

1

Changes in This Release for Oracle Database Reference

This chapter lists the following changes in *Oracle Database Reference* for Oracle Database 23ai:

- [Changes in Oracle Database 23ai, Release Update 23.8](#)
- [Changes in Oracle Database 23ai, Release Update 23.7](#)
- [Changes in Oracle Database 23ai, Release Update 23.6](#)
- [Changes in Oracle Database 23ai](#)

1.1 Changes in Oracle Database 23ai, Release Update 23.8

The following initialization parameter is new in Oracle Database 23ai, Release Update 23.8:

- [PLSQL_FUNCTION_DYNAMIC_STATS](#)

The following dynamic performance view is new in Oracle Database 23ai, Release Update 23.8:

- [V\\$CACHE_FUSION_HISTOGRAM](#)

1.2 Changes in Oracle Database 23ai, Release Update 23.7

The following static data dictionary views are new in Oracle Database 23ai, Release Update 23.7:

- [DBA_AUTO_STAT_OBJ_GATHER_DETAILS](#)
- [ALL_AVTUNE_ARCHIVE_CACHE_LEVELS](#), [DBA_AVTUNE_ARCHIVE_CACHE_LEVELS](#), and [USER_AVTUNE_ARCHIVE_CACHE_LEVELS](#)
- [ALL_AVTUNE_ARCHIVE_QUERIES](#), [DBA_AVTUNE_ARCHIVE_QUERIES](#), and [USER_AVTUNE_ARCHIVE_QUERIES](#)
- [ALL_AVTUNE_ARCHIVE_QUERY_LEVELS](#), [DBA_AVTUNE_ARCHIVE_QUERY_LEVELS](#), and [USER_AVTUNE_ARCHIVE_QUERY_LEVELS](#)
- [ALL_AVTUNE_ARCHIVE_QUERY_MEASURES](#), [DBA_AVTUNE_ARCHIVE_QUERY_MEASURES](#), and [USER_AVTUNE_ARCHIVE_QUERY_MEASURES](#)
- [ALL_AVTUNE_ARCHIVES](#), [DBA_AVTUNE_ARCHIVES](#), and [USER_AVTUNE_ARCHIVES](#)
- [ALL_AVTUNE_AV_AGG_CACHE_LEVELS](#), [DBA_AVTUNE_AV_AGG_CACHE_LEVELS](#), and [USER_AVTUNE_AV_AGG_CACHE_LEVELS](#)
- [ALL_AVTUNE_AV_AGG_CACHES](#), [DBA_AVTUNE_AV_AGG_CACHES](#), and [USER_AVTUNE_AV_AGG_CACHES](#)

- [ALL_AVTUNE_CALLBACK_ARGS](#), [DBA_AVTUNE_CALLBACK_ARGS](#), and [USER_AVTUNE_CALLBACK_ARGS](#)
- [ALL_AVTUNE_ENABLED_AV_DIMENSIONS](#), [DBA_AVTUNE_ENABLED_AV_DIMENSIONS](#), and [USER_AVTUNE_ENABLED_AV_DIMENSIONS](#)
- [ALL_AVTUNE_ENABLED_AVS](#), [DBA_AVTUNE_ENABLED_AVS](#), and [USER_AVTUNE_ENABLED_AVS](#)
- [ALL_AVTUNE_ENABLED_DIMENSIONS](#), [DBA_AVTUNE_ENABLED_DIMENSIONS](#), and [USER_AVTUNE_ENABLED_DIMENSIONS](#)

1.3 Changes in Oracle Database 23ai, Release Update 23.6

The following static data dictionary views are new in Oracle Database 23ai, Release Update 23.6:

- [ALL_JSON_COLLECTION_VIEWS](#), [DBA_JSON_COLLECTION_VIEWS](#), and [USER_JSON_COLLECTION_VIEWS](#)

1.4 Changes in Oracle Database 23ai

This section lists the following changes in *Oracle Database Reference* for Oracle Database 23ai:

- [New Features](#)
- [Deprecated Features](#)
- [Desupported Features](#)

1.4.1 New Features

- The following feature is new in Oracle Database 23ai:
 - The maximum number of columns allowed in a database table or view has been increased from 1000 to 4096.
See: [MAX_COLUMNS](#)
- The following initialization parameters are new in Oracle Database 23ai:
 - [ALLOW_LEGACY_RECO_PROTOCOL](#)
 - [BLOCKCHAIN_TABLE_RETENTION_THRESHOLD](#)
 - [CLIENT_PREFETCH_ROWS](#)
 - [DB_FLASHBACK_LOG_DEST](#)
 - [DB_FLASHBACK_LOG_DEST_SIZE](#)
 - [DB_RECOVERY_AUTO_REKEY](#)
 - [ERROR_MESSAGE_DETAILS](#)
 - [GROUP_BY_POSITION_ENABLED](#)
 - [HYBRID_READ_ONLY](#)
 - [IDENTITY_PROVIDER_CONFIG](#)
 - [IDENTITY_PROVIDER_TYPE](#)

- INMEMORY_OPTIMIZED_DATE
- IORM_LIMIT_POLICY
- JSON_BEHAVIOR
- JSON_EXPRESSION_CHECK
- MAX_COLUMNS
- MAX_SAGA_DURATION
- MEMOPTIMIZE_WRITE_AREA_SIZE
- MEMOPTIMIZE_WRITES
- MEMORY_MAX_SIZE
- MEMORY_SIZE
- MLE_PROG_LANGUAGES
- PLSQL_IMPLICIT_CONVERSION_BOOL
- PRIORITY_TXNS_HIGH_WAIT_TARGET
- PRIORITY_TXNS_MEDIUM_WAIT_TARGET
- PRIORITY_TXNS_MODE
- READ_ONLY
- RESOURCE_MANAGER_CPU_SCOPE
- RESULT_CACHE_AUTO_BLOCKLIST
- RESULT_CACHE_INTEGRITY
- SAGA_HIST_RETENTION
- SESSION_EXIT_ON_PACKAGE_STATE_ERROR
- SHARD_ENABLE_RAFT_FOLLOWER_READ
- SHARD_RAFT_LOGFILE_SIZE
- SQL_ERROR_MITIGATION
- SQL_HISTORY_ENABLED
- SQL_TRANSPILER
- TABLESPACE_ENCRYPTION
- TIME_AT_DBTIMEZONE
- TRANSACTION_RECOVERY
- TRUE_CACHE
- TXN_PRIORITY
- XML_CLIENT_SIDE_DECODING
- XML_PARAMS
- The following static data dictionary views are new in Oracle Database 23ai:
 - DBA_ADDM_PENDING_AUTOTASKS
 - DBA_ADDM_SCHEDULED_AUTOTASKS
 - DBA_AIM_PERF_FEATURES

- ALL_ANNOTATION_VALUES, DBA_ANNOTATION_VALUES, and USER_ANNOTATION_VALUES
- ALL_ANNOTATIONS, DBA_ANNOTATIONS, and USER_ANNOTATIONS
- ALL_ANNOTATIONS_USAGE, DBA_ANNOTATIONS_USAGE, and USER_ANNOTATIONS_USAGE
- DBA_AUTO_CLUSTERING_CONFIG
- DBA_AUTO_CLUSTERING_RECOMMENDATIONS
- ALL_BLOCKCHAIN_ROW_VERSION_COLS, DBA_BLOCKCHAIN_ROW_VERSION_COLS, and USER_BLOCKCHAIN_ROW_VERSION_COLS
- ALL_BLOCKCHAIN_ROW_VERSION_HISTORY, DBA_BLOCKCHAIN_ROW_VERSION_HISTORY, and USER_BLOCKCHAIN_ROW_VERSION_HISTORY
- ALL_BLOCKCHAIN_TABLE_CHAINS, DBA_BLOCKCHAIN_TABLE_CHAINS, and USER_BLOCKCHAIN_TABLE_CHAINS
- ALL_BLOCKCHAIN_TABLE_EPOCHS, DBA_BLOCKCHAIN_TABLE_EPOCHS, and USER_BLOCKCHAIN_TABLE_EPOCHS
- ALL_BLOCKCHAIN_TABLE_HASH_COL_ORDER, DBA_BLOCKCHAIN_TABLE_HASH_COL_ORDER, and USER_BLOCKCHAIN_TABLE_HASH_COL_ORDER
- DBA_BLOCKER_RESOLVER_PARAMETERS
- DBA_DDL_REGS and USER_DDL_REGS
- ALL_DOMAIN_COLS, DBA_DOMAIN_COLS, and USER_DOMAIN_COLS
- ALL_DOMAIN_CONSTRAINTS, DBA_DOMAIN_CONSTRAINTS, and USER_DOMAIN_CONSTRAINTS
- ALL_DOMAINS, DBA_DOMAINS, and USER_DOMAINS
- DBA_HIST_OPTIMIZER_ENV_DETAILS
- ALL_HIST_SAGAS, DBA_HIST_SAGAS, and USER_HIST_SAGAS
- ALL_IMMUTABLE_ROW_VERSION_COLS, DBA_IMMUTABLE_ROW_VERSION_COLS, and USER_IMMUTABLE_ROW_VERSION_COLS
- ALL_IMMUTABLE_ROW_VERSION_HISTORY, DBA_IMMUTABLE_ROW_VERSION_HISTORY, and USER_IMMUTABLE_ROW_VERSION_HISTORY
- ALL_IMMUTABLE_TABLE_COLUMNS, DBA_IMMUTABLE_TABLE_COLUMNS, and USER_IMMUTABLE_TABLE_COLUMNS
- ALL_IMMUTABLE_TABLE_EPOCHS, DBA_IMMUTABLE_TABLE_EPOCHS, and USER_IMMUTABLE_TABLE_EPOCHS
- ALL_INCOMPLETE_SAGAS, DBA_INCOMPLETE_SAGAS, and USER_INCOMPLETE_SAGAS
- DBA_INMEMORY_ADVISOR_RECOMMENDATION
- ALL_JSON_COLLECTION_TABLES, DBA_JSON_COLLECTION_TABLES, and USER_JSON_COLLECTION_TABLES

- ALL_JSON_COLLECTIONS, DBA_JSON_COLLECTIONS, and USER_JSON_COLLECTIONS
- ALL_JSON_DOMAIN_SCHEMA_COLUMNS, DBA_JSON_DOMAIN_SCHEMA_COLUMNS, and USER_JSON_DOMAIN_SCHEMA_COLUMNS
- ALL_JSON_DUALITY_VIEW_LINKS, DBA_JSON_DUALITY_VIEW_LINKS, and USER_JSON_DUALITY_VIEW_LINKS
- ALL_JSON_DUALITY_VIEW_TAB_COLS, DBA_JSON_DUALITY_VIEW_TAB_COLS, and USER_JSON_DUALITY_VIEW_TAB_COLS
- ALL_JSON_DUALITY_VIEW_TABS, DBA_JSON_DUALITY_VIEW_TABS, and USER_JSON_DUALITY_VIEW_TABS
- ALL_JSON_DUALITY_VIEWS, DBA_JSON_DUALITY_VIEWS, and USER_JSON_DUALITY_VIEWS
- ALL_JSON_INDEXES, DBA_JSON_INDEXES, and USER_JSON_INDEXES
- ALL_JSON_SCHEMA_COLUMNS, DBA_JSON_SCHEMA_COLUMNS, and USER_JSON_SCHEMA_COLUMNS
- DBA_KAFKA_APPLICATIONS and USER_KAFKA_APPLICATIONS
- DBA_KAFKA_CLUSTERS and USER_KAFKA_CLUSTERS
- DBA_KAFKA_LOAD_METRICS and USER_KAFKA_LOAD_METRICS
- USER_KAFKA_MESSAGES
- DBA_KAFKA_OPS and USER_KAFKA_OPS
- DBA_KAFKA_OPS_RESULTS and USER_KAFKA_OPS_RESULTS
- DBA_KAFKA_PARTITIONS and USER_KAFKA_PARTITIONS
- ALL_MLE_ENV_IMPORTS, DBA_MLE_ENV_IMPORTS, and USER_MLE_ENV_IMPORTS
- ALL_MLE_ENVS, DBA_MLE_ENVS, and USER_MLE_ENVS
- ALL_MLE_MODULES, DBA_MLE_MODULES, and USER_MLE_MODULES
- ALL_MLE_PROCEDURES, DBA_MLE_PROCEDURES, and USER_MLE_PROCEDURES
- ALL_MVIEW_DETAIL_LOGICAL_PARTITION, DBA_MVIEW_DETAIL_LOGICAL_PARTITION, and USER_MVIEW_DETAIL_LOGICAL_PARTITION
- ALL_PG_EDGE_RELATIONSHIPS, DBA_PG_EDGE_RELATIONSHIPS, and USER_PG_EDGE_RELATIONSHIPS
- ALL_PG_ELEMENT_LABELS, DBA_PG_ELEMENT_LABELS, and USER_PG_ELEMENT_LABELS
- ALL_PG_ELEMENTS, DBA_PG_ELEMENTS, and USER_PG_ELEMENTS
- ALL_PG_KEYS, DBA_PG_KEYS, and USER_PG_KEYS
- ALL_PG_LABEL_PROPERTIES, DBA_PG_LABEL_PROPERTIES, and USER_PG_LABEL_PROPERTIES
- ALL_PG_LABELS, DBA_PG_LABELS, and USER_PG_LABELS
- ALL_PG_PROP_DEFINITIONS, DBA_PG_PROP_DEFINITIONS, and USER_PG_PROP_DEFINITIONS

- ALL_PROPERTY_GRAPHS, DBA_PROPERTY_GRAPHS, and USER_PROPERTY_GRAPHS
- DBA_QUARANTINED_TRANSACTIONS
- ALL_SAGA_BROKERS, DBA_SAGA_BROKERS, and USER_SAGA_BROKERS
- ALL_SAGA_DETAILS, DBA_SAGA_DETAILS, and USER_SAGA_DETAILS
- ALL_SAGA_ERRORS, DBA_SAGA_ERRORS, and USER_SAGA_ERRORS
- ALL_SAGA_FINALIZATION, DBA_SAGA_FINALIZATION, and USER_SAGA_FINALIZATION
- ALL_SAGA_PARTICIPANT_SET, DBA_SAGA_PARTICIPANT_SET, and USER_SAGA_PARTICIPANT_SET
- ALL_SAGA_PARTICIPANTS, DBA_SAGA_PARTICIPANTS, and USER_SAGA_PARTICIPANTS
- ALL_SAGA_PENDING, DBA_SAGA_PENDING, and USER_SAGA_PENDING
- ALL_SAGAS, DBA_SAGAS, and USER_SAGAS
- DBA_SCHEDULER_IN_MEMORY_TRACE
- DBA_SCHEMA_PRIVS, ROLE_SCHEMA_PRIVS, SESSION_SCHEMA_PRIVS, and USER_SCHEMA_PRIVS
- DBA_SQL_ERROR_MITIGATIONS
- DBA_SQL_FIREWALL_ALLOW_LISTS
- DBA_SQL_FIREWALL_ALLOWED_IP_ADDR
- DBA_SQL_FIREWALL_ALLOWED_OS_PROG
- DBA_SQL_FIREWALL_ALLOWED_OS_USER
- DBA_SQL_FIREWALL_ALLOWED_SQL
- DBA_SQL_FIREWALL_CAPTURE_LOGS
- DBA_SQL_FIREWALL_CAPTURES
- DBA_SQL_FIREWALL_SESSION_LOGS
- DBA_SQL_FIREWALL_SQL_LOGS
- DBA_SQL_FIREWALL_STATUS
- DBA_SQL_FIREWALL_VIOLATIONS
- DBA_SYS_PRIVS_ALL, ROLE_SYS_PRIVS_ALL, SESSION_PRIVS_ALL, and USER_SYS_PRIVS_ALL
- ALL_TABLE_ACCESS_STATS, DBA_TABLE_ACCESS_STATS, and USER_TABLE_ACCESS_STATS
- ALL_TABLE_VIRTUAL_COLUMNS, DBA_TABLE_VIRTUAL_COLUMNS, and USER_TABLE_VIRTUAL_COLUMNS
- ALL_TXEVENTQ_MIGRATION_STATUS, DBA_TXEVENTQ_MIGRATION_STATUS and USER_TXEVENTQ_MIGRATION_STATUS
- DBA_UNUSED_SCHEMA_PRIVS
- DBA_UNUSED_SCHEMA_PRIVS_PATH
- DBA_USED_SCHEMA_PRIVS
- DBA_USED_SCHEMA_PRIVS_PATH

- SHARD_RAFT_PARAMETERS
- The following tables are new in Oracle Database 23ai:
 - DBMS_KAFKA_APPLICATIONS
 - DBMS_KAFKA_CLUSTERS
 - DBMS_KAFKA_LOAD_METRICS
 - DBMS_KAFKA_MESSAGES
 - DBMS_KAFKA_OPS
 - DBMS_KAFKA_OPS_RESULTS
 - DBMS_KAFKA_PARTITIONS
 - DBMS_KAFKA_SEC_ALLOWED_PROPERTIES
- The following dynamic performance views are new in Oracle Database 23ai:
 - V\$AUTO_IM_FEATURES
 - V\$DATAPUMP_PROCESS_INFO
 - V\$DATAPUMP_SESSIONWAIT_INFO
 - V\$DG_BROKER_ROLE_CHANGE
 - V\$DIAG_ATTENTION
 - V\$DIAG_INCIDENT_FILE_CONTENTS
 - V\$ENABLEDSCHEMAPRIVS
 - V\$FAST_START_FAILOVER_CONFIG
 - V\$FLASHBACK_LOG_DEST
 - V\$INMEMORY_SIZE_ADVICE
 - V\$OFS_THREADS
 - V\$PX_PROCESS_DETAIL
 - V\$PX_SERVER
 - V\$RAC_TWO_STAGE_ROLLING_UPDATES
 - V\$RECOVERY_WORKER
 - V\$SCHEDULER_IN_MEMORY_TRACE
 - V\$SECUREFILE_SHRINK
 - V\$SERVICE_DRAIN_TIMEOUT_ADVICE
 - V\$SHARD_ACK_RECEIVER
 - V\$SHARD_ACK_SENDER
 - V\$SHARD_APPLY_COORDINATOR
 - V\$SHARD_APPLY_LCR_READER
 - V\$SHARD_APPLY_READER
 - V\$SHARD_APPLY_SERVER
 - V\$SHARD_LCR_LOGS
 - V\$SHARD_LCR_PERSISTER
 - V\$SHARD_LCR_PRODUCER

- V\$SHARD_NETWORK_RECEIVER
- V\$SHARD_NETWORK_SENDER
- V\$SHARD_REPLICATION_UNIT
- V\$SHARED_POOL_LRU_EFFORT
- V\$SQL_HISTORY
- V\$SQL_SHARED_CURSOR_DIAG
- V\$TABLE_ACCESS_STATS
- V\$TDM_STATS
- V\$TEXT_WAITING_EVENTS
- V\$TRUE_CACHE
- V\$TRUE_CACHE_KEEP
- V\$TRUE_CACHE_STAT



See Also:

Oracle Database New Features for a complete list of new features for this release

1.4.2 Deprecated Features

The following features are deprecated in Oracle Database 23ai, and may be desupported in a future release:

Initialization parameters:

- ENCRYPT_NEW_TABLESPACES
- ONE_STEP_PLUGIN_FOR_PDB_WITH_TDE
- PRE_PAGE_SGA
- REMOTE_OS_ROLES

Static data dictionary views:

- DBA_HANG_MANAGER_PARAMETERS

Dynamic performance views:

- V\$FS_FAILOVER_STATS
- V\$PQ_SLAVE
- V\$RECOVERY_SLAVE



See Also:

Oracle Database Upgrade Guide for a complete list of deprecated features for this release

1.4.3 Desupported Features

The following features are desupported in Oracle Database 23ai:

- The `OPTIMIZER_SECURE_VIEW_MERGING` initialization parameter
- The `V$EMX_USAGE_STATS` view



See Also:

Oracle Database Upgrade Guide for a complete list of desupported features for this release