disk
INVALIDATIONS	NUMBER	The total number of times objects in this namespace were marked invalid because a dependent object was modified
DLM_LOCK_REQUESTS	NUMBER	The number of GET requests lock instance locks
DLM_PIN_REQUESTS	NUMBER	The number of PIN requests lock instance locks
DLM_PIN_RELEASES	NUMBER	The number of release requests pin instance locks
DLM_INVALIDATION_REQUESTS	NUMBER	The number of GET requests for invalidation instance locks
DLM_INVALIDATIONS	NUMBER	The number of invalidation pings received from other instances

V\$LICENSE

This view contains information about license limits.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
SESSIONS_MAX	NUMBER	Maximum number of concurrent user sessions allowed for the instance
SESSIONS_WARNING	NUMBER	Warning limit for concurrent user sessions for the instance
SESSIONS_CURRENT	NUMBER	Current number of concurrent user sessions
SESSIONS_HIGHWATER	NUMBER	Highest number of concurrent user sessions since the instance started
USERS_MAX	NUMBER	Maximum number of named users allowed for the database

V\$LOADCSTAT

This view contains SQL*Loader statistics compiled during the execution of a direct load. These statistics apply to the whole load. Any select against this table results in “no rows returned” since you cannot load data and do a query at the same time.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
READ	NUMBER	Number of records read
REJECTED	NUMBER	Number of records rejected
TDISCARD	NUMBER	Total number of discards during the load
NDISCARD	NUMBER	Number of discards from the current file
SAVEDATA	NUMBER	Whether save data points are used

VSLOADTSTAT

SQL*Loader statistics compiled during the execution of a direct load. These statistics apply to the current table. Any select against this table results in “no rows returned” since you cannot load data and do a query at the same time.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
LOADED	NUMBER	Number of records loaded
REJECTED	NUMBER	Number of records rejected
FAILWHEN	NUMBER	Number of records that failed to meet any WHEN clause
ALLNULL	NUMBER	Number of records that were completely null and were therefore not loaded
LEFT2SKIP	NUMBER	Number of records yet to skip during a continued load

The following locks are obtained by user applications. Any process that is blocking others is likely to be holding one of these locks.

User Lock Type	Description
TM	DML enqueue lock
TX	Transaction enqueue lock
UL	User supplied lock

Table 3 – 3 User Lock Types

The following system locks are held for extremely short periods of time:

System Lock Type	Description
BL	Buffer hash table instance lock
CF	Control file schema global enqueue lock
CI	Cross-instance function invocation instance lock
CU	Cursor bind lock
DF	Data file instance lock
DL	direct loader parallel index create lock
DM	Mount/startup db primary/secondary instance lock
DR	Distributed recovery process lock
DX	Distributed transaction entry lock
FS	File set lock

Table 3 – 4 System Lock Types

System Lock Type	Description
IN	Instance number lock
IR	Instance recovery serialization global enqueue lock
IS	Instance state lock
IV	Library cache invalidation instance lock
JQ	Job queue lock
KK	Thread kick lock
LA..LP	Library cache lock instance lock (A..P=namespace)
MM	Mount definition global enqueue lock
MR	Media recovery lock
NA..NZ	Library cache pin instance lock (A..Z=namespace)
PF	Password File lock
PI, PS	Parallel operation locks
PR	Process startup lock
QA..QZ	Row cache instance lock (A..Z=cache)
RT	Redo thread global enqueue lock
SC	System commit number instance lock
SM	SMON lock
SN	Sequence number instance lock
SQ	Sequence number enqueue lock
SS	Sort segment locks
ST	Space transaction enqueue lock
SV	Sequence number value lock
TA	Generic enqueue lock
TS	Temporary segment enqueue lock (ID2=0)
TS	New block allocation enqueue lock (ID2=1)
TT	Temporary table enqueue lock
UN	User name lock
US	Undo segment DDL lock
WL	Being-written redo log instance lock

Table 3 – 4 (continued) System Lock Types

VSLOCK

This view lists the locks currently held by the Oracle7 Server and outstanding requests for a lock or latch.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
ADDR	RAW(4)	Address of lock state object
KADDR	RAW(4)	Address of lock
SID	NUMBER	Identifier for session holding or acquiring the lock
TYPE	VARCHAR2(2)	Type of lock: MR, Media Recovery RT, Redo Thread UN, User Name TX, Transaction TM, DML UL, PL/SQL User Lock DX, Distributed Xaction CF, Control File IS, Instance State FS, File Set IR, Instance Recovery ST, Disk Space Transaction TS, Temp Segment IV, Library Cache Invalidation LS, Log Start or Switch RW, Row Wait SQ, Sequence Number TE, Extend Table TT, Temp Table
ID1	NUMBER	Lock identifier #1 (depends on type)
ID2	NUMBER	Lock identifier #2 (depends on type)

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
LMODE	NUMBER	Mode the lock is currently held in by the session: 0, None 1, Null 2, Row-S (SS) 3, Row-X (SX) 4, Share 5, S/Row-X (SSX) 6, Exclusive
REQUEST	NUMBER	Mode the lock is being requested in by the process: 0, None 1, Null 2, Row-S (SS) 3, Row-X (SX) 4, Share 5, S/Row-X (SSX) 6, Exclusive
CTIME	NUMBER	Time since current mode was granted
BLOCK	NUMBER	The lock is blocking another lock

V\$LOCK_ACTIVITY

This is a Parallel Server view.

V\$LOCK_ACTIVITY shows the DLM lock operation activity of the current instance. Each row corresponds to a type of lock operation.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
FROM_VAL	VARCHAR2(4)	PCM lock initial state: NULL S X SSX
TO_VAL	VARCHAR2(4)	PCM lock initial state: NULL S X SSX

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
ACTION_VAL	VARCHAR2(51)	Description of lock conversions Lock buffers for read Lock buffers for write Make buffers CR (no write) Upgrade read lock to write Make buffers CR (write dirty buffers) Downgrade write lock to read (write dirty buffers) Write transaction table/undo blocks Transaction table/undo blocks (write dirty buffers) Make transaction table/undo blocks available share Rearm transaction table write mechanism
COUNTER	NUMBER	

For more information, see *Oracle7 Parallel Server Concepts & Administration*.

VSLOCK_ELEMENT

This is a Parallel Server view.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
LOCK_ELEMENT_ADDR	RAW(4)	The address of the lock element that contains the PCM lock that is covering the buffer. If more than one buffer has the same address, then these buffers are covered by the same PCM lock.
INDX	NUMBER	Platform specific lock manager identifier
CLASS	NUMBER	Platform specific lock manager identifier
MODE_HELD	NUMBER	Platform dependent value for lock mode held; often: 3 = share 5 = exclusive
BLOCK_COUNT	NUMBER	Number of blocks covered by PCM lock

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
RELEASING	NUMBER	Non-zero if PCM lock is being downgraded
ACQUIRING	NUMBER	Non-zero if PCM lock is being upgraded
INVALID	NUMBER	Non-zero if PCK lock is invalid. (A lock may become invalid after a system failure.)

For more information, see the *Oracle7 Parallel Server Concepts & Administration* manual.

VSLOCKED_OBJECT

This view lists all locks acquired by every transaction on the system.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
XIDUSN	NUMBER	Undo segment number
XIDSLOT	NUMBER	Slot number
XIDSQN	NUMBER	Sequence number
OBJECT_ID	NUMBER	Object ID being locked
SESSION_ID	NUMBER	Session ID
ORACLE_USERNAME	VARCHAR2(30)	Oracle user name
OS_USER_NAME	VARCHAR2(15)	OS user name
PROCESS	VARCHAR2(9)	OS process ID
LOCKED_MODE	NUMBER	Lock mode

VSLOCKS_WITH_COLLISIONS

This is a Parallel Server view.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
LOCK_ELEMENT_ADDR	RAW(4)	The address of the lock element that contains the PCM lock covering the buffer. If more than one buffer has the same address, then these buffers are covered by the same PCM lock.

For more information, see *Oracle7 Parallel Server Concepts & Administration*.

VSLOG

This view contains log file information from the control files.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
GROUP#	NUMBER	Log group number
THREAD#	NUMBER	Log thread number
SEQUENCE#	NUMBER	Log sequence number
BYTES	NUMBER	Size of the log in bytes
MEMBERS	NUMBER	Number of members in the log group
ARCHIVED	VARCHAR2	Archive status: TRUE, FALSE
STATUS	VARCHAR2(16)	Log status. The STATUS column can have the values in the following table.
FIRST_CHANGE#	NUMBER	Lowest SCN in the log
FIRST_TIME	VARCHAR2	Time of first SCN in the log

The following table defines values in the log STATUS column.

STATUS	Meaning
UNUSED	Indicates the online redo log has never been written to. This is the state of a redo log that was just added, or just after a RESETLOGS, when it is not the current redo log.
CURRENT	Indicates this is the current redo log. This implies that the redo log is active. The redo log could be open or closed.
ACTIVE	Indicates the log is active but is not the current log. It is needed for crash recovery. It may be in use for block recovery. It might or might not be archived.
CLEARING	Indicates the log is being recreated as an empty log after an ALTER DATABASE CLEAR LOGFILE command. After the log is cleared, the status changes to UNUSED.
CLEARING_CURRENT	Indicates that the current log is being cleared of a closed thread. The log can stay in this status if there is some failure in the switch such as an I/O error writing the new log header.
INACTIVE	Indicates the log is no longer needed for instance recovery. It may be in use for media recovery. It might or might not have already been archived.

Table 3 – 5 Log Status Meaning

V\$LOGFILE

This view contains information about redo log files.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
GROUP#	NUMBER	Redo log group identifier number
STATUS	VARCHAR2	Status of this log member: IN-VALID (file is inaccessible), STALE (file's contents are incomplete), DELETED (file is no longer used), or blank (file is in use)
MEMBER	VARCHAR2	Redo log member name

V\$LOGHIST

This view contains log history information from the control file. This view is retained for historical compatibility. Use of V\$LOG_HISTORY is recommended instead.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
THREAD#	NUMBER	Log thread number
SEQUENCE#	NUMBER	Log sequence number
FIRST_CHANGE#	NUMBER	Lowest SCN in the log
FIRST_TIME	VARCHAR2	Time of first SCN in the log
SWITCH_CHANGE#	NUMBER	SCN at which the log switch occurred; one more than highest SCN in the log

V\$LOG_HISTORY

This view lists the archived log names for all logs in the log history.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
THREAD#	NUMBER	Thread number of the archived log
SEQUENCE#	NUMBER	Sequence number of the archived log
TIME	VARCHAR2	Time of first entry (lowest SCN) in the log
LOW_CHANGE#	NUMBER	Lowest SCN in the log

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
HIGH_CHANGE#	NUMBER	Highest SCN in the log
ARCHIVE_NAME	VARCHAR2	Name of archive file, using the naming convention specified by the current values of the LOG_ARCHIVE_FORMAT and LOG_ARCHIVE_DEST initialization parameters. Note that the value of this column indicates the path based on the current values of these initialization parameters, therefore archive logs that were created with other settings of these initialization parameters may indicate the wrong path.

V\$MLS_PARAMETERS

This is a Trusted Oracle7 Server view that lists Trusted Oracle7 Server-specific initialization parameters.

For more information, see the *Trusted Oracle7 Server Administrator's Guide*.

V\$MTS

This view contains information for tuning the multi-threaded server.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
MAXIMUM_CONNECTIONS	NUMBER	The maximum number of connections each dispatcher can support. This value is determined at startup time using SQL*Net constants and other port-specific information.
SERVERS_STARTED	NUMBER	The total number of multi-threaded servers started since the instance started (but not including those started during startup)

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
SERVICES_terminated	NUMBER	The total number of multi-threaded servers stopped by Oracle since the instance started
SERVICES_highwater	NUMBER	The highest number of servers running at one time since the instance started. If this value reaches the value set for the MTS_MAX_SERVERS initialization parameter, consider raising the value of MTS_MAX_SERVERS.

V\$MYSTAT

This view contains statistics on the current session.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
SID	NUMBER	The id of the current session
STATISTIC#	NUMBER	The number of the statistic
VALUE	NUMBER	The value of the statistic

V\$NLS_PARAMETERS

This view contains current values of NLS parameters.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
PARAMETER	VARCHAR2	Parameter name: NLS_LANGUAGE NLS_SORT NLS_TERRITORY NLS_CHARACTERSET NLS_CURRENCY NLS_ISO_CURRENCY NLS_NUMERIC_CHARACTERS NLS_DATE_FORMAT NLS_DATE_LANGUAGE
VALUE	VARCHAR2	NLS parameter value

V\$NLS_VALID_VALUES

This view lists all valid values for NLS parameters.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
PARAMETER	VARCHAR2(64)	NLS_* parameter: LANGUAGE SORT TERRITORY CHARACTERSET
VALUE	VARCHAR2(64)	NLS_* parameter value

V\$OBJECT_DEPENDENCY

This view can be used to determine what objects are depended on by a package, procedure, or cursor that is currently loaded in the shared pool. For example, together with V\$SESSION and V\$SQL, it can be used to determine which tables are used in the SQL statement that a user is currently executing.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
FROM_ADDRESS	RAW(4)	The address of a procedure, package, or cursor that is currently loaded in the shared pool
FROM_HASH	NUMBER	The hash value of a procedure, package, or cursor that is currently loaded in the shared pool
TO_OWNER	VARCHAR2(64)	The owner of the object that is depended on
TO_NAME	VARCHAR2(1000)	The name of the object that is depended on
TO_ADDRESS	RAW(4)	The address of the object that is depended on. These can be used to look up more information on the object in V\$DB_OBJECT_CACHE.
TO_HASH	NUMBER	The hash value of the object that is depended on. These can be used to look up more information on the object in V\$DB_OBJECT_CACHE.
TO_TYPE	NUMBER	The type of the object that is depended on

V\$OPEN_CURSOR

This view lists cursors that each user session currently has opened and parsed.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
SADDR	RAW	Session address
SID	NUMBER	Session identifier
USER_NAME	VARCHAR2	User that is logged in to the session
ADDRESS	RAW	Used with HASH_VALUE to identify uniquely the SQL statement being executed in the session
HASH_VALUE	NUMBER	Used with ADDRESS to identify uniquely the SQL statement being executed in the session
SQL_TEXT	VARCHAR2	First 60 characters of the SQL statement that is parsed into the open cursor

V\$OPTION

This view lists options that are installed with the Oracle7 Server.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
PARAMETER	VARCHAR2(64)	The name of the option
VALUE	VARCHAR2(64)	TRUE if the option is installed

V\$PARAMETER

This view lists information about initialization parameters.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
NUM	NUMBER	Parameter number
NAME	VARCHAR2(64)	Parameter name
TYPE	NUMBER	Parameter type
VALUE	VARCHAR2(512)	Parameter value
ISDEFAULT	VARCHAR2(9)	Whether parameter is default

V\$PING

This is a Parallel Server view.

The V\$PING view is identical to the V\$CACHE view but only shows blocks that have been pinged at least once. This view contains information from the block header of each block in the SGA of the current instance as related to particular database objects.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
FILE#	NUMBER	Datafile identifier number (to find filename, query DBA_DATA_FILES or V\$DBFILES)
BLOCK#	NUMBER	Block number
STATUS	VARCHAR2(1)	Status of block: FREE= not currently in use XCUR=exclusive SCUR=shared current CR=consistent read READ=being read from disk MREC=in media recovery mode IREC=in instance recovery mode
XNC	NUMBER	Number of PCM lock conversions due to contention with another instance
LOCK_ELEMENT_ADDR	RAW(4)	The address of the lock element that contains the PCM lock that is covering the buffer. If more than one buffer has the same address, then these buffers are covered by the same PCM lock.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
NAME	VARCHAR2(30)	Name of the database object containing the block
KIND	VARCHAR2(12)	Type of database object: TABLE CLUSTER INDEX UNDO = rollback segment
OWNER#	NUMBER	Owner number

For more information, see the *Oracle7 Parallel Server Concepts & Administration* manual.

V\$PQ_SESSTAT

This view lists session statistics for parallel queries.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
STATISTIC	VARCHAR2(30)	Name of the statistic
LAST_QUERY	NUMBER	The value of the statistic for the last query
SESSION_TOTAL	NUMBER	The value of the statistic for the entire session to this point in time

V\$PQ_SLAVE

This view lists statistics for each of the active parallel query servers on an instance.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
SLAVE_NAME	VARCHAR2(4)	Name of the parallel query server
STATUS	VARCHAR2(4)	The current status of the parallel query server (BUSY or IDLE)
SESSIONS	NUMBER	The number of sessions that have used this parallel query server

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
IDLE_TIME_CUR	NUMBER	The amount of time spent idle while processing statements in the current session
BUSY_TIME_CUR	NUMBER	The amount of time spent busy while processing statements in the current session
CPU_SECS_CUR	NUMBER	The amount of CPU time spent on the current session
MSGS_SENT_CUR	NUMBER	The number of messages sent while processing statements for the current session
MSGS_RCVD_CUR	NUMBER	The number of messages received while processing statements for the current session
IDLE_TIME_TOTAL	NUMBER	The total amount of time this query server has been idle
BUSY_TIME_TOTAL	NUMBER	The total amount of time this query server has been active
CPU_SECS_TOTAL	NUMBER	The total amount of CPU time this query server has used to process statements
MSGS_SENT_TOTAL	NUMBER	The total number of messages this query server has sent
MSGS_RCVD_TOTAL	NUMBER	The total number of messages this query server has received

V\$PQ_SYSSTAT

This view lists system statistics for parallel queries.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
STATISTIC	VARCHAR2(30)	Name of the statistic
VALUE	NUMBER	The value of the statistic

V\$PQ_TQSTAT

This view contains statistics on parallel query operations. The statistics are compiled after the query completes and only remain for the duration of the session. It shows the number of rows processed through each parallel query server at each stage of the execution tree. This view can help determine skew problems in a query’s execution.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
DFO_NUMBER	NUMBER	The data flow operator (DFO) tree number to differentiate queries
TQ_ID	NUMBER	The table queue ID within the query, which represents the connection between two DFO nodes in the query execution tree
SERVER_TYPE	VARCHAR2(10)	The role in table queue – producer/consumer/ranger
NUM_ROWS	NUMBER	The number of rows produced/consumed
BYTES	NUMBER	The number of bytes produced/consumed
OPEN_TIME	NUMBER	Time (secs) the table queue remained open
AVG_LATENCY	NUMBER	Time (ms) for a message to be dequeued after it enters the queue
WAITS	NUMBER	The number of waits encountered when dequeuing
TIMEOUTS	NUMBER	The number of timeouts when waiting for a message
PROCESS	VARCHAR2(10)	Process ID
INSTANCE	NUMBER	Instance ID

V\$PROCESS

This view contains information about the currently active processes.

While the LATCHWAIT column indicates what latch a process is waiting for, the LATCHSPIN column indicates what latch a process is spinning on. On multi-processor machines, Oracle processes will spin on a latch before waiting on it.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
ADDR	RAW(4)	Address of process state object
PID	NUMBER	Oracle process identifier
SPID	VARCHAR2	Operating system process identifier
USERNAME	VARCHAR2	Operating system process username. Any Two-Task user coming across the network has “-T” appended to the username.
SERIAL#	NUMBER	Process serial number
TERMINAL	VARCHAR2	Operating system terminal identifier
PROGRAM	VARCHAR2	Program in progress
BACKGROUND	VARCHAR2	1 for a background process; null for a normal process
LATCHWAIT	VARCHAR2	Address of latch the process is waiting for; null if none
LATCHSPIN	VARCHAR2	Address of latch the process is being spun on; null if none

V\$PWFILERS_USERS

This view lists users who have been granted SYSDBA and SYSOPER privileges as derived from the password file.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
USERNAME	VARCHAR2(30)	The name of the user that is contained in the password file.
SYSDBA	VARCHAR2(5)	If the value of this column is TRUE, the user can connect with SYSDBA privileges.
SYSOPER	VARCHAR2(5)	If the value of this column is TRUE, the user can connect with SYSOPER privileges

V\$QUEUE

This view contains information on the multi-thread message queues.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
PADDR	RAW(4)	Address of the process that owns the queue
TYPE	VARCHAR2	Type of queue: COMMON (processed by servers), OUT-BOUND (used by remote servers), DISPATCHER.
QUEUED	NUMBER	Number of items in the queue
WAIT	NUMBER	Total time that all items in this queue have waited. Divide by TOTALQ for average wait per item.
TOTALQ	NUMBER	Total number of items that have ever been in the queue

V\$RECOVERY_LOG

This view lists information about archived logs that are needed to complete media recovery. This information is derived from the log history view, V\$LOG_HISTORY.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
THREAD#	NUMBER	Thread number of the archived log
SEQUENCE#	NUMBER	Sequence number of the archived log
TIME	VARCHAR2	Time of first entry (lowest SCN) in the log
ARCHIVE_NAME	VARCHAR2	Name of file when archived, using the naming convention specified by the LOG_ARCHIVE_FORMAT initialization parameter

V\$RECOVER_FILE

This view shows the status of files needing media recovery.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
FILE#	NUMBER	File identifier number
ONLINE	VARCHAR2	Online status: ONLINE, OFFLINE
ERROR	VARCHAR2	Why the file needs to be recovered: NULL if reason unknown, or OFFLINE NORMAL if recovery not needed
CHANGE#	NUMBER	SCN where recovery must start
TIME	VARCHAR2	Time of SCN where recovery must start

V\$RECOVERY_FILE_STATUS

This view contains one row for each datafile for each RECOVER command.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
FILENUM	NUMBER	The number of the file being recovered
FILENAME	VARCHAR2(257)	The filename of the datafile being recovered
STATUS	VARCHAR2(13)	The status of the recovery. Contains one of the following values: <ul style="list-style-type: none">• IN RECOVERY• CURRENT• NOT RECOVERED

V\$RECOVERY_STATUS

This view contains statistics of the current recovery process.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
RECOVERY_CHECKPOINT	VARCHAR2(20)	The point in time to which the recovery has occurred. If no logs have been applied, this is the point in time the recovery starts.
THREAD	NUMBER	The number of the redo thread currently being processed.
SEQUENCE_NEEDED	NUMBER	Log sequence number of the log needed by the recovery process. The value is 0 if no log is needed.
SCN_NEEDED	VARCHAR2(16)	The low SCN of the log needed by recovery. The value is 0 if unknown or no log is needed.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
TIME_NEEDED	VARCHAR2(20)	Time when the log was created. The value is midnight on 1/1/88 if the time is unknown or if no log is needed.
PREVIOUS_LOG_NAME	VARCHAR2(257)	The filename of the log.
PREVIOUS_LOG_STATUS	VARCHAR2(13)	The status of the previous log. Contains one of the following values: <ul style="list-style-type: none"> • RELEASE • WRONG NAME • MISSING NAME • UNNEEDED NAME • NONE
REASON	VARCHAR2(13)	The reason recovery is returning control to the user. Contains one of the following values: <ul style="list-style-type: none"> • NEED LOG • LOG REUSED • THREAD DISABLED

VSREQDIST

This view lists statistics for the histogram of MTS dispatcher request times, divided into 12 buckets, or ranges of time. The time ranges grow exponentially as a function of the bucket number.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
BUCKET	NUMBER	Bucket number: 0..11; the maximum time for each bucket is $(4 * 2^N)/100$ seconds
COUNT	NUMBER	Count of requests whose total time to complete (excluding wait time) falls in this range

V\$RESOURCE

This view contains information about resources.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
ADDR	RAW(4)	Address of resource object
TYPE	VARCHAR2	Resource type
ID1	NUMBER	Resource identifier #1
ID2	NUMBER	Resource identifier #2

V\$ROLLNAME

This view lists the names of all online rollback segments. This view can only be accessed when the database is open.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
USN	NUMBER	Rollback (undo) segment number
NAME	VARCHAR2	Rollback segment name

V\$ROLLSTAT

This view contains rollback segment statistics.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
USN	NUMBER	Rollback segment number
EXTENTS	NUMBER	Number of rollback extents
RSSIZE	NUMBER	Size in bytes of rollback segment
WRITES	NUMBER	Number of bytes written to rollback segment
XACTS	NUMBER	Number of active transactions
GETS	NUMBER	Number of header gets
WAITS	NUMBER	Number of header waits
OPTSIZE	NUMBER	Optimal size of rollback segment
HWMSIZE	NUMBER	High water mark of rollback segment size

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
SHRINKS	NUMBER	Number of times the size of a rollback segment decreases
WRAPS	NUMBER	Number of times rollback segment is wrapped
EXTENDS	NUMBER	Number of times rollback segment size is extended
AVESHRINK	NUMBER	Average shrink size
AVEACTIVE	NUMBER	Current size of active extents, averaged over time.
STATUS	VARCHAR2(15)	Rollback segment status
CUREXT	NUMBER	Current extent
CURBLK	NUMBER	Current block

V\$ROWCACHE

This view shows statistics for data dictionary activity. Each row contains statistics for one data dictionary cache.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
CACHE#	NUMBER	Row cache ID number
TYPE	VARCHAR2	Parent or subordinate row cache type
SUBORDINATE#	NUMBER	Subordinate set number
PARAMETER	VARCHAR2	Name of the initialization parameter that determines the number of entries in the data dictionary cache
COUNT	NUMBER	Total number of entries in the cache
USAGE	NUMBER	Number of cache entries that contain valid data
FIXED	NUMBER	Number of fixed entries in the cache
GETS	NUMBER	Total number of requests for information on the data object
GETMISSES	NUMBER	Number of data requests resulting in cache misses
SCANS	NUMBER	Number of scan requests

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
SCANMISSES	NUMBER	Number of times a scan failed to find the data in the cache
SCANCOMPLETES	NUMBER	For a list of subordinate entries, the number of times the list was scanned completely
MODIFICATIONS	NUMBER	Number of inserts, updates, and deletions
FLUSHES	NUMBER	Number of times flushed to disk

V\$SECONDARY

This is a Trusted Oracle7 Server view that lists secondary mounted databases.

For more information, see the *Trusted Oracle7 Server Administrator's Guide*.

V\$SESSION

This view lists session information for each current session.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
SADDR	RAW(4)	Session address
SID	NUMBER	Session identifier
SERIAL#	NUMBER	Session serial number. Used to identify uniquely a session's objects. Guarantees that session-level commands are applied to the correct session objects if the session ends and another session begins with the same session ID.
AUDSID	NUMBER	Auditing session ID
PADDR	RAW(4)	Address of the process that owns this session
USER#	NUMBER	Oracle user identifier
USERNAME	VARCHAR2	Oracle username

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
COMMAND	NUMBER	Command in progress (last statement parsed); for a list of values, see Table 3 – 6
TADDR	VARCHAR2	Address of transaction state object
LOCKWAIT	VARCHAR2	Address of lock waiting for; null if none
STATUS	VARCHAR2	Status of the session: ACTIVE (currently executing SQL), INACTIVE, KILLED (marked to be killed), CACHED (temporarily cached for use by Oracle*XA)
SERVER	VARCHAR2	Server type: DEDICATED, SHARED, PSEUDO, NONE
SCHEMA#	NUMBER	Schema user identifier
SCHEMANAME	VARCHAR2	Schema user name
OSUSER	VARCHAR2	Operating system client user name
PROCESS	VARCHAR2	Operating system client process ID
MACHINE	VARCHAR2	Operating system machine name
TERMINAL	VARCHAR2	Operating system terminal name
PROGRAM	VARCHAR2	Operating system program name
TYPE	VARCHAR2	Session type
SQL_ADDRESS	RAW(4)	Used with SQL_HASH_VALUE to identify the SQL statement that is currently being executed
SQL_HASH_VALUE	NUMBER	Used with SQL_ADDRESS to identify the SQL statement that is currently being executed

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
MODULE	VARCHAR2(48)	Contains the name of the currently executing module as set by calling the DBMS_APPLICATION_INFO.SET_MODULE procedure.
MODULE_HASH	NUMBER	The hash value of the above module_name
ACTION	VARCHAR2(32)	Contains the name of the currently executing action as set by calling the dbms_application_info.set_action procedure.
ACTION_HASH	NUMBER	The hash value of the above action name
CLIENT_INFO	VARCHAR2(64)	Information set by the DBMS_APPLICATION_INFO.SET_CLIENT_INFO procedure.
FIXED_TABLE_SEQUENCE	NUMBER	This contains a number that increases every time the session completes a call to the database and there has been an intervening select from a dynamic performance table. This column can be used by performance monitors that wish to monitor statistics in the database. Each time the performance monitor looks at the database, it only needs to look at sessions that are currently active or have a higher value in this column than the highest value that the performance monitor saw the last time. All the other sessions have been idle since the last time the performance monitor looked at the database.
ROW_WAIT_OBJ#	NUMBER	Object id for the table containing the rowid specified in ROW_WAIT_ROW#

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
ROW_WAIT_FILE#	NUMBER	Identifier for the datafile containing the rowid specified in ROW_WAIT_ROW#. This column is valid only if the session is currently waiting for another transaction to commit and the value of ROW_WAIT_OBJ# is non-zero.
ROW_WAIT_BLOCK#	NUMBER	Identifier for the block containing the rowid specified in ROW_WAIT_ROW#. This column is valid only if the session is currently waiting for another transaction to commit and the value of ROW_WAIT_OBJ# is non-zero.
ROW_WAIT_ROW#	NUMBER	The current rowid being locked. This column is valid only if the session is currently waiting for another transaction to commit and the value of ROW_WAIT_OBJ# is non-zero.

Table 3 – 6 lists numeric values corresponding to commands that may be in progress during a session. These values may appear in the V\$SESSION COMMAND column. They also appear in the data dictionary view SYS.AUDIT_ACTIONS.

Command Number	Command
0	No command in progress. Occurs when process is in a transitory state, usually when terminating.
1	CREATE TABLE
2	INSERT
3	SELECT
4	CREATE CLUSTER
5	ALTER CLUSTER
6	UPDATE
7	DELETE

Table 3 – 6 Command Number Values

Command Number	Command
8	DROP CLUSTER
9	CREATE INDEX
10	DROP INDEX
11	ALTER INDEX
12	DROP TABLE
13	CREATE SEQUENCE
14	ALTER SEQUENCE
15	ALTER TABLE
16	DROP SEQUENCE
17	GRANT
18	REVOKE
19	CREATE SYNONYM
20	DROP SYNONYM
21	CREATE VIEW
22	DROP VIEW
23	VALIDATE INDEX
24	CREATE PROCEDURE
25	ALTER PROCEDURE
26	LOCK TABLE
27	NO OPERATION
28	RENAME
29	COMMENT
30	AUDIT
31	NOAUDIT
32	CREATE DATABASE LINK
33	DROP DATABASE LINK
34	CREATE DATABASE
35	ALTER DATABASE
36	CREATE ROLLBACK SEGMENT
37	ALTER ROLLBACK SEGMENT
38	DROP ROLLBACK SEGMENT
39	CREATE TABLESPACE
40	ALTER TABLESPACE
41	DROP TABLESPACE

Table 3 – 6 (continued) Command Number Values

Command Number	Command
42	ALTER SESSION
43	ALTER USER
44	COMMIT
45	ROLLBACK
46	SAVEPOINT
47	PL/SQL EXECUTE
48	SET TRANSACTION
49	ALTER SYSTEM SWITCH LOG
50	EXPLAIN
51	CREATE USER
52	CREATE ROLE
53	DROP USER
54	DROP ROLE
55	SET ROLE
56	CREATE SCHEMA
57	CREATE CONTROL FILE
58	ALTER TRACING
59	CREATE TRIGGER
60	ALTER TRIGGER
61	DROP TRIGGER
62	ANALYZE TABLE
63	ANALYZE INDEX
64	ANALYZE CLUSTER
65	CREATE PROFILE
67	DROP PROFILE
68	ALTER PROFILE
69	DROP PROCEDURE
70	ALTER RESOURCE COST
71	CREATE SNAPSHOT LOG
72	ALTER SNAPSHOT LOG
73	DROP SNAPSHOT LOG
74	CREATE SNAPSHOT
75	ALTER SNAPSHOT
76	DROP SNAPSHOT

Table 3 – 6 (continued) Command Number Values

Command Number	Command
79	ALTER ROLE
85	TRUNCATE TABLE
86	TRUNCATE CLUSTER
88	ALTER VIEW
91	CREATE FUNCTION
92	ALTER FUNCTION
93	DROP FUNCTION
94	CREATE PACKAGE
95	ALTER PACKAGE
96	DROP PACKAGE
97	CREATE PACKAGE BODY
98	ALTER PACKAGE BODY
99	DROP PACKAGE BODY

Table 3 – 6 (continued) Command Number Values

V\$SESSION_CONNECT_INFO

This view displays information about network connections for the current session.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
SID	NUMBER	Session identifier (can be used to join this view with V\$SESSION)
AUTHENTICATION_ TYPE	VARCHAR2(15)	How the user was authenticated: OS, PROTOCOL, or NETWORK.
OSUSER	VARCHAR2(30)	The external username for this database user
NETWORK_ SERVICE_BANNER	VARCHAR2(2000)	Product banners for each SQL*Net service used for this connection (one row per banner)

V\$SESSION_CURSOR_CACHE

This view displays information on cursor usage for the current session.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
MAXIMUM	NUMBER	Maximum number of cursors to cache. Once you hit this number, some cursors will need to be closed to open more
COUNT	NUMBER	Current number of cursors (in use or not)
OPENED_ONCE	NUMBER	Number of cursors opened at least once
OPEN	NUMBER	Current number of open cursors
OPENS	NUMBER	Cumulative total of cursor opens
HITS	NUMBER	Cumulative total of cursor open hits
HIT_RATIO	NUMBER	Ratio of the number of times we found an open cursor divided by the number of times we looked for a cursor

V\$SESSION_EVENT

This view lists information on waits for an event by a session.

Note that the TIME_WAITED and AVERAGE_WAIT columns will contain a value of zero on those platforms that do not support a fast timing mechanism. If you are running on one of these platforms and you wish this column to reflect true wait times, you must set TIMED_STATISTICS to TRUE in the parameter file. Please remember that doing this will have a small negative effect on system performance.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
SID	NUMBER	The id of the session
EVENT	VARCHAR2(64)	The name of the wait event
TOTAL_WAITS	NUMBER	The total number of waits for this event by this session
TOTAL_TIMEOUTS	NUMBER	The total number of timeouts for this event by this session

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
TIME_WAITED	NUMBER	The total amount of time waited for this event by this session, in hundredths of a second
AVERAGE_WAIT	NUMBER	The average amount of time waited for this event by this session, in hundredths of a second

V\$SESSION_WAIT

This view lists the resources or events for which active sessions are waiting.

The following are tuning considerations:

- P1RAW, P2RAW, and P3RAW display the same values as the P1, P2, and P3 columns, except that the numbers are displayed in hex.
- The WAIT_TIME column contains a value of -2 on platforms that do not support a fast timing mechanism. If you are running on one of these platforms and you wish this column to reflect true wait times, you must set the TIMED_STATISTICS parameter to TRUE. Remember that doing this has a small negative effect on system performance.

In previous releases the WAIT_TIME column contained an arbitrarily large value instead of a negative value to indicate the platform did not have a fast timing mechanism.

- The STATE column interprets the value of WAIT_TIME and describes the state of the current or most recent wait.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
SID	NUMBER	Session identifier
SEQ#	NUMBER	Sequence number that uniquely identifies this wait. Incremented for each wait.
EVENT	VARCHAR2	Resource or event for which the session is waiting
P1TEXT	VARCHAR2	Description of first additional parameter
P1	NUMBER	First additional parameter
P1RAW	RAW(4)	First additional parameter

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
P2TEXT	VARCHAR2	Description of second parameter
P2	NUMBER	Second additional parameter
P2RAW	RAW(4)	Second additional parameter
P3TEXT	VARCHAR2	Description of third parameter
P3	NUMBER	Third additional parameter
P3RAW	RAW(4)	Third additional parameter
WAIT_TIME	NUMBER	A non-zero value is the session's last wait time. A zero value means the session is currently waiting.
STATE	VARCHAR2	Wait state (see following table)

The following table defines values in the V\$SESSION_WAIT STATUS column.

STATUS	Meaning
WAITING	the session is currently waiting
WAITED UNKNOWN TIME	duration of last wait is unknown
WAITED SHORT TIME	last wait < 1/100th of a second
WAITED KNOWN TIME	WAIT_TIME = duration of last wait

Table 3 – 7 Wait State STATUS Values

V\$SESSTAT

This view lists user session statistics.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
SID	NUMBER	Session identifier
STATISTIC#	NUMBER	Statistic number (identifier)
VALUE	NUMBER	Statistic value

V\$SESS_IO

This view lists I/O statistics for each user session.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
SID	NUMBER	Session identifier
BLOCK_GETS	NUMBER	Block gets for this session
CONSISTENT_GETS	NUMBER	Consistent gets for this session
PHYSICAL_READS	NUMBER	Physical reads for this session
BLOCK_CHANGES	NUMBER	Block changes for this session
CONSISTENT_CHANGES	NUMBER	Consistent changes for this session

V\$SGA

This view contains summary information on the System Global Area.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
NAME	VARCHAR2	SGA component group
VALUE	NUMBER	Memory size in bytes

V\$SGASTAT

This view contains detailed information on the System Global Area.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
NAME	VARCHAR2	SGA component name
BYTES	NUMBER	Memory size in bytes

V\$SHARED_POOL_RESERVED

This fixed view lists statistics that help you tune the reserved pool and space within the shared pool.

The following columns of V\$SHARED_POOL_RESERVED are only valid if the initialization parameter SHARED_POOL_RESERVED_SIZE is set to a valid value.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
FREE_SPACE	NUMBER	Total amount of free space on the reserved list
AVG_FREE_SIZE	NUMBER	Average size of the free memory on the reserved list
FREE_COUNT	NUMBER	Number of free pieces of memory on the reserved list
MAX_FREE_SIZE	NUMBER	Size of the largest free piece of memory on the reserved list
USED_SPACE	NUMBER	Total amount of used memory on the reserved list
AVG_USED_SIZE	NUMBER	Average size of the used memory on the reserved list
USED_COUNT	NUMBER	Number of used pieces of memory on the reserved list
MAX_USED_SIZE	NUMBER	Size of the largest used piece of memory on the reserved list
REQUESTS	NUMBER	Number of times that the reserved list was searched for a free piece of memory
REQUEST_MISSES	NUMBER	Number of times the reserved list did not have a free piece of memory to satisfy the request, and started flushing objects from the LRU list
LAST_MISS_SIZE	NUMBER	Request size of the last request miss, when the reserved list did not have a free piece of memory to satisfy the request and started flushing objects from the LRU list
MAX_MISS_SIZE	NUMBER	Request size of the largest request miss, when the reserved list did not have a free piece of memory to satisfy the request and started flushing objects from the LRU list

The following columns of V\$SHARED_POOL_RESERVED contains values which are valid even if SHARED_POOL_RESERVED_SIZE is not set.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
REQUEST_FAILURES	NUMBER	Number of times that no memory was found to satisfy a request (that is, the number of times the error ORA-4031 occurred)
LAST_FAILURE_SIZE	NUMBER	Request size of the last failed request (that is, the request size for the last ORA-4031 error)
ABORTED_REQUEST_THRESHOLD	NUMBER	Minimum size of a request which signals an ORA-4031 error without flushing objects
ABORTED_REQUESTS	NUMBER	Number of requests that signalled an ORA-4031 error without flushing objects
LAST_ABORTED_SIZE	NUMBER	Last size of the request that returned an ORA-4031 error without flushing objects from the LRU list

V\$SHARED_SERVER

This view contains information on the shared server processes.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
NAME	VARCHAR2	Name of the server
PADDR	RAW(4)	Server's process address
STATUS	VARCHAR2	Server status: EXEC (executing SQL), WAIT (ENQ) (waiting for a lock), WAIT (SEND) (waiting to send data to user), WAIT (COMMON) (idle; waiting for a user request), WAIT (RESET) (waiting for a circuit to reset after a break), QUIT (terminating)
MESSAGES	NUMBER	Number of messages processed
BYTES	NUMBER	Total number of bytes in all messages
BREAKS	NUMBER	Number of breaks
CIRCUIT	RAW(4)	Address of circuit currently being serviced

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
IDLE	NUMBER	Total idle time in hundredths of a second
BUSY	NUMBER	Total busy time in hundredths of a second
REQUESTS	NUMBER	Total number of requests taken from the common queue in this server's lifetime

V\$SORT_SEGMENT

This view contains information about every sort segment in a given instance.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
TABLESPACE_NAME	VARCHAR2(31)	Name of tablespace
SEGMENT_FILE	NUMBER	File number of the first extent
SEGMENT_BLOCK	NUMBER	Block number of the first extent
EXTENT_SIZE	NUMBER	Extent size
CURRENT_USERS	NUMBER	Number of active users of the segment
TOTAL_EXTENTS	NUMBER	Total number of extents in the segment
TOTAL_BLOCKS	NUMBER	Total number of blocks in the segment
USED_EXTENTS	NUMBER	Extents allocated to active sorts
USED_BLOCKS	NUMBER	Blocks allocated to active sorts
FREE_EXTENTS	NUMBER	Extents not allocated to any sort
FREE_BLOCKS	NUMBER	Blocks not allocated to any sort
ADDED_EXTENTS	NUMBER	Number of extent allocations
EXTENT_HITS	NUMBER	Number of times an unused extent was found in the pool

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
FREED_EXTENTS	NUMBER	Number of deallocated extents
FREE_REQUESTS	NUMBER	Number of requests to deallocate
MAX_SIZE	NUMBER	Maximum number of extents ever used
MAX_BLOCKS	NUMBER	Maximum number of blocks ever used
MAX_USED_SIZE	NUMBER	Maximum number of extents used by all sorts
MAX_USED_BLOCKS	NUMBER	Maximum number of blocks used by all sorts
MAX_SORT_SIZE	NUMBER	Maximum number of extents used by an individual sort
MAX_SORT_BLOCKS	NUMBER	Maximum number of blocks used by an individual sort

V\$SQL

This view lists statistics on shared SQL area without the GROUP BY clause and contains one row for each child of the original SQL text entered.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
SQL_TEXT	VARCHAR2(1000)	The first eighty characters of the SQL text for the current cursor
SHARABLE_MEM	NUMBER	The sum of all sharable memory, in bytes, of all the child cursors under this parent
PERSISTENT_MEM	NUMBER	The sum of all persistent memory, in bytes, of all the child cursors under this parent
RUNTIME_MEM	NUMBER	The sum of all the ephemeral frame sizes of all the children
SORTS	NUMBER	The sum of the number of sorts that was done for all the children

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
LOADED_VERSIONS	NUMBER	The number of children that are present in the cache AND have their context heap (KGL heap 6) loaded
OPEN_VERSIONS	NUMBER	The number of child cursors that are currently open under this current this parent
USERS_OPENING	NUMBER	The number of users that have any of the child cursors open
EXECUTIONS	NUMBER	The number of executions that took place on this object since it was brought into the library cache
USERS_EXECUTING	NUMBER	The sum of all users executiong the statement over all children
LOADS	NUMBER	The number of times the object was loaded or reloaded
FIRST_LOAD_TIME	VARCHAR2(19)	The time stamp of the parent creation time
INVALIDATIONS	NUMBER	The sum of invalidations over all the children
PARSE_CALLS	NUMBER	The sum of all parse calls to all the child cursors under this parent
DISK_READS	NUMBER	The sum of the number of disk reads over all child cursors
BUFFER_GETS	NUMBER	The sum of buffer gets over all child cursors
ROWS_PROCESSED	NUMBER	The total number of rows the parsed SQL statement returns
COMMAND_TYPE	NUMBER	The Oracle command type definition
OPTIMIZER_MODE	VARCHAR2(10)	Mode under which the SQL statement is executed
PARSING_USER_ID	NUMBER	The user ID of the user that has parsed the very first cursor under this parent
PARSING_SCHEMA_ID	NUMBER	The schema ID that was used to parse this child cursor

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
KEPT_VERSIONS	NUMBER	The number of child cursors that have been marked to be kept using the DBMS_SHARED_POOL package
ADDRESS	RAW(4)	The address of the handle to the parent for this cursor
HASH_VALUE	NUMBER	The hash value of the parent statement in the library cache
CHILD_NUMBER	NUMBER	The number of the child of the original SQL text, beginning from 0
MODULE	VARCHAR2(64)	Contains the name of the module that was executing at the time that the SQL statement was first parsed as set by calling DBMS_APPLICATION_INFO.SET_MODULE
MODULE_HASH	NUMBER	The hash value of the module that is named in the MODULE column
ACTION	VARCHAR2(64)	Contains the name of the action that was executing at the time that the SQL statement was first parsed as set by calling DBMS_APPLICATION_INFO.SET_ACTION
ACTION_HASH	NUMBER	The hash value of the action that is named in the ACTION column
SERIALIZABLE_ABORTS	NUMBER	The number of times the transaction fails to serialize, producing ORA-8177 errors, per cursor

V\$SQLAREA

This view lists statistics on shared SQL area and contains one row per SQL string. It provides statistics on SQL statements that are in memory, parsed, and ready for execution.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
SQL_TEXT	VARCHAR2(1000)	The first eighty characters of the SQL text for the current cursor
SHARABLE_MEM	NUMBER	The sum of all sharable memory, in bytes, of all the child cursors under this parent
PERSISTENT_MEM	NUMBER	The sum of all persistent memory, in bytes, of all the child cursors under this parent
RUNTIME_MEM	NUMBER	The sum of all the ephemeral frame sizes of all the children
SORTS	NUMBER	The sum of the number of sorts that was done for all the children
VERSION_COUNT	NUMBER	The number of children that are present in the cache under this parent
LOADED_VERSIONS	NUMBER	The number of children that are present in the cache AND have their context heap (KGL heap 6) loaded
OPEN_VERSIONS	NUMBER	The number of child cursors that are currently open under this current this parent
USERS_OPENING	NUMBER	The number of users that have any of the child cursors open
EXECUTIONS	NUMBER	The number of executions that took place on this object since it was brought into the library cache
USERS_EXECUTING	NUMBER	The sum of all users executiong the statement over all children
LOADS	NUMBER	The number of times the object was loaded or reloaded

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
FIRST_LOAD_TIME	VARCHAR2(19)	The time stamp of the parent creation time
INVALIDATIONS	NUMBER	The sum of invalidations over all the children
PARSE_CALLS	NUMBER	The sum of all parse calls to all the child cursors under this parent
DISK_READS	NUMBER	The sum of the number of disk reads over all child cursors
BUFFER_GETS	NUMBER	The sum of buffer gets over all child cursors
ROWS_PROCESSED	NUMBER	The total number of rows the parsed SQL statement returns
COMMAND_TYPE	NUMBER	The Oracle command type definition
OPTIMIZER_MODE	VARCHAR2(10)	Mode under which the SQL statement is executed
PARSING_USER_ID	NUMBER	The user ID of the user that has parsed the very first cursor under this parent
PARSING_SCHEMA_ID	NUMBER	The schema ID that was used to parse this child cursor
KEPT_VERSIONS	NUMBER	The number of child cursors that have been marked to be kept using the dbms_shared_pool package
ADDRESS	RAW(4)	The address of the handle to the parent for this cursor
HASH_VALUE	NUMBER	The hash value of the parent statement in the library cache
MODULE	VARCHAR2(64)	Contains the name of the module that was executing at the time that the SQL statement was first parsed as set by calling DBMS_APPLICATION_INFO.SET_MODULE
MODULE_HASH	NUMBER	The hash value of the module that is named in the MODULE column

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
ACTION	VARCHAR2(64)	Contains the name of the action that was executing at the time that the SQL statement was first parsed as set by calling DBMS_APPLICATION_INFO.SET_ACTION
ACTION_HASH	NUMBER	The hash value of the action that is named in the ACTION column
SERIALIZABLE_ABORTS	NUMBER	The number of times the transaction fails to serialize, producing ORA-8177 errors, per cursor

V\$SQLTEXT

This view contains the text of SQL statements belonging to shared SQL cursors in the SGA.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
ADDRESS	RAW	Used with HASH_VALUE to identify uniquely a cached cursor
HASH_VALUE	NUMBER	Used with ADDRESS to identify uniquely a cached cursor
PIECE	NUMBER	Number used to order the pieces of SQL text
SQL_TEXT	VARCHAR2	A column containing one piece of the SQL text
COMMAND_TYPE	NUMBER	Code for the type of SQL statement (SELECT, INSERT, etc.)

V\$SQLTEXT_WITH_NEWLINES

This view is identical to the V\$SQLTEXT view except that, to improve legibility, V\$SQLTEXT_WITH_NEWLINES does not replace newlines and tabs in the SQL statement with spaces.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
ADDRESS	RAW	Used with HASH_VALUE to identify uniquely a cached cursor
HASH_VALUE	NUMBER	Used with ADDRESS to identify uniquely a cached cursor
PIECE	NUMBER	Number used to order the pieces of SQL text
SQL_TEXT	VARCHAR2	A column containing one piece of the SQL text
COMMAND_TYPE	NUMBER	Code for the type of SQL statement (SELECT, INSERT, etc.)

V\$STATNAME

Decoded statistic names for the statistics shown in the V\$SESSTAT table

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
STATISTIC#	NUMBER	Statistic number
NAME	VARCHAR2	Statistic name
CLASS	NUMBER	Statistic class: 1 (User), 2 (Redo), 4 (Enqueue), 8 (Cache), 16 (OS), 32 (Parallel Server), 64 (SQL), 128 (Debug)



Additional Information: On some platforms the CLASS column will also contain operating system-specific statistics. See your operating system-specific Oracle documentation for more information about these statistics.

V\$SYSLABEL

This is a Trusted Oracle7 Server view that lists system labels.

For more information, see the *Trusted Oracle7 Server Administrator's Guide*.

V\$SYSSTAT

This view lists system statistics.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
STATISTIC#	NUMBER	Statistic number
NAME	VARCHAR2(64)	Statistic name
CLASS	NUMBER	Statistic class: 1 (User), 2 (Redo), 4 (Enqueue), 8 (Cache), 16 (OS), 32 (Parallel Server), 64 (SQL), 128 (Debug)
VALUE	NUMBER	Statistic value

V\$SYSTEM_CURSOR_CACHE

This view displays similar information to the V\$SESSION_CURSOR_CACHE view except that this information is system wide.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
OPENS	NUMBER	Cumulative total of cursor opens
HITS	NUMBER	Cumulative total of cursor open hits
HIT_RATIO	NUMBER	Ratio of the number of times you found an open cursor divided by the number of times you looked for a cursor

V\$SYSTEM_EVENT

This view contains information on total waits for an event.

Note that the TIME_WAITED and AVERAGE_WAIT columns will contain a value of zero on those platforms that do not support a fast timing mechanism. If you are running on one of these platforms and you wish this column to reflect true wait times, you must set TIMED_STATISTICS to TRUE in the parameter file. Please remember that doing this will have a small negative effect on system performance.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
EVENT	VARCHAR2(64)	The name of the wait event
TOTAL_WAITS	NUMBER	The total number of waits for this event
TOTAL_TIMEOUTS	NUMBER	The total number of timeouts for this event
TIME_WAITED	NUMBER	The total amount of time waited for this event, in hundredths of a second
AVERAGE_WAIT	NUMBER	The average amount of time waited for this event, in hundredths of a second

V\$SYSTEM_PARAMETER

This view contains information on system parameters.

V\$THREAD

This view contains thread information from the control file.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
THREAD#	NUMBER	Thread number
STATUS	VARCHAR2	Thread status: OPEN, CLOSED
ENABLED	VARCHAR2	Enabled status: DISABLED, (enabled) PRIVATE, or (enabled) PUBLIC
GROUPS	NUMBER	Number of log groups assigned to this thread
INSTANCE	VARCHAR2	Instance name, if available

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
OPEN_TIME	VARCHAR2	Last time the thread was opened
CURRENT_GROUP#	NUMBER	Current log group
SEQUENCE#	NUMBER	Sequence number of current log
CHECKPOINT_CHANGE#	NUMBER	SCN at last checkpoint
CHECKPOINT_TIME	VARCHAR2	Time of last checkpoint

V\$TIMER

This view lists the elapsed time in hundredths of seconds. Time is measured since the beginning of the epoch, which is operating system specific, and wraps around to 0 again whenever the value overflows four bytes (roughly 497 days).

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
HSECS	NUMBER	Elapsed time in hundredths of a second

V\$TRANSACTION

This view lists the active transactions in the system.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
ADDR	RAW(4)	Address of transaction state object
XIDUSN	NUMBER	Undo segment number, invalid if inactive
XIDSLOT	NUMBER	Slot number, invalid if inactive
XIDSQN	NUMBER	Sequence number, invalid if inactive
UBAFIL	NUMBER	Undo block address (UBA) filenum, invalid if inactive
UBABLK	NUMBER	UBA block number, invalid if inactive
UBASQN	NUMBER	UBA sequence number, invalid if inactive

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
UBAREC	NUMBER	UBA record number, invalid if inactive
STATUS	VARCHAR2(16)	Status
START_TIME	VARCHAR2(20)	Start time
START_SCNB	NUMBER	Start system change number (SCN) base
START_SCNW	NUMBER	Start SCN wrap
START_UEXT	NUMBER	Start extent number
START_UBAFIL	NUMBER	Start UBA file number
START_UBABLK	NUMBER	Start UBA block number
START_UBASQN	NUMBER	Start UBA sequence number
START_UBAREC	NUMBER	Start UBA record number
SES_ADDR	RAW(4)	Session object address
FLAG	NUMBER	Flag
SPACE	VARCHAR2(3)	Is a space transaction
RECURSIVE	VARCHAR2(3)	Is a recursive transaction
NOUNDO	VARCHAR2(3)	Is a noundo transaction
PRV_XIDUSN	NUMBER	Parent transaction ID
PRV_XIDSLT	NUMBER	Parent transaction slot number
PRV_XIDSQN	NUMBER	Parent transaction sequence number
USED_UBLK	NUMBER	Undo blocks used
USED_UREC	NUMBER	Undo record used
LOG_IO	NUMBER	Logical I/O
PHY_IO	NUMBER	Physical I/O
CR_GET	NUMBER	Consistent gets
CR_CHANGE	NUMBER	Consistent changes

V\$TYPE_SIZE

This view lists the sizes of various database components for use in estimating data block capacity.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
COMPONENT	VARCHAR2	Component name, such as segment or buffer header
TYPE	VARCHAR2	Component type
DESCRIPTION	VARCHAR2	Description of component
SIZE	NUMBER	Size of component

V\$VERSION

Version numbers of core library components in the Oracle Server. There is one row for each component.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
BANNER	VARCHAR2	Component name and version number

V\$WAITSTAT

This view lists block contention statistics. This table is only updated when timed statistics are enabled.

<i>This Column</i>	<i>Datatype</i>	<i>Represents This</i>
CLASS	VARCHAR2	Class of block subject to contention
COUNT	NUMBER	Number of waits by this OPERATION for this CLASS of block
TIME	NUMBER	Sum of all wait times for all the waits by this OPERATION for this CLASS of block

National Language Support

This chapter describes features that enable Oracle7 Server applications to operate with multiple languages using conventions specified by the application user. The following topics are included:

- What Does National Language Support (NLS) Provide?
- Oracle7 Server NLS Architecture
- Background Information
- Specifying Language-Dependent Behavior
- Specifying Language-Dependent Behavior for a Session
- Specifying Language-Dependent Application Behavior
- Specifying Default Language-Dependent Behavior
- Runtime Loadable NLS Data
- NLS Parameters
- Specifying Character Sets
- Data and Number Formats
- Additional NLS Environment Variables
- Using NLS Parameters in SQL Functions
- Obsolete NLS Data
- UNICODE (UTF2) Support
- NLS Data
- Calendar Systems

What Does National Language Support Provide?

Oracle7 Server National Language Support allows users to interact with the database in their native language. It also allows applications to run in different language environments.

To achieve these goals, NLS provides

- support for processing data in the various character encoding schemes used by computer hardware
 - both single-byte and multi-byte character encoding schemes
 - client and server can use different character encoding schemes in client/server environments, with transparent conversion of data between them
- language-dependent operation of end-user applications
 - Oracle7 Server messages displayed in multiple languages
 - dates and numbers formatted using language and territory conventions
 - character data sorted according to alphabetic conventions
 - language-dependent operation specifiable for each session

The remainder of this chapter provides background on these issues and describes the mechanisms NLS provides to handle them.

Oracle7 Server NLS Architecture

The NLS architecture has two components: language-independent functions and language-dependent data. The former provides generic language-oriented features; the latter provides data required to operate these features for a specific language.

Because the language-dependent data is separate from the code, the operation of NLS functions is governed by data supplied at runtime. New languages can be added and language-specific application characteristics can be altered without requiring any code changes. This architecture also enables language-dependent features to be specified for each session.

Background Information

This section provides background information on the issues involved in multi-lingual applications, and shows how they are resolved by the National Language Support (NLS) features of the Oracle7 Server. The remaining sections of this chapter discuss the specific parameters that control NLS operation.

Character Encoding Schemes

To understand how Oracle7 Server deals with character data, it is important to understand the general features of character representation on computers. The appearance of a character on a terminal depends on the convention for character representation used by that terminal. When you press a character key on the keyboard, the terminal generates a numeric code specified by the character encoding scheme in use on that device. When the terminal receives a number representing a character, it displays the character shape specified by that encoding scheme.

Encoding schemes define the representation of alphabetic characters, numerals, and punctuation characters, together with codes that control terminal display and communication. A *character encoding scheme* (also known as a character set or code page) specifies numbers corresponding to each character that the terminal can display. Examples are 7-bit ASCII, EBCDIC Code Page 500, and Japanese Extended UNIX Code.

Many encoding schemes are used by hardware manufacturers to support different languages. All support the 26 letters of the Latin alphabet, A to Z. In general, single-byte encoding schemes are used for European languages and multi-byte encoding schemes for Asian languages.

Single-Byte 7-Bit Encoding Schemes

Single-byte 7-bit encoding schemes can define up to 128 characters, and normally support just one language. The only characters defined in 7-bit ASCII are the 26 Latin alphabetic characters. Various other 7-bit schemes are used where certain characters (normally punctuation) in 7-bit ASCII are replaced with additional alphanumeric characters required for a specific language.

Single-Byte 8-Bit Encoding Schemes

Single-byte 8-bit encoding schemes can define up to 256 characters, and normally support a group of languages. For example, ISO 8859/1 supports many West European languages.

Multi-Byte Encoding Schemes

Multi-byte encoding schemes are needed for Asian languages because these languages use thousands of characters. A double-byte encoding scheme can support up to 65536 characters. Some multi-byte encoding schemes use the value of the most significant bit to indicate if a byte represents a single-byte character or is the first or second byte of a

double-byte character. In other schemes, control codes differentiate single-byte from double-byte characters. A *shift-out* code indicates that the following bytes are double-byte characters until a *shift-in* code is encountered.

There are two general groups of encoding schemes, those based on 7-bit ASCII and those based on IBM EBCDIC. Within each group, all schemes normally use the same encoding for the 26 Latin characters (A to Z), but use different encoding for other characters used in languages other than English. ASCII and EBCDIC use different encodings, even for the Latin characters.

National Language Support Enhancements

Oracle7 Server release 7.3 supports certain national language parameters as environment variables that can be altered by issuing appropriate operating-system commands. Greater flexibility for multi-lingual applications is thereby provided by allowing more granular specification of NLS parameters. The environment variables include NLS_DATE_FORMAT, NLS_DATE_LANGUAGE, and NLS_SORT, among others whose features are discussed in this chapter.

UTF2 Encoding

The UNICODE encoding scheme, UTF2, a variable-width, multi-byte format, is supported with Oracle7 Server release 7.3 to support both multi-byte and single-byte character sets.

Arabic/Hebrew Display Character Set Support

Semitic languages consist of ligatures and typically two sets of digits (that is, Arabic and Hindi numbers), in addition to their alphabetical characters. Using a display character set allows front-end input and output of ligatures and Arabic/Hindi numbers. Some of the display character sets even contain different shapes of a character whose form is context sensitive to its position in a word. However, a display character set should not be used for data storage purposes. A storage character set is defined for the use of data storage. Oracle7 Server release 7.3 supports conversion between display and storage character sets. The environment variable NLS_LANG defines the storage character set while NLS_DISPLAY sets the display character set. It is the client's responsibility to ensure that no display character set is defined as a storage character set and vice versa.

Specifying Language–Dependent Behavior

This section discusses the parameters that specify language–dependent operation. You can set language–dependent behavior defaults for the server and set language dependent behavior for the client that overrides these defaults.

Most NLS parameters can be used in three ways

- As initialization parameters to specify language–dependent behavior defaults for the server.

For example, in your INIT.ORA file, include

```
NLS_TERRITORY = FRANCE
```

- As environment variables on client machines to specify language–dependant behavior defaults for a session. These defaults override the defaults set for the server.

For example, on a UNIX system

```
setenv NLS_TERRITORY FRANCE
```

- As ALTER SESSION parameters to change the language–dependent behavior of a session. These parameters override the defaults set for the session or for the server.

For example:

```
ALTER SESSION SET NLS_TERRITORY = FRANCE
```

The following NLS parameters can be initialization parameters, environment variables, and ALTER SESSION parameters:

- NLS_CALENDAR
- NLS_CURRENCY
- NLS_DATE_FORMAT
- NLS_DATE_LANGUAGE
- NLS_ISO_CURENCY
- NLS_NUMERIC_CHARACTERS
- NLS_SORT

The following parameters can be specified as initialization parameters and ALTER SESSION parameters, but not as environment variables:

- NLS_LANGUAGE
- NLS_TERRITORY

For more information on these parameters, see “NLS Parameters” on page 4 – 14 and “Specifying Default Language–Dependent Behavior” on page 4 – 11.

The following NLS parameters can only be set as environment variables:

- NLS_CREDIT
- NLS_DEBIT
- NLS_DISPLAY
- NLS_LANG
- NLS_LIST_SEPARATOR
- NLS_MONETARY_CHARACTERS

The NLS_SPECIAL_CHARS parameter can only be set as an initialization parameter.

For more information on these parameters, see “NLS Parameters” on page 4 – 14.

For additional information on NLS_DISPLAY, see “NLS_TERRITORY Parameter” on page 4 – 12.

For additional information on NLS_LANG, see “Specifying Language–Dependent Behavior for a Session” on page 4 – 6.

Specifying Language–Dependent Behavior for a Session

This section discusses the NLS parameters that specify language–dependent operation of applications.

NLS_LANG Environment Variable

The NLS_LANG environment variable has three components (*language*, *territory*, and *charset*) in the form:

```
NLS_LANG = language_territory.charset
```

Each component controls the operation of a subset of NLS features.

<i>language</i>	Specifies conventions such as the language used for Oracle messages, day names, and month names. Each supported language has a unique name; for example, American, French, or German. The language argument specifies default values for the territory and character set arguments, so either (or both) <i>territory</i> or <i>charset</i>
-----------------	--

can be omitted. For a complete list of languages, see “Supported Languages” on page 4 – 32.

territory Specifies conventions such as the default date format and decimal character used for numbers. Each supported *territory* has a unique name; for example, America, France, or Canada. For a complete list of territories, see “Supported Territories” on page 4 – 33.

charset Specifies the character set used by the client application (normally that of the user’s terminal). Each supported character set has a unique acronym, for example, US7ASCII, WEISO8859P1, WE8DEC, WE8EBCDIC500, or JA16EUC. Each language has a default character set associated with it. Default values for the languages available on your system are listed in your installation or user’s guide. For a complete list of character sets, see “Storage Character Sets” on page 4 – 33 and “Arabic/Hebrew Display Character Sets” on page 4 – 38.

Note: All components of the NLS_LANG definition are optional; any item left out will default. If you specify *territory* or *charset*, you *must* include the preceding delimiter [underscore (`_`) for *territory*, period (`.`) for *charset*], otherwise the value will be parsed as a language name.

The three arguments of NLS_LANG can be specified in any combination, as in the following examples:

```
NLS_LANG = AMERICAN_AMERICA.US7ASCII
```

or

```
NLS_LANG = FRENCH_FRANCE.ISO8859P1
```

or

```
NLS_LANG = FRENCH_CANADA.WE8DEC
```

or

```
NLS_LANG = JAPANESE_JAPAN.JA16EUC
```

Specifying NLS_LANG

NLS_LANG is defined for each session by means of an environment variable or equivalent platform-specific mechanism. Different sessions connected to the same database can specify different values for NLS_LANG.

For example, on VMS you could specify the value of NLS_LANG by entering the following line at the VMS prompt:

```
$ DEFINE NLS_LANG FRENCH_FRANCE.WE8DEC
```

If you do not specify a value for NLS_LANG, the language_dependent behavior defaults to the language specified by the NLS_LANGUAGE database initialization parameter, the territory specified by the NLS-TERRITORY database initialization parameter, and the character set with which the database was created.



For more information on how to set NLS_LANG on your system, see your operating system-specific Oracle documentation.

OSDoc

Client/Server Architecture

NLS_LANG sets the NLS environment used by the database for both the Server session and for the client application. Using the one parameter ensures that the language environments of both database and client application are automatically the same.

Because NLS_LANG is an environment variable, it is read by the client application at startup time. The client communicates the information defined in NLS_LANG to the server when it connects.

Overriding Language and Territory Specifications

The default values for language and territory can be overridden for a session by using the ALTER SESSION statement. For example:

```
ALTER SESSION SET NLS_LANGUAGE = FRENCH NLS_TERRITORY = FRANCE
```

This feature implicitly determines the language environment of the database for each session. An ALTER SESSION statement is automatically executed when a session connects to a database to set the values of the database parameters NLS_LANGUAGE and NLS_TERRITORY to those specified by the *language* and *territory* arguments of NLS_LANG. If NLS_LANG is not defined, no ALTER SESSION statement is executed.

When NLS_LANG is defined, the implicit ALTER SESSION is executed for all instances to which the session connects, for both direct and indirect connections. If the values of NLS parameters are changed explicitly with ALTER SESSION during a session, the changes are propagated to all instances to which that user session is connected.

Specifying Language-Dependent Application Behavior

Language-Dependent Functions

Setting the values of various NLS parameters allows applications to function in a language-dependent manner. The language-dependent functions controlled by NLS include

- language to use for messages and boilerplate text
- number format
- date format
- currency format
- starting day of the week

Messages and Text

All messages and text should be in the same language. For example, when running a SQL*Forms application, messages and boilerplate text seen by the user originate from three sources:

- messages from the Server
- messages and boilerplate text generated by SQL*Forms
- messages and boilerplate text defined as part of the application

The application is responsible for meeting the last requirement. NLS takes care of the other two.

Number Format

The database must know the number-formatting convention used in each session to interpret numeric strings correctly. For example, the database needs to know whether numbers are entered with a period or a comma as the decimal character (234.00 or 234,00). In the same vein, the application needs to be able to display numeric information in the format expected at the client site.

Date Format, Currency Symbols, and First Day of the Week

Similarly, date and currency information need to be interpreted properly when they are input to the Server, and formatted in the expected manner when output to the user's terminal. These functions are all controlled by the NLS parameters described later in this chapter.

Sorting Character Data

Conventionally, when character data is sorted, the sort sequence is based on the numeric values of the characters defined by the character encoding scheme. Such a sort is called a *binary* sort. Such a sort produces reasonable results for the English alphabet because the ASCII and EBCDIC standards define the letters A to Z in ascending numeric value.

Note however, that in the ASCII standard all uppercase letters appear before any lowercase letters. In the EBCDIC standard, the opposite is true: all lowercase letters appear before any uppercase letters.

Binary Sorts

When characters used in other languages are present, a *binary* sort generally does not produce reasonable results. For example, an ascending ORDER BY query would return the character strings ABC, ABZ, BCD, ÄBC, in that sequence, when the Ä has a higher numeric value than B in the character encoding scheme.

Linguistic Sorts

To produce a sort sequence that matches the alphabetic sequence of characters for a particular language, another sort technique must be used that sorts characters independently of their numeric values in the character encoding scheme. This technique is called a *linguistic* sort. A linguistic sort operates by replacing characters with other binary values that reflect the character's proper linguistic order so that a binary sort returns the desired result.

Oracle7 Server provides both sort mechanisms. Linguistic sort sequences are defined as part of language-dependent data. Each linguistic sort sequence has a unique name. NLS parameters define the sort mechanism for ORDER BY queries. A default value can be specified, and this value can be overridden for each session with the NLS_SORT parameter. A complete list of linguistic definitions is provided in the "Linguistic Definitions" table on page 4 – 38.



Warning: Linguistic sorting is not supported on multi-byte character sets. If the database character set is multi-byte, you get binary sorting, which makes the sort sequence dependent on the character set specification.

Linguistic Special Cases

Linguistic special cases are character sequences that need to be treated as a single character when sorting. Such special cases are handled automatically when using a linguistic sort. For example, one of the linguistic sort sequences for Spanish specifies that the double characters *ch* and *ll* are sorted as single characters appearing between *c* and *d* and between *l* and *m* respectively.

Another example is the German language sharp s (ß). The linguistic sort sequence *German* can sort this sequence as the two characters *SS*, while the linguistic sort sequence *Austrian* sorts it as *SZ*.

Special cases like these are also handled when converting uppercase characters to lowercase, and vice versa. For example, in German the uppercase of the sharp s is the two characters *SS*. Such case-conversion issues are handled by the NLS_UPPER, NLS_LOWER, and NLS_INITCAP functions, according to the conventions established by the linguistic sort sequence. (The standard functions UPPER, LOWER, and INITCAP do not handle these special cases.)

Specifying Default Language-Dependent Behavior

This section describes NLS_LANGUAGE and NLS_TERRITORY, the database initialization parameters that specify the default language-dependent behavior for a session.

NLS_LANGUAGE Parameter

NLS_LANGUAGE specifies the default conventions for the following session characteristics:

- language for Server messages
- language for day and month names and their abbreviations (specified in the SQL functions TO_CHAR and TO_DATE)
- symbols for equivalents of AM, PM, AD, and BC
- default sorting sequence for character data when ORDER BY is specified (GROUP BY uses a binary sort, unless ORDER BY is specified)

The value specified for NLS_LANGUAGE in the initialization file is the default for all sessions in that instance.



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For more information on which language conventions supported, see your operating system-specific Oracle documentation.

For example, to specify the default session language as French, the parameter should be set as follows:

```
NLS_LANGUAGE = FRENCH
```

In this case, the Server message

```
ORA-00942: table or view does not exist
```

will appear as

```
ORA-00942: table ou vue n'existe pas
```

Messages used by the Server are stored in binary-format files that are placed in the ora_rdbms directory, or the equivalent.

Multiple versions of these files can exist, one for each supported language, using the filename convention

`<product_id><language_id>.MSB`

For example, the file containing the Server messages in French is called ORAF.MSB, "F" being the language abbreviation for French.

Messages are stored in these files in one specific character set, depending on the particular machine and operating system. If this is different from the database character set, message text is automatically

converted to the database character set. If necessary, it will be further converted to the client character set if it is different from the database character set. Hence, messages will be displayed correctly at the user's terminal, subject to the limitations of character set conversion.

The default value of `NLS_LANGUAGE` may be operating system specific. You can alter the `NLS_LANGUAGE` parameter by changing the value in the initialization file and then restarting the instance.



OSDoc

For more information on the default value, see your operating system-specific Oracle documentation.

NLS_TERRITORY Parameter

`NLS_TERRITORY` specifies the conventions for the following default date and numeric formatting characteristics:

- date format
- decimal character and group separator
- local currency symbol
- ISO currency symbol
- week start day

The value specified for `NLS_TERRITORY` in the initialization file is the default for the instance. For example, to specify the default as France, the parameter should be set as follows:

```
NLS_TERRITORY = FRANCE
```

In this case, numbers would be formatted using a comma as the decimal character.

The default value of `NLS_TERRITORY` may be operating system specific.

You can alter the `NLS_TERRITORY` parameter by changing the value in the initialization file and then restarting the instance.



OSDoc

For more information on the default value and to see which territory conventions are supported on your system, see your operating system-specific Oracle documentation.

Runtime Loadable NLS Data

Data Loading

Language independent data (NLSDATA) is loaded into memory at runtime; this determines the behavior of an application in a given language environment that is defined by the NLSDATA. In conjunction with NLSDATA, a boot file is used to determine the availability of NLS objects which can be loaded.

On initialization, the boot file is loaded into memory, where it serves as the master list of available NLS objects, prior to loading NLSDATA files. Oracle supports both system and user boot files. A user boot file may only contain a subset of the system boot file. When loading, the user boot file takes precedence over the system one. If the user boot file is not present, the system boot file will be used; this way, all NLS data defined in the system boot file will be available for loading. If neither user nor system boot file is found, then a default linked-in boot file and some default linked-in data objects (language American, territory America, character set US7ASCII) will be loaded. NLS functionality, however, will be limited to what is provided by the linked-in data objects. After a boot file (either user or system) is loaded, the NLSDATA files are read into memory based on the availability of the NLS objects defined in the boot file.

The idea behind a user boot file is to give an application further flexibility to tailor exactly which NLS objects it needs for its language environment, thus controlling the application's memory consumption.

Utilities

Oracle7 Server includes the following two utilities to assist you in maintaining NLS data:

NLS Data Installation Utility	Generate binary-format data objects from their text-format versions. Use this when you receive NLS data updates or if you create your own data objects.
NLS Configuration Utility (LXBCNF)	Create and edit user boot files.

For more information, see *Oracle7 Server Utilities*.

NLS Parameters

The NLS_LANGUAGE and NLS_TERRITORY parameters implicitly specify several aspects of language-dependent operation. Additional NLS parameters provide explicit control over these operations. The parameters listed below can be specified in the initialization file, or they can also be specified for each session with the ALTER SESSION command.

Parameter	Description
NLS_CALENDAR	Calendar system
NLS_CURRENCY	Local currency symbol
NLS_DATE_FORMAT	Default date format
NLS_DATE_LANGUAGE	Default language for dates
NLS_ISO_CURRENCY	ISO international currency symbol
NLS_LANGUAGE	Default language
NLS_NUMERIC_CHARACTERS	Decimal character and group separator
NLS_SORT	Character sort sequence
NLS_SPECIAL_CHARS	
NLS_TERRITORY	Default territory

For a complete description of ALTER SESSION, see *Oracle7 Server SQL Reference*.

NLS_CALENDAR

Many different calendar systems are in use throughout the world. NLS_CALENDAR specifies which calendar system Oracle uses.

NLS_CALENDAR can have one of the following values:

- Arabic Hijrah
- Gregorian
- Japanese Imperial
- Persian
- ROC Official
- Thai Buddha

For example, if NLS_CALENDAR is set to “Japanese Imperial”, the date format is “YY–MM–DD”, and the date is February 17, 1907, then the sysdate is displayed as follows:

```
SELECT SYSDATE FROM DUAL;
SYSDATE
-----
07-02-17
```

NLS_CURRENCY

This parameter specifies the character string returned by the number format mask L, the local currency symbol, overriding that defined implicitly by NLS_TERRITORY. For example, to set the local currency symbol to “Dfl” (including a space), the parameter should be set as follows:

```
NLS_CURRENCY = "Dfl "
```

In this case, the query

```
SELECT TO_CHAR(TOTAL, 'L099G999D99') "TOTAL"
FROM ORDERS WHERE CUSTNO = 586
```

would return

```
TOTAL
-----
Dfl 12.673,49
```

You can alter the default value of NLS_CURRENCY by changing its value in the initialization file and then restarting the instance, and you can alter its value during a session using an ALTER SESSION SET NLS_CURRENCY command.

For a complete description of ALTER SESSION, see *Oracle7 Server SQL Reference*.

NLS_DATE_FORMAT

Defines the default date format to use with the TO_CHAR and TO_DATE functions. The default value of this parameter is determined by NLS_TERRITORY. The value of this parameter can be any valid date format mask, and the value must be surrounded by double quotes. For example:

```
NLS_DATE_FORMAT = "MM/DD/YYYY"
```

As another example, to set the default date format to display Roman numerals for months, you would include the following line in your initialization file:

```
NLS_DATE_FORMAT = "DD RM YY"
```

With such a default date format, the following SELECT statement would return the month using Roman numerals (assuming today's date is February 13, 1991):

```
SELECT TO_CHAR(SYSDATE) CURRDATE
FROM DUAL;
```

```
CURRDATE
-----
13 II 91
```

The value of this parameter is stored in the tokenized internal date format. Each format element occupies two bytes, and each string occupies the number of bytes in the string plus a terminator byte. Also, the entire format mask has a two-byte terminator. For example, "MM/DD/YY" occupies 12 bytes internally because there are three format elements, two one-byte strings (the two slashes), and the two-byte terminator for the format mask. The tokenized format for the value of this parameter cannot exceed 24 bytes.

Note: The applications you design may need to allow for a variable-length default date format. Also, the parameter value must be surrounded by double quotes: single quotes are interpreted as part of the format mask.

You can alter the default value of NLS_DATE_FORMAT by changing its value in the initialization file and then restarting the instance, and you can alter the value during a session using an ALTER SESSION SET NLS_DATE_FORMAT command.

For a complete description of ALTER SESSION, see *Oracle7 Server SQL Reference*.

NLS_DATE_LANGUAGE

This parameter specifies the language for the spelling of day and month names by the functions TO_CHAR and TO_DATE, overriding that specified implicitly by NLS_LANGUAGE. NLS_DATE_LANGUAGE has the same syntax as the NLS_LANGUAGE parameter, and all supported languages are valid values. For example, to specify the date language as French, the parameter should be set as follows:

```
NLS_DATE_LANGUAGE = FRENCH
```

In this case, the query

```
SELECT TO_CHAR(SYSDATE, 'Day:Dd Month yyyy')
FROM DUAL;
```

would return

```
Mercredi:13 Février 1991
```

Month and day name abbreviations are also in the language specified, for example:

```
Me:13 Fév 1991
```

The default date format also uses the language-specific month name abbreviations. For example, if the default date format is DD-MON-YYYY, the above date would be inserted using:

```
INSERT INTO tablename VALUES ('13-Fév-1991');
```

The abbreviations for AM, PM, AD, and BC are also returned in the language specified by NLS_DATE_LANGUAGE. Note that numbers spelled using the TO_CHAR function always use English spellings; for example:

```
SELECT TO_CHAR(TO_DATE('27-Fév-91'),'Day: ddsph Month')
      FROM DUAL;
```

would return:

```
Mercredi: twenty-seventh Février
```

You can alter the default value of NLS_DATE_LANGUAGE by changing its value in the initialization file and then restarting the instance, and you can alter the value during a session using an ALTER SESSION SET NLS_DATE_LANGUAGE command.

For a complete description of ALTER SESSION, see *Oracle7 Server SQL Reference*.

NLS_ISO_CURRENCY This parameter specifies the character string returned by the number format mask C, the ISO currency symbol, overriding that defined implicitly by NLS_TERRITORY.

Local currency symbols can be ambiguous; for example, a dollar sign (\$) can refer to US dollars or Australian dollars. ISO Specification 4217 1987-07-15 defines unique “international” currency symbols for the currencies of specific territories (or countries).

For example, the ISO currency symbol for the US Dollar is USD, for the Australian Dollar AUD. To specify the ISO currency symbol, the corresponding territory name is used.

NLS_ISO_CURRENCY has the same syntax as the NLS_TERRITORY parameter, and all supported territories are valid values. For example, to specify the ISO currency symbol for France, the parameter should be set as follows:

```
NLS_ISO_CURRENCY = FRANCE
```


In this case, the query

```
SELECT TO_CHAR(TOTAL, 'C099G999D99') "TOTAL"  
FROM ORDERS WHERE CUSTNO = 586
```

would return

```
TOTAL  
-----  
FRF12.673,49
```

You can alter the default value of NLS_ISO_CURRENCY by changing its value in the initialization file and then restarting the instance, and you can alter its value during a session using an ALTER SESSION SET NLS_ISO_CURRENCY command.

For a complete description of ALTER SESSION, see *Oracle7 Server SQL Reference*.

NLS_NUMERIC_CHARACTERS

This parameter specifies the decimal character and grouping separator, overriding those defined implicitly by NLS_TERRITORY. The decimal character separates the integer and decimal parts of a number. The grouping separator is the character returned by the number format mask G. For example, to set the decimal character to a comma and the grouping separator to a period, the parameter should be set as follows:

```
NLS_NUMERIC_CHARACTERS = ",."
```

Both characters are single byte and must be different. Either can be a space.

Note: When the decimal character is not a period (.) or when a group separator is used, numbers appearing in SQL statements must be enclosed in quotes. For example:

```
INSERT INTO SIZES (ITEMID, WIDTH, QUANTITY)  
VALUES (618, '45,5', TO_NUMBER('1.234','9G999'));
```

You can alter the default value of NLS_NUMERIC_CHARACTERS by changing its value in the initialization file and then restarting the instance, and you can alter its value during a session using an ALTER SESSION SET NLS_DATE_LANGUAGE command.

For a complete description of ALTER SESSION, see *Oracle7 Server SQL Reference*.

NLS_SORT

This parameter specifies the type of sort for character data, overriding that defined implicitly by NLS_LANGUAGE.

The syntax of NLS_SORT is:

```
NLS_SORT = { BINARY | name }
```

BINARY specifies a binary sort and *name* specifies a particular linguistic sort sequence. For example, to specify the linguistic sort sequence called German, the parameter should be set as follows:

```
NLS_SORT = German
```

The name given to a linguistic sort sequence has no direct connection to language names. Usually, however, each supported language will have an appropriate linguistic sort sequence defined that uses the same name.

Note: Setting the NLS_SORT initialization parameter to BINARY causes a sort to use a full table scan, regardless of the path the optimizer chooses.

You can alter the default value of NLS_SORT by changing its value in the initialization file and then restarting the instance, and you can alter its value during a session using an ALTER SESSION SET NLS_SORT command.

For a complete description of ALTER SESSION, see *Oracle7 Server SQL Reference*.

A complete list of linguistic definitions is provided in the “Linguistic Definitions” table on page 4 – 38.

Specifying Character Sets

The character encoding scheme used by the database is defined at database creation as part of the CREATE DATABASE statement. All data columns of type CHAR, VARCHAR2, and LONG, including columns in the data dictionary, have their data stored in the database character set. In addition, the choice of character set determines which characters can name objects in the database.

Once the database is created, the database character set cannot be changed without re-creating the database. Hence, it is important to consider carefully which character set to use. The database character set should always be a superset or equivalent of the operating system's native character set. The character sets used by client applications that access the database will usually determine which superset is the best choice.

If all client applications use the same character set, then this is the normal choice for the database character set. When client applications use different character sets, the database character set should be a superset (or equivalent) of all the client character sets. This will ensure that every character is represented when converting from a client character set to the database character set.

When a client application operates with a terminal that uses a different character set, then the client application's characters must be converted to the database character set, and vice versa. This conversion is performed automatically, and is transparent to the client application. The character set used by the client application is defined by the NLS_LANG parameter.

Supported Character Sets

Oracle7 Server National Language Support features solve the problems that result from the fact that different encoding schemes use different binary values to represent the same character. With NLS, data created with one encoding scheme can be correctly processed and displayed on a system that uses a different encoding scheme.

Character Set Conversion

Where a character exists in both source and destination character sets, conversion presents no problem. However, data conversion has to accommodate characters that do not exist in the destination character set. In such cases, replacement characters are used. The source character is replaced by a character that does exist in the destination character set.

Replacement characters may be defined for specific characters as part of a character set definition. Where a specific replacement character is not defined, a default replacement character is used. To avoid the use of replacement characters when converting from client to database

character set, the latter should be a superset (or equivalent) of all the client character sets.

The Concatenation Operator

If the database character set replaces the vertical bar (“|”) with a national character, then all SQL statements that use the concatenation operator (ASCII 124) will fail. For example, creating a procedure will fail because it generates a recursive SQL statement that uses concatenation. When you use a 7-bit replacement character set such as D7DEC, F7DEC, or SF7ASCII for the database character set, then the national character which replaces the vertical bar is not allowed in object names because the vertical bar is interpreted as the concatenation operator.

On the user side, a 7-bit replacement character set can be used if the database character set is the same or compatible, that is, if both character sets replace the vertical bar with the same national character.

Storing Data in Multi-Byte Character Sets

Width specifications of the character datatypes CHAR and VARCHAR2 refer to bytes, not characters. Hence, the specification CHAR(20) in a table definition allows 20 bytes for storing character data.

If the database character set is single byte, the number of characters and number of bytes will be the same. If the database character set is multi-byte, there will in general be no such correspondence. A character may consist of one or more bytes, depending on the specific multi-byte encoding scheme and whether *shift-in/shift-out* control codes are present. Hence, column widths must be chosen with care to allow for the maximum possible number of bytes for a given number of characters.

Loadable Character Sets

Oracle7 Server release 7.3 loads character sets upon first reference. Instead of linking all character sets as static data, each character set is read into dynamic memory upon first reference. The size of the executable is thus reduced by eliminating character set data not in use during execution.

Date and Number Formats

Several format masks are provided with the TO_CHAR, TO_DATE, and TO_NUMBER functions to format dates and numbers according to the relevant conventions.

Note: The TO_NUMBER function also accepts a format mask.

Date Formats

A format element RM (Roman Month) returns a month as a Roman numeral. Both uppercase and lowercase can be specified, using RM and rm respectively. For example, for the date 7 Sep 1992, “DD-rm-YY” will return “07-ix-92” and “DD-RM-YY” will return “07-IX-92”.

Note that the MON and DY format masks explicitly support month and day abbreviations that may not be three characters in length. For example, the abbreviations “Lu” and “Ma” can be specified for the French “Lundi” and “Mardi”, respectively.

Week and Day Number Conventions

The week numbers returned by the WW format mask are calculated according to the algorithm $\text{int}((\text{day} - \text{ijan1})/7)$. This week number algorithm does not follow the ISO standard (2015, 1992-06-15).

To support the ISO standard, a format element IW is provided that returns the ISO week number. In addition, format elements IY IYY and IYYY, equivalent in behavior to the format elements Y YY YYY YYYY, return the year relating to the ISO week number.

In the ISO standard, the year relating to an ISO week number can be different from the calendar year. For example 1st Jan 1988 is in ISO week number 53 of 1987. A week always starts on a Monday and ends on a Sunday.

- If January 1 falls on a Friday, Saturday, or Sunday, then the week including January 1 is the last week of the previous year, because most of the days in the week belong to the previous year.
- If January 1 falls on a Monday, Tuesday, Wednesday, or Thursday, then the week is the first week of the new year, because most of the days in the week belong to the new year.

For example, January 1, 1991, is a Tuesday, so Monday, December 31, 1990, to Sunday, January 6, 1991, is week 1. Thus the ISO week number and year for December 31, 1990, is 1, 1991. To get the ISO week number, use the format mask “IW” for the week number and one of the “IY” formats for the year.

Number Formats

Several additional format elements are provided for formatting numbers:

- D (Decimal) returns the decimal character
- G (Group) returns the group separator
- L (Local currency) returns the local currency symbol
- C (international Currency) returns the international currency symbol
- RN (Roman Numeral) returns the number as its Roman numeral equivalent

For Roman numerals, both uppercase and lowercase can be specified, using RN and rn, respectively. The number to be converted must be an integer in the range 1 to 3999.

For a more information on using date masks, see *Oracle7 Server SQL Reference*.

Additional NLS Environment Variables

SQL commands such as ALTER SESSION SET NLS...=... can be issued to alter the NLS settings for the current session. In addition, Oracle7 Server release 7.3 supports the following NLS parameters as environment variables to provide greater flexibility for multi-lingual applications:

- NLS_DATE_FORMAT
- NLS_DATE_LANGUAGE
- NLS_SORT
- NLS_NUMERIC_CHARACTERS
- NLS_CURRENCY
- NLS_ISO_CURRENCY
- NLS_CALENDAR

These variables work in a similar fashion to NLS_LANG. The syntax for the environments listed above is the same as that for the ALTER SESSION command.

The following is an example for a UNIX environment:

```
setenv NLS_DATE_FORMAT "dd/mon/yy"
```

For more information, see the *Oracle7 Server Administrator's Guide*.

Client-Only Environment Variables

The following environment variables can be set in the client environment:

- NLS_CREDIT
- NLS_DEBIT
- NLS_DISPLAY
- NLS_LANG
- NLS_LIST_SEPARATOR
- NLS_MONETARY_CHARACTERS

NLS_CREDIT

Default value: derived from NLS_TERRITORY

Range of values: any string, maximum of 9 bytes (not including null)

NLS_CREDIT sets the symbol that displays a credit in financial reports. The default value of this parameter is determined by NLS_TERRITORY.

NLS_DEBIT

Default value:	derived from NLS_TERRITORY
Range of values:	any string, maximum of 9 bytes (not including null)

NLS_DEBIT sets the symbol that displays a debit in financial reports. The default value of this parameter is determined by NLS_TERRITORY.

NLS_DISPLAY

Default value:	none
Range of values:	any valid string

NLS_DISPLAY sets the client-side display environment. It is only applicable to Hebrew and Arabic languages. For a list of valid character sets, see page 4 – 38.

Value is a string of the form *locale_direction.characterset*, where *locale* is any string up to 20 bytes (not including null) containing only the characters [A–Z, a–z, 0–9 –], *direction* is either RTL or LTR (case-insensitive), and *characterset* specifies a valid display character set.

Specification of *locale* and *direction* is optional. If omitted, *locale* will default to an empty string, and *direction* will default to LTR. The *characterset* option must be specified. If you specify *direction* or *characterset*, you must include the preceding delimiter [underscore (_) for *direction*, period (.) for *characterset*], otherwise the value will be parsed as a language name.

NLS_LIST_SEPARATOR

Default value:	derived from NLS_TERRITORY
Range of values:	any valid character

Defines the character to use to separate values in a list of values.

The character specified must be single-byte and cannot be the same as either the numeric or monetary decimal character, any numeric character, or any of the following characters: plus (+), hyphen (–), less than sign (<), greater than sign (>), period (.).

NLS_MONETARY_CHARACTERS

Default value: derived from NLS_TERRITORY

Defines the characters that indicate monetary units, such as the dollar sign (\$) for U.S. Dollars, and the cent symbol (¢) for cents.

The two characters specified must be single-byte and cannot be the same as each other. They also cannot be any numeric character or any of the following characters: plus (+), hyphen (-), less than sign (<), greater than sign (>).

Using NLS Parameters in SQL Functions

All character functions support both single-byte and multi-byte characters. Except where explicitly stated, character functions operate character-by-character, rather than byte-by-byte.

All SQL functions whose behavior depends on NLS conventions allow NLS parameters to be specified. These functions are

- TO_CHAR
- TO_DATE
- TO_NUMBER
- NLS_UPPER
- NLS_LOWER
- NLS_INITCAP
- NLSSORT

Explicitly specifying the optional NLS parameters for these functions allows the function evaluations to be independent of the NLS parameters in force for the session. This feature may be important for SQL statements that contain numbers and dates as string literals.

For example, the following query is only evaluated correctly if the language being for dates is American:

```
SELECT ENAME FROM EMP
WHERE HIREDATE > '1-JAN-91'
```

Such a query can be made independent of the current date language using:

```
SELECT ENAME FROM EMP
WHERE HIREDATE > TO_DATE( '1-JAN-91' , 'DD-MON-YY' ,
    'NLS_DATE_LANGUAGE = AMERICAN' )
```

In this way, language-independent SQL statements can be defined where necessary. For example, such statements may be necessary when string literals appear in SQL statements in views, CHECK constraints, or triggers.

Default Specifications

When evaluating views and triggers, default values for NLS function parameters are taken from the values currently in force for the session. When evaluating CHECK constraints, default values are set by the NLS parameters that were specified at database creation.

Specifying Parameters

The syntax that specifies NLS parameters in SQL functions is:

```
'parameter = value'
```

The following NLS parameters may be specified:

- NLS_DATE_LANGUAGE
- NLS_NUMERIC_CHARACTERS
- NLS_CURRENCY
- NLS_ISO_CURRENCY
- NLS_SORT

Only certain NLS parameters are valid for particular SQL functions, as follows:

- | | |
|----------------|--|
| • TO_DATE: | NLS_DATE_LANGUAGE |
| • TO_NUMBER: | NLS_NUMERIC_CHARACTERS,
NLS_CURRENCY,
NLS_ISO_CURRENCY |
| • TO_CHAR: | NLS_DATE_LANGUAGE,
NLS_NUMERIC_CHARACTERS,
NLS_CURRENCY,
NLS_ISO_CURRENCY |
| • NLS_UPPER: | NLS_SORT |
| • NLS_LOWER: | NLS_SORT |
| • NLS_INITCAP: | NLS_SORT |
| • NLSSORT : | NLS_SORT |

Examples of the use of NLS parameters are

```
TO_DATE ('1-JAN-89', 'DD-MON-YY',
        'nls_date_language = American')

TO_CHAR (hiredate, 'DD/MON/YYYY',
        'nls_date_language = French')

TO_NUMBER ('13.000,00', '99G999D99',
        'nls_numeric_characters = ''.,''')

TO_CHAR (sal, '9G999D99L', 'nls_numeric_characters = ''.,''
        nls_currency = ''Dfl ''')

TO_CHAR (sal, '9G999D99C', 'nls_numeric_characters = ''.,''
        nls_iso_currency = Japan')
NLS_UPPER (ename, 'nls_sort = Austrian')

NLSSORT (ename, 'nls_sort = German')
```

Note: For some languages, various lowercase characters correspond to a sequence of uppercase characters, or vice versa. As a result, the output from NLS_UPPER, NLS_LOWER, and NLS_INITCAP can differ from the length of the input.

Unacceptable Parameters

Note that NLS_LANGUAGE and NLS_TERRITORY are not accepted as parameters. Only NLS parameters that explicitly define the specific data items required for unambiguous interpretation of a format are accepted. NLS_DATE_FORMAT is also not accepted as a parameter for the reason described below.

If an NLS parameter is specified in TO_CHAR, TO_NUMBER, or TO_DATE, a format mask must also be specified as the second parameter. For example, the following specification is legal:

```
TO_CHAR (hiredate, 'DD/MON/YY', 'nls_date_language = French')
```

These are illegal:

```
TO_CHAR (hiredate, 'nls_date_language = French')
TO_CHAR (hiredate, 'nls_date_language = French',
        'DD/MON/YY')
```

This restriction means that a date format must always be specified if an NLS parameter is in a TO_CHAR or TO_DATE function. As a result, NLS_DATE_FORMAT is not a valid NLS parameter for these functions.

CONVERT Function

The SQL function CONVERT allows for conversion of character data between character sets.

For more information on CONVERT, see *Oracle7 Server SQL Reference*.

The CONVERT function converts the binary representation of a character string in one character set to another. It uses exactly the same technique as described previously for the conversion between database and client character sets. Hence, it uses replacement characters and has the same limitations. The syntax for CONVERT is:

```
►► CONVERT ( char _____ ) ►►  
                └─ dest_char_set ─┘  
                        └─ , src_char_set ─┘
```

where *src_char_set* is the source and *dest_char_set* is the destination character set.

NLSSORT Function

The NLSSORT function replaces a character string with the equivalent sort string used by the linguistic sort mechanism. For a binary sort, the sort string is the same as the input string. The linguistic sort technique operates by replacing each character string with some other binary values, chosen so that sorting the resulting string produces the desired sorting sequence. When a linguistic sort is being used, NLSSORT returns the binary values that replace the original string.

String Comparisons in a WHERE Clause

NLSSORT allows applications to perform string matching that follows alphabetic conventions. Normally, character strings in a WHERE clause are compared using the characters' binary values. A character is "greater than" another if it has a higher binary value in the database character set. Because the sequence of characters based on their binary values may not match the alphabetic sequence for a language, such comparisons often do not follow alphabetic conventions. For example, if a column (COL1) contains the values ABC, ABZ, BCD and ÄBC in the ISO 8859/1 8-bit character set, the following query:

```
SELECT COL1 FROM TAB1 WHERE COL1 > 'B'
```

returns both BCD and ÄBC because Ä has a higher numeric value than B. However, in German, an Ä is sorted alphabetically before B. Such conventions are language dependent even when the same character is used. In Swedish, an Ä is sorted after Z. Linguistic comparisons can be made using NLSSORT in the WHERE clause, as follows:

```
WHERE NLSSORT(col) comparison_operator NLSSORT(comparison_string)
```

Note that NLSSORT has to be on both sides of the comparison operator. For example:

```
SELECT COL1 FROM TAB1 WHERE NLSSORT(COL1) > NLSSORT('B')
```

If a German linguistic sort is being used, this does not return strings beginning with Ä because in the German alphabet Ä comes before B. If a Swedish linguistic sort is being used, such names are returned because in the Swedish alphabet Ä comes after Z.

Controlling an ORDER BY Clause

If a linguistic sorting sequence is in use, then NLSSORT is used implicitly on each character item in the ORDER BY clause. As a result, the sort mechanism (linguistic or binary) for an ORDER BY is transparent to the application. However, if the NLSSORT function is explicitly specified for a character item in an ORDER BY item, then the implicit NLSSORT is not done.

In other words, the NLSSORT linguistic replacement is only applied once, not twice. The NLSSORT function is generally not needed in an ORDER BY clause when the default sort mechanism is a linguistic sort. However, when the default sort mechanism is BINARY, then a query such as:

```
SELECT ENAME FROM EMP
ORDER BY ENAME
```

will use a binary sort. A German linguistic sort can be obtained using:

```
SELECT ENAME FROM EMP
ORDER BY NLSSORT(ENAME, 'NLS_SORT = GERMAN')
```

Obsolete NLS Data

Prior to Oracle Server release 7.2, when a character set was renamed the old name was usually supported along with the new name for several releases after the change. Beginning with release 7.2, the old names are no longer supported. The following table lists the affected character sets. If you reference any of these character sets in your code, please replace them with their new names.

Old Name	New Name
AR8MSAWIN	AR8MSWIN1256
JVMS	JA16VMS
JEUC	JA16EUC
SJIS	JA16SJIS
JDBCS	JA16DBCS
KSC5601	KO16KSC5601
KDBCS	KO16DBCS
CGB2312–80	ZHS16CGB231280
CNS 11643–86	ZHT32EUC
ZHT32CNS1164386	ZHT32EUC
TSTSET2	JA16TSTSET2
TSTSET	JA16TSTSET

Table 4 – 1 New Names for Obsolete NLS Data Character Sets

Character set CL8MSWINDOW31 has been de-supported. The newer character set CL8MSWIN1251 is actually a duplicate of CL8MSWINDOW31 and includes some characters omitted from the earlier version. Change any usage of CL8MSWINDOW31 to CL8MSWIN1251 instead.

Unicode (UTF2) Support

Unicode has two major encoding schemes: UCS2 and UTF2. While UCS2 is a two-byte fixed-width format, UTF2 is a multi-byte format with variable width. Oracle Server release 7.3 provides support for the UTF2 format because this enhancement is transparent to clients who already provide support for multi-byte character sets. Support for UCS2 will be available in a future release when clients themselves can support two-byte fixed-width (hence non-ASCII/EBCDIC compatible) formats.

The character set name for UTF2 is AL24UTFFSS. Conversion between UTF2 and other existing character sets is provided in this release of Oracle Server. Conversion between UTF2 and single-byte character sets is done through an internal number matching mechanism; conversion between UTF2 and multi-byte character sets is done with conversion functions and tables.

Clients should be aware that AL24UTFFSS is now officially supported as a new character set. Since the encoding scheme of UTF2 is very similar to some existing character sets, no major impact on existing products is expected.

NLS Data

This section lists supported languages, territories, storage character sets, Arabic/Hebrew display character sets, linguistic definitions, and calendars.

Supported Languages

The following languages are supported in Oracle Server release 7.3:

American	Hungarian
German	Czech
French	Lithuanian
Canadian French	Slovak
Spanish	Catalan
Italian	Bulgarian
Dutch	Romanian
Swedish	Slovenian
Norwegian	Hebrew
Danish	Egyptian
Finnish	Croatian
Icelandic	Arabic
Greek	Thai
Portuguese	Japanese
Turkish	Korean
Brazilian Portuguese	Simplified Chinese
Mexican Spanish	Traditional Chinese
Russian	English
Polish	Latin American Spanish

Supported Territories The following territories are supported in Oracle Server release 7.3:

America	Iraq
United Kingdom	Jordan
Germany	Kuwait
France	Lebanon
Canada	Libya
Spain	Morocco
Italy	Mauritania
The Netherlands	Oman
Sweden	Qatar
Norway	Romania
Denmark	Saudi Arabia
Finland	Somalia
Iceland	Syria
Greece	Djibouti
Portugal	Slovenia
Turkey	Tunisia
Brazil	Yemen
Mexico	Sudan
CIS	Switzerland
Croatia	Austria
Poland	United Arab Emirates
Hungary	Thailand
Czechoslovakia	China
Lithuania	Hong Kong
Israel	Japan
Bulgaria	Korea
Algeria	Taiwan
Bahrain	Czech Republic
Catalonia	Slovakia
Egypt	

Storage Character Sets

The following storage character sets are supported in Oracle Server release 7.3:

Name	Description
US7ASCII	ASCII 7-bit American
WE8DEC	DEC 8-bit West European
WE8HP	HP LaserJet 8-bit West European

Table 4 – 2 Storage Character Sets

Name	Description
US8PC437	IBM–PC Code Page 437 8–bit American
WE8EBCDIC37	EBCDIC Code Page 37 8–bit West European
WE8EBCDIC500	EBCDIC Code Page 500 8–bit West European
WE8PC850	IBM–PC Code Page 850 8–bit West European
D7DEC	DEC VT 100 7–bit German
F7DEC	DEC VT 100 7–bit French
S7DEC	DEC VT100 7–bit Swedish
E7DEC	DEC VT100 7–bit Spanish
SF7ASCII	ASCII 7–bit Finnish
NDK7DEC	DEC VT100 7–bit Norwegian/Danish
I7DEC	DEC VT100 7–bit Italian
NL7DEC	DEC VT100 7–bit Dutch
CH7DEC	DEC VT100 7–bit Swiss (German/French)
YUG7ASCII	ASCII 7–bit Yugoslavian
SF7DEC	DEC VT 100 7–bit Finnish
TR7DEC	DEC VT100 7–bit Turkish
WE8ISO8859P1	ISO 8859–1 West European
EE8ISO8859P2	ISO 8859–2 East European
SE8ISO8859P3	ISO 8859–3 South European
NEE8ISO8859P4	ISO 8859–4 North and North–East European
CL8ISO8859P5	ISO 8859–5 Latin/Cyrillic
AR8ISO8859P6	ISO 8859–6 Latin/Arabic
EL8ISO8859P7	ISO 8859–7 Latin/Greek
IW8ISO8859P8	ISO 8859–8 Latin/Hebrew
WE8ISO8859P9	ISO 8859–9 West European & Turkish
NE8ISO8859P10	ISO 8859–10 North European
TH8TISASCII	Thai Industrial Standard 620–2533 – ASCII 8–bit
TH8TISEBCDIC	Thai Industrial Standard 620–2533 – EBCDIC 8–bit
AR8EBCDICX	EBCDIC X BASIC 8–bit Latin/Arabic
EL8DEC	DEC 8–bit Latin/Greek
TR8DEC	DEC 8–bit Turkish
WE8EBCDIC37C	EBCDIC Code Page 37 8–bit Oracle/c
RU8PC866	IBM–PC Code Page 866 8–bit Latin/Cyrillic
WE8EBCDIC500C	EBCDIC Code Page 500 8–bit Oracle/c
EEC8EUROPA3	EEC EUROPA3 8–bit West European/Greek

Table 4 – 2 (continued) Storage Character Sets

Name	Description
EE8PC852	IBM–PC Code Page 852 8–bit East European
RU8BESTA	BESTA 8–bit Latin/Cyrillic
RU8PC855	IBM–PC Code Page 855 8–bit Latin/Cyrillic
TR8PC857	IBM–PC Code Page 857 8–bit Turkish
CL8MACCYRILLIC	Mac Client 8–bit Latin/Cyrillic
CL8MACCYRILLICS	Mac Server 8–bit Latin/Cyrillic
WE8PC860	IBM–PC Code Page 860 8–bit West European
IS8PC861	IBM–PC Code Page 861 8–bit Icelandic
EE8MACCES	Mac Server 8–bit Central European
EE8MACCROATIANS	Mac Server 8–bit Croatian
TR8MACTURKISHS	Mac Server 8–bit Turkish
IS 8MACICELANDICS	Mac Server 8–bit Icelandic
EL8MACGREEKS	Mac Server 8–bit Greek
EE8MSWIN 1250	MS Windows Code Page 1250 8–bit East European
CL8MSWIN1251	MS Windows Code Page 1251 8–bit Latin/Cyrillic
F8EBCDIC297	EBCDIC Code Page 297 8–bit French
BG8MSWIN	MS Windows 8–bit Bulgarian Cyrillic
EL8MSWIN1253	MS Windows Code Page 1253 8–bit Latin/Greek
D8EBCDIC273	EBCDIC Code Page 273/18–bit Austrian German
I8EBCDIC280	EBCDIC Code Page 280/18–bit Italian
DK8EBCDIC277	EBCDIC Code Page 277/18–bit Danish
S8EBCDIC278	EBCDIC Code Page 278/18–bit Swedish
EE8EBCDIC870	EBCDIC Code Page 870 8–bit East European
CL8EBCDIC1025	EBCDIC Code Page 1025 8–bit Cyrillic
N8PC865	IBM–PC Code Page 865 8–bit Norwegian
F7SIEMENS9780X	Siemens 97801/97808 7–bit French
E7SIEMENS9780X	Siemens 97801/97808 7–bit Spanish
S7SIEMENS9780X	Siemens 97801/97808 7–bit Swedish
DK7SIEMENS9780X	Siemens 97801/97808 7–bit Danish
N7SIEMENS9780X	Siemens 97801/97808 7–bit Norwegian
I7SIEMENS9780X	Siemens 97801/97808 7–bit Italian
D7SIEMENS9780X	Siemens 97801/97808 7–bit German
WE8GCOS7	Bull EBCDIC GCOS7 8–bit West European
US8BS2000	Siemens 9750–62 EBCDIC 8–bit American

Table 4 – 2 (continued) Storage Character Sets

Name	Description
D8BS2000	Siemens 9750–62 EBCDIC 8–bit German
F8BS2000	Siemens 9750–62 EBCDIC 8–bit French
E8BS2000	Siemens 9750–62 EBCDIC 8–bit Spanish
DK8BS2000 S	Siemens 9750–62 EBCDIC 8–bit Danish
WE8BS2000	Siemens EBCDIC.DF.04 8–bit West European
CL8BS2000	Siemens EBCDIC.EHC.LC 8–bit Cyrillic
WE8BS2000L5	Siemens EBCDIC.DF.O4.L5 8–bit West European/Turkish
WE8DG	DG 8–bit West European
WE8NCR4970	NCR 4970 8–bit West European
WE8ROMAN8	HP Roman8 8–bit West European
EE8MACCE	Mac Client 8–bit Central European
EE8MACCROATIAN	Mac Client 8–bit Croatian
TR8MACTURKISH	Mac Client 8–bit Turkish
IS8MACICELANDIC	Mac Client 8–bit Icelandic
EL8MACGREEK	Mac Client 8–bit Greek
US8ICL	ICL EBCDIC 8–bit American
WE8ICL	ICL EBCDIC 8–bit West European
WE8MACROMAN8	Mac Client 8–bit Extended Roman8 West European
WE8MACROMAN8S	Mac Server 8–bit Extended Roman8 West European
TH8MACTHAI	Mac Client 8–bit Latin/Thai
TH8MACTHAIS	Mac Server 8–bit Latin/Thai
HU8CWI2	Hungarian 8–bit CWI–2
TR8ISO8859P9	Turkish version ISO 8859–9 West European & Turkish
EL8PC437S	IBM–PC Code Page 437 8–bit (Greek modification)
EL8EBCDIC875	EBCDIC Code Page 875 8–bit Greek
EL8PC737	IBM–PC Code Page 737 8–bit Greek/Latin
LT8PC772	IBM–PC Code Page 772 8–bit Lithuanian (Latin/Cyrillic)
LT8PC774	IBM–PC Code Page 774 8–bit Lithuanian (Latin)
CDN8PC863	IBM–PC Code Page 863 8–bit Canadian French
AR8ASMO8X	ASMO Extended 708 8–bit Latin/Arabic
AR8NAFITHA711	Nafitha Enhanced 711 Server 8–bit Latin/Arabic
AR8SAKHR707	SAKHR 707 Server 8–bit Latin/Arabic

Table 4 – 2 (continued) Storage Character Sets

Name	Description
AR8MUSSAD768	Mussa'd Alarabi/2 768 Server 8-bit Latin/Arabic
AR8ADOS710	Arabic MS-DOS 710 Server 8-bit Latin/Arabic
AR8ADOS720	Arabic MS-DOS 720 Server 8-bit Latin/Arabic
AR8APTEC715	APTEC 715 Server 8-bit Latin/Arabic
AR8MSWIN1256	MS Windows Code Page 1256 8-Bit Latin/Arabic
AR8NAFITHA721	Nafitha International 721 Server 8-bit Latin/Arabic
AR8SAKHR706	SAKHR 706 Server 8-bit Latin/Arabic
AR8ARABICMAC	Mac Client 8-bit Latin/Arabic
AR8ARABICMACS	Mac Server 8-bit Latin/Arabic
JA16VMS	JVMS 16-bit Japanese
JA16EUC	EUC 16-bit Japanese
JA16SJIS	Shift-JIS 16-bit Japanese
JA16DBCS	IBM DBCS 16-bit Japanese
JA16HP	HP 16-bit Japanese
JA16EBCDIC930	IBM DBCS Code Page 290 16-bit Japanese
JA16TOSHIBAEUC	Toshiba EUC 16-bit Japanese
KO16KSC5601	KSC5601 16-bit Korean
KO16DBCS	IBM DBCS 16-bit Korean
ZHS16CGB231280	CGB2312-80 16-bit Simplified Chinese
ZHT32EUC	EUC 32-bit Traditional Chinese
ZHT32SOPS	SOPS 32-bit Traditional Chinese
ZHT16DBT	Taiwan Taxation 16-bit Traditional Chinese
ZHT32TRIS	TRIS 32-bit Traditional Chinese
ZHT16BIG5	BIG5 16-bit Traditional Chinese
AL24UTFSS	Unicode UTF-FSS
JA16TSTSET2	ASCII-based 16-bit Test Character Set
JA16TSTSET	Shift-sensitive ASCII-based Test Character Set

Table 4 – 2 (continued) Storage Character Sets

Arabic/Hebrew Display Character Sets

The following Arabic/Hebrew display character sets are supported in Oracle Server release 7.3:

Name	Description
AR8ASMO708PLUS	ASMO 708 Plus 8-bit Latin/Arabic
AR7ASMO449PLUS	ASMO 449 Plus 7-bit Latin/Arabic
AR7AMEER	Ameer 7-bit Latin/Arabic
AR8XBASIC	XBASIC Right-to-Left Arabic Character Set
AR8NAFITHA711T	Nafitha Enhanced 711 Client 8-bit Latin/Arabic
AR8SAKHR707T	SAKHR 707 Client 8-bit Latin/Arabic
AR8MUSSAD768T	Mussa'd Alarabi/2 768 Client 8-bit Latin/Arabic
AR8ADOS710T	Arabic MS-DOS 710 Client 8-bit Latin/Arabic
AR8ADOS720T	Arabic MS-DOS 720 Client 8-bit Latin/Arabic
AR8APTEC715T	APTEC 7 15 Client 8-bit Latin/Arabic
AR8NAFITHA721T	Nafitha International 721 Client 8-bit Latin/Arabic
AR7SEDCOT	SEDCO/ESPRIT/DATA GENERAL 7-bit Latin/Arabic
AR8HPARABIC8T	HP ARABIC8 8-bit Latin/Arabic

Table 4 – 3 Arabic/Hebrew Display Character Sets

Linguistic Definitions

Linguistic definitions define linguistic cases for particular languages. Extended linguistic definitions include some special linguistic cases for the language. Oracle Server supports the following linguistic definitions:

Name	Extended Name
WEST_EUROPEAN	XWEST_EUROPEAN
GERMAN	XGERMAN
DANISH	XDANISH
SPANISH	XSPANISH
GERMAN DIN	XGERMAN_DIN
FINNISH	
FRENCH	
NORWEGIAN	
SWEDISH	

Table 4 – 4 Linguistic Definitions

Name	Extended Name
ITALIAN	
ICELANDIC	
DUTCH	XDUTCH
SWISS	XSWISS
ARABIC	
HUNGARIAN	XHUNGARIAN
GREEK	
CZECH	XCZECH
POLISH	
SLOVAK	XSLOVAK
LATIN	
THAI_DICTIONARY	
THAI_TELEPHONE	
TURKISH	XTURKISH
RUSSIAN	
HEBREW	
LITHUANIAN	
CROATIAN	XCROATIAN
ROMANIAN	
BULGARIAN	
CATALAN	XCATALAN
SLOVENIAN	XSLOVENIAN

Table 4 – 4 (continued) Linguistic Definitions

Calendar Systems

Oracle Server release 7.3 supports the following five additional calendar systems:

Name	Character Set Texts	Default Format
Japanese Imperial	JA16EUC	EEYY"307\257"MM"267\356"DD"306\374"
ROC Official	ZHT32EUC	EEyy"310\241 "mm"305\314"dd"305\312"
Thai Buddha	TH8TISASCII	"307\321\27 1\267\325\350" dd month EE yyyy
Persian	AR8ASMO8X	DD Month YYYY
Arabic Hijrah	AR8ISO8859P6	DD Month YYYY

Table 4 – 5 NLS Supported Calendars

Database Limits

This chapter lists the limits of values associated with database functions and objects. The following topics are included in this chapter:

- Setting Limits
- Database Limits

Setting Limits

You can set limits when you create a database. These limits are recorded in the control file and cannot be overridden during the life of the database. Also, you can set limits for the duration of an instance with initialization parameters. These parameters temporarily override the database limits of the control file.

For example, the maximum number of database files allowed by the Oracle7 Server can be reduced for a particular database by specifying a lower value for the MAXDATAFILES option of the CREATE DATABASE command. This limit is then recorded in the control file and cannot be exceeded for the life of that database. You can alter the value of the initialization parameter DB_FILES to a value less than MAXDATAFILES for a particular instance. The maximum number of database files is then limited to the number specified by DB_FILES for the life of that instance.

Database Limits

Limits exist on several levels in the database. There is usually a hard-coded limit in the database that cannot be exceeded. The value may be further restricted for any given operating system.



For more information on the maximum value of such limits, see your operating system-specific Oracle documentation.

OSDoc

Table 5 – 1 lists types and limits for database functions and options.

Item	Type	Limit
blocks (Oracle7)	minimum in initial extent	2 blocks (automatically enforced)
	maximum	$2^{32} - 1$ (up to 4 terabytes, depending on block size)
characters	CHAR column index	255 characters maximum no absolute limit, but a function of block size LONG column $2^{31} - 1$ characters (2 gigabytes) maximum VARCHAR2 column 2000 characters maximum
columns	index (or cluster index) table expression list view definition	16 columns maximum 254 columns maximum 254 columns maximum 254 columns maximum
	LONG columns table	1 LONG column per table
constraints	CHECK (on columns)	unlimited

Table 5 – 1 Types and Limits for Database Functions and Objects

Item	Type	Limit
context area	size	no absolute limit (1024 is the minimum initial extent size)
control files	number of control files	one minimum: 2 or more strongly recommended on separate devices
	size of a control file	typically 50..200Kb, depending on database creation options; maximum is O/S–dependent
database files	system	1022 or value of DB_FILES in INIT.ORA, or limited by value of MAXDATAFILES in CREATE DATABASE. Less on some operating systems.
database file size	minimum	no absolute limit except for first file whose minimum size is 2 MB
	maximum	O/S dependent, typically 16 million Oracle7 blocks
GROUP BY clause	maximum size	number of bytes limited to one Oracle7 block, less O/S–dependent block overhead, less 2–bytes per group–by expression, less one of the following: 2 bytes plus size of each aggregate of a non–distinct value Example: COUNT(DISTINCT(x)) or two bytes plus size in bytes of the longest aggregate of a distinct value Example: COUNT(x)
indexes	table	no limit
	total size of indexed columns	one–half the Oracle7 block size minus some overhead
instances	parallel server	O/S dependent, subject to Oracle7 limit of 255
literals	character string number (+ or –)	255 characters (10E–135 to 10E125)
locks	transaction distributed	no limit; O/S dependent
MAXEXTENTS		derived from DB_BLOCK_SIZE O/S dependent
nested queries		255 queries
NUMBER	maximum value	1.0×10^{125}
precision		up to 38 significant digits per numeric value

Table 5 – 1 (continued) Types and Limits for Database Functions and Objects

Item	Type	Limit
redo log files	database	255 or value for LOG_FILES in INIT.ORA, or by MAXLOGFILES in CREATE DATABASE. Ultimately, an operating system limit.
redo log file size	minimum	50 Kbytes
rollback segments	database	no limit
rows	table	no limit
SGA size	maximum	no limit
SQL statement length		64 K maximum length; particular tools may have lower limits
stored packages	size	SQL*FORMS may have limits on the size of stored procedures you can call. Consult your SQL*Forms documentation for details.
tablespaces	database	no limit
tables	cluster database	32; no limit
trigger cascade limit	maximum	32, larger values O/S-dependent
users and roles	maximum	65525 (users and roles combined)

Table 5 – 1 (continued) Types and Limits for Database Functions and Objects

SQL Scripts

This chapter describes the SQL scripts that are required for optimal operation of the Oracle7 Server. The SQL scripts are described in the following sections:

- Creating the Data Dictionary
- Creating Additional Data Dictionary Structures
- Migration Scripts

Note: Check the header of each SQL script for more detailed information and examples.

Creating the Data Dictionary

The data dictionary is automatically created when a database is created. Thereafter, whenever the database is in operation, Oracle7 updates the data dictionary in response to every DDL statement.

The data dictionary base tables are the first objects created in any Oracle database. They are created and must remain in the SYSTEM tablespace. The data dictionary base tables are present to store information about all user-defined objects in the database.

During database creation, the initialization parameter `INIT_SQL_FILES` specifies the names of script files that are run immediately following database creation. These SQL scripts create the data dictionary and other important structures.

The initialization parameter `INIT_SQL_FILES` can also specify other files to run during database creation, after the data dictionary is created. These other files may create site-specific tables. You must specify the names of your files *after* the default filenames, as in the following example:

```
INIT_SQL_FILES = (CATALOG.SQL, CATPROC.SQL ACME_DBA.SQL)
```

In this example, `ACME_DBA.SQL` is an additional file to run during database creation.



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The default filenames specified by `INIT_SQL_FILES` vary by operating system. See your operating system specific Oracle documentation for the default filenames.

These initial SQL files do the following tasks:

1. Define the SYSTEM tablespace and SYSTEM rollback segment.
2. Define the data dictionary base tables in the SYSTEM tablespace. For every table and column in a base table, a comment is also loaded to provide online documentation.
3. Load data into some data dictionary tables.

Table 6 – 1 lists the scripts that are required for the Oracle7 Server with the indicated options. The appropriate scripts for your Oracle7 Server options are run automatically when you create a database. They are described here because you might need to run them again, when upgrading to a new release of Oracle7. Your release notes and *Oracle7 Server Migration* indicate when this is necessary. Run these scripts connected to the Oracle7 Server as the user SYS.

For more information about scripts with names starting with DBMS, see the *Oracle7 Server Application Developer's Guide*.



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The exact names and locations of these scripts are operating system dependent. See your operating system specific Oracle documentation for the names and locations on your system.

Script Name	Requires Options	Description
CATALOG.SQL	none	Creates the data dictionary and public synonyms for many of its views, and grants PUBLIC access to the synonyms; also calls the scripts CATAUDIT.SQL, CATESP.SQL, and CATLDR.SQL
CATAUDIT.SQL	none	Creates the database audit train and views (This is run automatically by CATALOG.SQL; it can be removed by running CATNOAUD.SQL)
CATEXP.SQL	none	Creates data dictionary tables for Import/EXPORT (This is run automatically by CATALOG.SQL.)
CATLDR.SQL	none	Creates views for using SQL*Loader (This is run automatically by CATALOG.SQL)
CATNOREP.SQL	none	Remove the objects created by CATREPAD.SQL
CATNOSVM.SQL	none	Drops all objects created by CATSVRMG.SQL
CATPARR.SQL	Parallel Server	Creates data dictionary views on Parallel Server information
CATPROC.SQL	none	Runs all scripts required for or used with PL/SQL: CATPRC.SQL, CATRSNAP.SQL, CATRPC.SQL, STANDARD.SQL, DBMSSTDY.SQL, PIPDY.SQL, PIDIAN.SQL, DIUTIL.SQL, PISTUB.SQL, DBMSSNAP.SQL, DBMSLOCK.SQL, DBMSPIPE.SQL, DBMSALRT.SQL, SBMSOTPT.SQL, DBMSDESC.SQL
CATPRC.SQL	none	Creates data dictionary views for stored procedures, packages, and database triggers (This is run automatically by CATPROC.SQL)
CATREPAD.SQL	none	Creates the views and tables required for Symmetric Replication in Server Manager

Table 6 – 1 Required SQL Scripts

Script Name	Requires Options	Description
CATRPC.SQL	distributed	Creates data dictionary views on distributed database information (This is run automatically by CATPROC.SQL; it requires CATPRC.SQL.)
CATSNAP.SQL	distributed	Creates data dictionary structures for storing and maintaining snapshots (This is run automatically by CATPROC.SQL; it requires CATPRC.SQL.)
CATSVRMG.SQL	none	Creates the views used by Server Manager (This is run automatically by CATPROC.SQL)
CATTRUST.SQL	Trusted Oracle7	Defines structures needed for the Trusted Oracle7 Server
DBMSALRT.SQL	none	Allows users and applications to use event alerters (This is run automatically by CATPROC.SQL; it requires PISTUB.SQL.)
DBMSDESC.SQL	none	Creates a package that allows you to describe the arguments and return values of program units (This is run automatically by CATPROC.SQL; it requires PISTUB.SQL.)
DBMSLOCK.SQL	none	Allows users and applications to send Oracle* Mail messages (This is run automatically by CATRPOC.SQL; it requires PISTUB.SQL. You must run it on the sending database, and run TULMAIL.SQL on the receiving database.)
DBMSMAIL.SQL	none	Allows users and applications to send Oracle7*Mail messages (This requires PISTUB.SQL. You must run it on the sending database, and run UTLMAIL.SQL on the receiving Oracle7*Mail database.)
DBMSOTPT.SQL	none	Allows application developers to receive I/O from procedures. (This is run automatically by CATPROC.SQL; it requires PISTUB.SQL.)
DBMSPIPE.SQL	none	Allows sessions in the same instance to communicate with each other (This is run automatically by CATPROIC.SQL; it requires PISTUB.SQL.)
DBMSSNAP.SQL	distributed	Creates procedures for administering snapshots (This is run automatically by CATPROC.SQL; it requires CATSNAP.SQL, and you must run it on both the snapshot and master table nodes.)

Table 6 – 1 (continued) Required SQL Scripts

Script Name	Requires Options	Description
DBMSSTDY.SQL	none	Includes extensions to the package standard (This is run automatically by CATPROC.SQL; it requires STANDARD.SQL.)
DBMSUTIL.SQL	none	Creates utilities that can be called from within procedures (this is run automatically by CATPROC.SQL; it requires PICTUB.SQL.)
DIUTIL.SQL	none	Creates PL/SQL packages for the none option (This is run automatically by CATPROC.SQL; it requires PIDIAN.SQL.)
PIDIAN.SQL	none	Creates PL/SQL packages for the none option (This is run automatically by CATPROC.SQL; it requires DBMSSTDY.SQL.)
PIPIDL.SQL	none	Creates PL/SQL packages for the none option (This is run automatically by CATPROC.SQL; it requires DBMSSTDY.SQL.)
PISTUB.SQL	none	Creates PL/SQL packages for the none option (This is run automatically by CATPROC.SQL; it requires DIUTIL.SQL.)
SQL.BSQ	none	Database bootstrap script.
STANDARD.SQL	none	Creates PL/SQL packages for the none option (This is run automatically by CATPROC.SQL; it requires CATPRC.SQL; it requires STANDARD.SQL.)

Table 6 – 1 (continued) Required SQL Scripts

Creating Additional Data Dictionary Structures

Oracle supplies other scripts with the Oracle7 Server that create additional structures you can use in managing your database and creating database applications. These scripts are listed in Table 6 – 2.



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The exact names and locations of these scripts are operating system dependent. See your operating system specific Oracle documentation for the names and locations on your system.

Script Name	Options Required	Run By	Description
CATBLOCK.SQL	none	SYS	Creates the view BLOCKING_LOCKS, which shows which locks are blocking the system
CATNOAUD.SQL	none	SYS	Removes the database audit trail created by CATAUDIT.SQL, including its data and views
CATNOPRC.SQL	none	SYS	Removes data dictionary structures that were created by CATPRC.SQL
UTLBSTAT.SQL	none	any user	Begins collecting performance tuning statistics (end with UTLESTAT.SQL.)
UTLCHAIN.SQL	none	any user	Creates tables for storing the output of the ANALYZE command with CHAINED ROWS option
UTLDIDX.SQL	none	any user	Displays the results of running the scripts UTLIDXSS.SQL and UTLIDXSO.SQL
UTLDTREE.SQL	none	any user	Creates tables and views that show dependencies between objects
UTLESTAT.SQL	none	any user	Ends collecting of performance tuning statistics started by UTLBTAT.SQL
UTLEXCPT.SQL	none	any user	Creates the default table (EXCEPTIONS) for storing exceptions from enabling constraints
UTLLOCKT.SQL	none	SYS	Displays a lock wait-for graph, in tree structure format
UTLMAIL.SQL	none	SYS	Allows Oracle7*Mail database to receive messages from procedures (run on Oracle7*Mail database; requires that you run DBMSMAIL.SQL on the database that will send messages)

Table 6 – 2 Additional SQL Scripts

Script Name	Options Required	Run By	Description
UTLMONTR.SQL	none	SYS	Grants access to all performance tables used by Server Manager Monitors to PUBLIC group, including access to Monitors
UTLOIDX.SQL	none	any user,	Runs UTLIDXSS.SQL on multiple columns
UTLSAMPL.SQL	none	any user	Creates sample tables, such as EMP and DEPT, and users, such as SCOTT
UTLSIDX.SQL	none	any user	Computes the selectivity of a column, and tests whether an index created on the column would be appropriate
UTLXPLAN.SQL	none	any user	Creates the table PLAN_TABLE, which holds output from the EXPLAIN PLAN command

Table 6 – 2 (continued) Additional SQL Scripts

Migration Scripts

The scripts in Table 6 – 3 are useful when migrating to another version or release.

For more information, see *Oracle7 Server Migration*.

Script Name	Options Required	Run By	Description
CATALOG6.SQL	none	SYS	Creates the view BLOCKING_LOCKS, which shows which locks are blocking the system
CATDBSYN.SQL	none	user with access to data dictionary tables	Creates views for using the Version 6 Export utility with Oracle7
CATEXP6.SQL	none	SYS	Creates views for using the Version 6 Export utility with Oracle7
DROPCAT6.SQL	none	SYS	Removes the Version 6 views and restores the data dictionary to full Oracle7 form.
UTLEXP6.SQL	none	SYS	Returns a list of objects not exported by SQL*Net export of a Version 6 database

Table 6 – 3 Migration SQL Scripts

A

Operating System Dependencies

This manual refers to other Oracle manuals that contain detailed information for using Oracle on a particular operating system. These Oracle manuals are often called installation and configuration guides, although the exact name may vary.



OSDoc

Throughout this manual, references to platform specific Oracle documentation are highlighted with the use of this icon.

This appendix lists all references made in this manual to operating system-dependent behavior for the Oracle utilities. Use this appendix as a guide when moving data between operating systems or when designing operating system-independent applications.

Operating system-specific topics are listed alphabetically with page numbers of sections that discuss these topics.

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