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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

Part I
Initialization Parameters

Database initialization parameters can be specified in a parameter file to start or configure an instance.

This part contains the following chapter:

- Initialization Parameters

> **Note:**
>
> A multitenant container database is the only supported architecture in Oracle Database 21c and later releases. While the documentation is being revised, legacy terminology may persist. In most cases, "database" and "non-CDB" refer to a CDB or PDB, depending on context. In some contexts, such as upgrades, "non-CDB" refers to a non-CDB from a previous release.