

ALTIBASE® HDB™

New Features Guide

Release 6.5.1

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ALTIBASE HDB New Features Guide

Release 6.5.1

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1 New Features of ALTIBASE HDB Version 6.5.1.0.0

This chapter introduces new features available for ALTIBASE HDB version 6.5.1.0.0.

This chapter consists of the following sections:

- [Improved Features](#)
- [Efficiency](#)
- [Enhanced Security](#)
- [High Availability](#)
- [Other](#)

1.1 Improved Features

1.1.1 SQL Extension

1.1.1.1 LATERAL, CROSS APPLY, OUTER APPLY, and UNPIVOT

If the `LATERAL` keyword is specified for an inline view in the `FROM` clause, it becomes a lateral view and can reference objects (tables and views) on its left.

If the `CROSS APPLY` or `OUTER APPLY` keyword is specified for an inline view in the `FROM` clause, it can reference objects and perform a cross join or a left outer join with them.

In addition, the user can specify the `UNPIVOT` keyword to return column data in rows.

For further information, please refer to the following manual.

- *SQL Reference > Chapter 4. Data Manipulation Language > SELECT*

1.1.1.2 ROW Triggers

For 6.3.1 or below, the user was not allowed to create a `BEFORE UPDATE` trigger at row level. From 6.5.1, the user can create the `BEFORE UPDATE` trigger at row level with the `FOR EACH ROW` option.

For further information, please refer to the following manual.

- *SQL Reference > Chapter 3. Data Definition Language > CREATE TRIGGER*

1.1.1.3 String Padding Functions

The following string padding/unpadding functions are supported for the encryption/decryption functions: `DESENCRYPT`, `DESDECRYPT`, `AESENCRYPT`, and `AESDECRYPT`.

- `PKCS7PAD16`
- `PKCS7UNPAD16`

For further information, please refer to the following manual.

- *SQL Reference > Chapter 7. SQL Functions > Character Functions*

1.1.1.4 FLASHBACK and PURGE

A table that was dropped with the `DROP` statement can be dropped directly from the system or moved to the recycle bin, depending on the value of the `RECYCLEBIN_ENABLE` property. Tables in the recycle bin can be recovered with the `FLASHBACK` statement or dropped from the system with the `PURGE` statement.

The following `DBMS_RECYCLEBIN` system-defined stored packages allow the user to manage tables in the recycle bin.

- PURGE_ALL_RECYCLEBIN
- PURGE_ORIGINAL_NAME
- PURGE_TABLESPACE
- PURGE_USER_RECYCLEBIN

The following properties have been added.

- DISK_RECYCLEBIN_SIZE
- MEMORY_RECYCLEBIN_SIZE
- RECYCLEBIN_ENABLE

The following meta tables have been added.

- SYS_RECYCLEBIN_
- SYS_TABLE_SIZE_

For further information, please refer to the following manuals.

- *General Reference > Chapter 2. ALTIBASE HDB Properties > Database Initialization Properties*
- *General Reference > Chapter 3. The Data Dictionary*
- *SQL Reference > Chapter 3. Data Definition Language > DROP TABLE, FLASHBACK TABLE, PURGE TABLE*
- *Stored Procedures Manual > Chapter 12. ALTIBASE HDB Stored Packages > The DBMS_RECYCLEBIN Package*

1.1.1.5 Aggregate Functions and Window Functions

The following functions are supported for use with aggregate and window functions.

- LISTAGG
- PERCENTILE_CONT
- PERCENTILE_DISC
- STATS_ONE_WAY_ANOVA

For further information, please refer to the following manual.

- *SQL Reference > Chapter 7. SQL Functions > Aggregate Functions, Analytic Functions*

1.1 Improved Features

1.1.2 Application Interface Improvement

1.1.2.1 MS DTC in ADO.NET

The user can use Microsoft Distributed Transaction Coordinator (MSDTC) in ADO.NET to run distributed transactions within ALTIBASE HDB and other databases.

The .NET data provider for ALTIBASE HDB enlists in a DTC distributed transaction as a global XA transaction of the server. Therefore, it contains restrictions of the XA transaction.

For further information, please refer to the following manuals.

- *API User's Manual > Chapter 3. .NET Provider*
- *API User's Manual > Chapter 4. XA Interface*
- *CLI User's Manual > Chapter 2. ALTIBASE HDB CLI Functions*

1.1.2.2 EF Data Provider and DDEX Provider

The following .NET providers are available from 6.5.1.

- Data Designer Extensibility (DDEX) Provider
- Entity Framework (EF) Data Provider

For further information, please refer to the following manual.

- *API User's Manual > Chapter 3. .NET Provider*

1.1.2.3 Connection Pooling

Connection pooling is available in ADO.NET to minimize the time taken to connect to the database.

For further information, please refer to the following manual.

- *API User's Manual > Chapter 3. .NET Provider > Using the .Net Data Provider*

1.1.3 Database Objects

1.1.3.1 Database Roles

Roles (grouped privileges) are supported to allow the user to easily grant multiple privileges to grantees.

The following meta tables have been altered/added to support roles.

- `SYS_USER_ROLES_`
- `SYS_USERS_`

For further information, please refer to the following manuals.

- *Administrator's Manual > Chapter 5. Database Objects and Privileges > Privileges and Roles*
- *General Reference > Chapter 3. The Data Dictionary > SYS_USER_ROLES_, SYS_USERS_*
- *Getting Started Guide > Chapter 4. Managing Database Objects and Privileges > Managing Privileges*
- *SQL Reference > Chapter 3. Data Definition Language > CREATE ROLE, DROP ROLE, GRANT, REVOKE*
- *Utilities Manual > Chapter 1. aexport > Introduction to aexport*

1.1.3.2 Memory Partitioned Tables

For 6.3.1 or below, the user could only partition disk tables. From 6.5.1, the user can also partition memory tables.

Disk partitioned tables support local indexes and global nonpartitioned indexes. However, the user cannot create global nonpartitioned indexes on memory partitioned tables.

For further information, please refer to the following manuals.

- *Administrator's Manual > Chapter 7. Partitioned Objects*
- *SQL Reference > Chapter 3. Data Definition Language > CREATE INDEX, CREATE TABLE, ALTER INDEX, ALTER TABLE*

1.1.4 Multiple Language Support

1.1.4.1 MS936

MS936 (a Chinese character set) is supported. This character set is identical to GBK, ZHS16GBK, and CP936 of other vendors.

The user can specify MS936 as:

- the database character set when creating a database.
- the value for the NLS_USE or ALTIBASE_NLS_USE property for the user environment.
- the value for the NLS_LANG property for oraAdapter.

1.1.5 Data Types

1.1.5.1 Character Data Type Default Length

The user can specify the default lengths of character data types with properties. On omission, the default length had been 1 for 6.3.1 or below,

1.1 Improved Features

The following properties have been added.

- CHAR_DEFAULT_PRECISION
- NCHAR_DEFAULT_PRECISION
- NVARCHAR_DEFAULT_PRECISION
- VARCHAR_DEFAULT_PRECISION

For further information, please refer to the following manual.

- *General Reference > Chapter 1. Data Types > Character Data Types*
- *General Reference > Chapter 2. ALTIBASE HDB Properties > Other Properties*

1.1.6 Built-in Functions

1.1.6.1 DBMS Stats Functions

Arguments for the following built-in functions for statistics have been altered.

- SET_INDEX_STATS
- SET_TABLE_STATS

The following built-in functions have been added for viewing statistics.

- GET_COLUMN_STATS
- GET_INDEX_STATS
- GET_SYSTEM_STATS
- GET_TABLE_STATS

The following built-in functions have been added for dropping statistics.

- DELETE_COLUMN_STATS
- DELETE_DATABASE_STATS
- DELETE_INDEX_STATS
- DELETE_SYSTEM_STATS
- DELETE_TABLE_STATS

For further information, please refer to the following manual.

- *Stored Procedures Manual > Chapter 11. ALTIBASE HDB Stored Procedures and Built-in Functions > DBMS Stats*

1.1.7 Client Tools

1.1.7.1 New iSQL Command

A command that specifies whether or not to display script file results and commands on the `iSQL` prompt has been added.

For further information, please refer to the following manual.

- *iSQL User's Manual > Chapter 1. Using iSQL > iSQL Commands*
- *iSQL User's Manual > Chapter 2. Examples of iSQL in Use > Setting Output Options > Outputting Script Execution Results*

1.1.7.2 New iSQL Option: /NOLOG

The `/NOLOG` option allows the user to execute `iSQL` without connecting to the database.

For further information, please refer to the following manual.

- *iSQL User's Manual > Chapter 1. Using iSQL > iSQL Command Line Options*
- *iSQL User's Manual > Chapter 2. Examples of iSQL in Use > Connecting and Disconnecting*

1.1.7.3 SSL/TLS Connection

SSL/TLS connection is supported for ALTIBASE HDB utilities such as `iSQL`, `iLoader`, `aexport`, and `altiComp`.

For further information, please refer to the following manuals.

- *iLoader Manual > Chapter 1. About iLoader > Environment Variables*
- *iLoader Manual > Chapter 2. How to Use iLoader > Command Line Options, Normal Options*
- *iSQL User's Manual > Chapter 1. How to Use iSQL > iSQL Command Line Options*
- *iSQL User's Manual > Chapter 2. iSQL Examples > Connecting and Disconnecting*
- *Utilities Manual > Chapter 1. aexport > Environment Variables, How to Use aexport, Considerations*
- *Utilities Manual > Chapter 2. altiComp > Property Options*

1.2 Efficiency

1.2.1 Enhanced Server Performance

1.2.1.1 Parallel Queries

Parallel queries, which allow multiple threads to run concurrently for the execution of a single query, are supported.

The following are supported.

- Parallel queries that scan partitioned/normal tables.
- Parallel queries that have `HASH`, `SORT`, `GRAG` nodes in their execution plans. For these, only one parallel thread is created per node.

The following hints have been added for parallel queries.

- `PARALLEL`
- `NOPARALLEL`

The following nodes have been added/changed in execution plans for parallel queries.

- `PARALLEL-QUEUE` node (added)
- `PARALLEL-SCAN-COORDINATOR` node (added)
- `PARTITION-COORDINATOR` node (altered)

The following properties have been added for parallel queries.

- `PARALLEL_QUERY_QUEUE_SIZE`
- `PARALLEL_QUERY_THREAD_MAX`

The `PARALLEL_DEGREE` column has been added to the `SYS_TABLES_` meta table for parallel queries.

For further information, please refer to the following manuals.

- *General Reference > Chapter 2. ALTIBASE HDB Properties > Performance-related Properties*
- *General Reference > Chapter 3. The Data Dictionary > SYS_TABLES_*
- *Performance Tuning Guide > Chapter 4. Using the EXPLAIN PLAN > Execution Nodes*
- *Performance Tuning Guide > Chapter 6. SQL Hints > Hint Types > Parallel Query Processing*
- *SQL Reference > Chapter 3. Data Definition Language > ALTER TABLE, CREATE TABLE*
- *SQL Reference > Chapter 4. Data Manipulation Language > SELECT*

1.2.1.2 Full Scan using DB Link

DB Link allows the user to retrieve all the data of a table (perform a full scan) faster.

1.2.1.3 Memory Table Updates

Unnecessary index updates have been removed when updating columns without indexes in memory tables to improve performance,

1.2.1.4 The DBMS_CONCURRENT_EXEC Package

The DBMS_CONCURRENT_EXEC package allows the parallel execution of multiple procedures in a session.

The following functions and procedures have been added for this package.

- FINALIZE
- GET_ERROR
- GET_ERROR_COUNT
- GET_REQ_TEXT
- INITIALIZE
- PRINT_ERROR
- REQUEST
- WAIT_ALL
- WAIT_REQ

The following properties have been added for this package.

- CONCURRENT_EXEC_DEGREE_DEFAULT
- CONCURRENT_EXEC_DEGREE_MAX
- CONCURRENT_EXEC_WAIT_INTERVAL

The following performance views have been altered/added for this package.

- V\$INTERNAL_SESSION
- V\$MEMSTAT

For further information about functions for the DBMS_CONCURRENT_EXEC package, please refer to the following manuals.

- *General Reference > Chapter 2. ALTIBASE HDB Properties > Performance-related Properties*
- *General Reference > Chapter 3. The Data Dictionary*
- *Stored Procedures Manual > Chapter 12. ALTIBASE HDB Stored Packages*

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1.2.1.5 Direct Key Indexes

A direct key index stores the record pointer and the record in the index node, and reduces index scan cost. However, a direct key index cannot be created on an index that resides on disk, a compressed column, or an encrypted column.

The following meta table has been altered.

- `SYS_INDICES_`

For further information, please refer to the following manuals.

- *Administrator's Manual > Chapter 5. Database Objects and Privileges > Indexes*
- *General Reference > Chapter 3. The Data Dictionary > SYS_INDICES_*
- *SQL Reference > Chapter 3. Data Definition Language > ALTER INDEX, CREATE INDEX, CREATE TABLE*

1.2.1.6 New Replication Options

The following options (only available in LAZY mode) have been added to the replication feature.

- Parallel applier option
- Replication gapless option
- Replicated transaction grouping option

The following properties have been added.

- `REPLICATION_GAPLESS_ALLOW_TIME`
- `REPLICATION_GAPLESS_MAX_WAIT_TIME`
- `REPLICATION_GROUPING_AHEAD_READ_NEXT_LOG_FILE`
- `REPLICATION_GROUPING_TRANSACTION_MAX_COUNT`
- `REPLICATION_RECEIVER_APPLIER_ASSIGN_MODE`
- `REPLICATION_RECEIVER_APPLIER_QUEUE_SIZE`

The following performance views have been altered/added.

- `V$REPRECEIVER`
- `V$REPRECEIVER_PARALLEL_APPLY`
- `V$REPRECEIVER_TRANSTBL`

For further information, please refer to the following manuals.

- *General Reference > Chapter 2. ALTIBASE HDB Properties > Performance-related Properties*
- *General Reference > Chapter 3. The Data Dictionary*

- *Replication Manual > Chapter 1. Replication Overview > Introduction*
- *Replication Manual > Chapter 3. Deploying Replication > Extra Features*
- *SQL Reference > Chapter 3. Data Definition Language > ALTER REPLICATION, CREATE REPLICATION*

1.2.1.7 Materialized View Optimization

Columns that are not referenced from the outside are excluded to reduce the size and accelerate the performance of materialized views.

1.2.1.8 Function and Subquery Caching

Caching is available for functions and subqueries that are frequently called.

- If the `SELECT` statement contains a `DETERMINISTIC` function in the stored procedure, the return results are cached for reuse.
- The return results of scalar subqueries are cached for reuse.

1.2.1.9 Memory Hash Temporary Tables

Memory hash temporary tables can be stored using either the bucket method or the partitioning method to enhance hash join performance.

The following properties have been added.

- `HASH_JOIN_MEM_TEMP_AUTO_BUCKET_COUNT_DISABLE`
- `HASH_JOIN_MEM_TEMP_PARTITIONING_DISABLE`

For further information, please refer to the following manuals.

- *General Reference > Chapter 2. ALTIBASE HDB Properties > Performance-related Properties*
- *Performance Tuning Guide > Chapter 3. The Query Optimizer > Creating Physical Execution Plans > Features of Materialization Nodes*
- *Performance Tuning Guide > Chapter 3. The Query Optimizer > Optimizer-related Properties*

1.2.2 Improved Client Performance

1.2.2.1 JDBC Driver

The JDBC Driver has been improved to perform DML statements faster.

1.2.2.2 Atomic Batches

The ALTIBASE HDB JDBC Driver 6.5.1 supports atomic batches. This guarantees batch atomicity and fast data inserts.

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For further information, please refer to the following manual.

- *JDBC Manual > Chapter 3. Advanced Features > Atomic Batch*

1.2.3 Resource Efficiency

1.2.3.1 Thread Limitation

A property that limits the total number of threads to be created on an ALTIBASE HDB server has been added. This property can be used to limit ALTIBASE HDB resources.

The following property has been added.

- `MAX_THREAD_COUNT`

For further information, please refer to the following manual.

- *General Reference > Chapter 2. ALTIBASE HDB Properties > Performance-related Properties*

1.2.3.2 Disk Table Column Compression

From 6.5.1, disk tables can also be compressed.

For further information, please refer to the following manual.

- *Administrator's Manual > Chapter 5. Database Objects and Privileges > Compressed Tables*

1.2.3.3 The Memory Manager

The memory manager has been improved to minimize load and allows the user to check memory usage.

The following properties have been added.

- `MEMORY_ALLOCATOR_AUTO_SHRINK`
- `MEMORY_ALLOCATOR_DEFAULT_SPINLOCK_COUNT`
- `MEMORY_ALLOCATOR_MAX_INSTANCES`
- `MEMORY_ALLOCATOR_POOLSIZE`
- `MEMORY_ALLOCATOR_POOLSIZE_GLOBAL`
- `MEMORY_ALLOCATOR_POOLSIZE_PRIVATE`
- `MEMORY_ALLOCATOR_TYPE`
- `MEMORY_ALLOCATOR_USE_PRIVATE`

For further information, please refer to the following manuals.

- *General Reference > Chapter 2. ALTIBASE HDB Properties > Database Initialization Properties*

- *Stored Procedures Manual > Chapter 11. ALTIBASE HDB Stored Procedures and Built-in Functions > Other Functions*

1.2.3.4 Signal Handlers

The user can print trace log files while the ALTIBASE HDB server is running with the `catlog` and `tailog` utilities.

For further information, please refer to the following manual.

- *Utilities Manual > Chapter 3. Other Utilities*

1.2.3.5 Network Management

The user can manage and monitor network devices, and improve network performance with the Simple Network Management Protocol (SNMP).

The following properties have been added.

- `SNMP_ALARM_FETCH_TIMEOUT`
- `SNMP_ALARM_QUERY_TIMEOUT`
- `SNMP_ALARM_SESSION_FAILURE_COUNT`
- `SNMP_ALARM_UTRANS_TIMEOUT`
- `SNMP_ENABLE`
- `SNMP_MSGLOG_FLAG`
- `SNMP_PORT_NO`
- `SNMP_RECV_TIMEOUT`
- `SNMP_SEND_TIMEOUT`
- `SNMP_TRAP_PORT_NO`

For further information, please refer to the following manuals.

- *General Reference > Chapter 2. ALTIBASE HDB Properties > Network Management Properties*
- *SNMP Agent Guide*

1.2.3.6 Trace Logging

Warnings and trace messages that are printed after ALTIBASE HDB has started are written to the `altibase_trc.log` file. Messages for threads of the same process are written in consecutive order; this allows the user to track errors.

The following properties have been added.

- `TRC_MSGLOG_COUNT`

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- TRC_MSGLOG_FILE
- TRC_MSGLOG_FLAG
- TRC_MSGLOG_RESERVE_SIZE
- TRC_MSGLOG_SIZE

For further information, please refer to the following manuals.

- *General Reference > Chapter 2. ALTIBASE HDB Properties > Message Log Properties*
- *Administrator's Manual > Chapter 2. ALTIBASE HDB Components > ALTIBASE HDB Directories > trc*

1.3 Enhanced Security

1.3.1 SSL/TLS

The user can use the SSL/TLS protocol to safely exchange data between the server and client, without third-party exposure.

ALTIBASE HDB uses the TLS 1.0 protocol supported by the OpenSSL library. The user needs an additional port (apart from the port that was used) to use SSL. SSL can be used with JDBC and ODBC interfaces. This feature currently supports Linux only.

The following properties have been added.

- SSL_CA
- SSL_CAPATH
- SSL_CERT
- SSL_CIPHER_LIST
- SSL_CLIENT_AUTHENTICATION
- SSL_ENABLE
- SSL_KEY
- SSL_MAX_LISTEN
- SSL_PORT_NO
- SSL_VERIFY

The following meta table and performance view have been altered.

- SYS_USERS_
- V\$SESSION

For further information, please refer to the following manuals.

- *Administrator's Manual > Chapter 12. Server/Client Communication > Communication Method*
- *Altibase SSL/TLS User's Guide*
- *General Reference > Chapter 2. ALTIBASE HDB Properties > Network and Security Properties*
- *General Reference > Chapter 3. The Data Dictionary > SYS_USERS_, V\$SESSION*
- *JDBC User's Manual > Chapter 1. Starting JDBC > Connection Information > About Connection Attributes*
- *SQL Reference > Chapter 3. Data Definition Language > ALTER USER, CREATE USER*

1.3 Enhanced Security

1.3.2 User Passwords

The user can set a case-sensitive user password for the database.

For compatibility with 6.3.1 or below, the following property has been added to specify whether the user password is case-sensitive or case-insensitive.

- `CASE_SENSITIVE_PASSWORD`

The maximum length for the user password has been increased from 40 bytes to 256 bytes.

For further information, please refer to the following manuals.

- *General Reference > Chapter 2. ALTIBASE HDB Properties > User Security Properties*
- *SQL Reference > Chapter 3. Data Definition Language > CREATE USER*

1.3.3 Encryption

1.3.3.1 Encryption Functions

The following encryption functions that use AES (a 16-byte encryption algorithm) have been added.

- `AESDECRYPT`
- `AESENCRYPT`

For further information, please refer to the following manual.

- *SQL Reference > Chapter 7. SQL Functions > Encryption Functions*

1.3.3.2 PSM Encryption

The `altwrap` utility encrypts PSM code programs such as stored procedures and stored functions to prevent them from being exposed. The following statements can be encrypted.

- `CREATE [OR REPLACE] FUNCTION`
- `CREATE [OR REPLACE] PACKAGE`
- `CREATE [OR REPLACE] PACKAGE BODY`
- `CREATE [OR REPLACE] PROCEDURE`
- `CREATE [OR REPLACE] TYPESET`

For further information, please refer to the following manuals.

- *Stored Procedures Manual > Chapter 1. Stored Procedures > Stored Procedure Features*
- *Utilities Manual > Chapter 3. Other Utilities*

1.3.4 Table/Partition Access Modes

The user can set the following access modes for tables or partitions in partitioned tables.

- `READ-ONLY`: Only reads data.
- `READ-WRITE`: Reads and writes data (default).
- `READ-APPEND`: Reads and inserts data. The user cannot alter/drop data in this mode.

The following columns have been added to meta tables to support access modes.

- The `ACCESS` column in the `SYS_TABLES_` meta table
- The `PARTITION_ACCESS` column in the `SYS_TABLE_PARTITIONS_` meta table

For further information, please refer to the following manuals.

- *General Reference > Chapter 3. The Data Dictionary > SYS_TABLE_PARTITIONS_, SYS_TABLES_*
- *SQL Reference > Chapter 3. Data Definition Language > ALTER TABLE, CREATE TABLE*
- *Utilities Manual > Chapter 1. aexport*

1.4 High Availability

1.4.1 Partition Replication

The user can replicate partitions in memory partitioned tables with the `CREATE REPLICATION` or `ALTER REPLICATION` statement. Partition replication has the following restrictions:

- Partitioning methods must be the same for both remote and local servers. Tables can be replicated as tables, and partitions as partitions. However, tables cannot be replicated as partitions or vice versa.
- Partitioning conditions must be the same for list partitioning or range partitioning. To replicate some partitions or default partitions, the partitioning conditions for only those partitions need to be the same.
- The number of partitions must be the same for hash partitioning.
- If the user replicates each partition in a partitioned table, the user must also alter or drop each partition.

The following property has been added for partition replication.

- `REPLICATION_ALLOW_DUPLICATE_HOSTS`

The following meta tables for partition replication have been added.

- `SYS_REPL_ITEMS_`
- `SYS_TABLE_PARTITIONS_`

For further information, please refer to the following manuals.

- *General Reference > Chapter 2. ALTIBASE HDB Properties > Replication Properties*
- *General Reference > Chapter 3. The Data Dictionary*
- *Replication Manual > Chapter 1. Introduction to Replication*
- *Replication Manual > Chapter 2. Managing Replication > Replication Steps*
- *Replication Manual > Chapter 3. Using Replication > Replication*
- *SQL Reference > Chapter 3. Data Definition Language > ALTER REPLICATION, CREATE REPLICATION*

1.4.2 Altibase Heartbeat

The `Altibase Heartbeat` utility detects failed nodes in a distributed database environment and helps the user to take appropriate action.

For further information, please refer to the following manual

- *Altibase Heartbeat User's Guide*

1.4.3 Disaster Recovery

The disaster recovery feature minimizes data loss and recovery time, and ensures high availability when the main server fails.

For further information, please refer to the following manual.

- *Disaster Recovery Manual*

1.4.4 Compressed Table Replication

The user can replicate compressed tables.

The SM_DIC_TABLE_OID and SM_COL_SPACE columns have been added to the SYS_REPL_OLD_COLUMNS_ meta table.

For further information, please refer to the following manuals.

- *General Reference > Chapter 3. The Data Dictionary > SYS_REPL_OLD_COLUMNS_*
- *Replication Manual > Chapter 3. Using Replication > Executing DDL on Replication Target Tables > Restrictions*
- *Replication Manual > Chapter 3. Using Replication > Extra Features > Offline Option > Restrictions*

1.5 Other

1.5.1 Other

1.5.1.1 New Output Format for Execution Plans

In 6.5.1, the `TRCLOG_DETAIL_SCHEMA` property that specified whether or not to print the name of a schema object (a table or index) owner has been dropped. The owner name is always printed.

1.5.1.2 New Date Conversion Functions

The following functions have been added to convert `TIMESTAMP` values to `DATE`.

- `DATE_TO_UNIX`
- `UNIX_TO_DATE`

For further information, please refer to the following manual.

- *SQL Reference > Chapter 7. SQL Functions > Conversion Functions*

1.5.1.3 audit Renamed to altiComp

The `audit` utility has been renamed to `altiComp`. The `altiComp` utility compares the tables of two databases, to print information about mismatching data and synchronize the databases.

For further information, please refer to the following manuals.

- *Administrator's Manual > Chapter 1. Introduction*
- *Administrator's Manual > Chapter 2. ALTIBASE HDB Components*
- *Replication Manual > Chapter 1. Replication Overview*
- *Replication Manual > Chapter 2. Managing Replication*
- *Utilities Manual > Chapter 2. altiComp*

1.5.2 Properties

The following properties have been added.

- `CASE_SENSITIVE_PASSWORD`
- `CHAR_DEFAULT_PRECISION`
- `CONCURRENT_EXEC_DEGREE_DEFAULT`
- `CONCURRENT_EXEC_DEGREE_MAX`
- `CONCURRENT_EXEC_WAIT_INTERVAL`

- DISK_MAX_DB_SIZE
- DISK_RECYCLEBIN_SIZE
- DR_CONNECT_TIMEOUT
- DR_ENABLE
- DR_HBT_CONNECT_WAIT_TIME
- DR_HBT_DETECT_HIGHWATER_MARK
- DR_HBT_DETECT_TIME
- DR_KEEP_ALIVE_CNT
- DR_MAX_LOGFILE
- DR_PORT_NO
- DR_PREFETCH_LOGFILE_COUNT
- DR_RECEIVE_TIMEOUT
- DR_RM_PORT_NO
- DR_SENDER_NEXT_CONNECTION_TIMEOUT
- DR_SENDER_SLEEP_TIME
- DR_STANDBY_WAIT_TIMEOUT
- EXECUTOR_FAST_SIMPLE_QUERY
- EXTPROC_AGENT_CALL_RETRY_COUNT
- FAST_UNLOCK_LOG_ALLOC_MUTEX
- HASH_JOIN_MEM_TEMP_AUTO_BUCKET_COUNT_DISABLE
- HASH_JOIN_MEM_TEMP_PARTITIONING_DISABLE
- MAX_THREAD_COUNT
- MEMORY_ALLOCATOR_AUTO_SHRINK
- MEMORY_ALLOCATOR_DEFAULT_SPINLOCK_COUNT
- MEMORY_ALLOCATOR_MAX_INSTANCES
- MEMORY_ALLOCATOR_POOLSIZE
- MEMORY_ALLOCATOR_POOLSIZE_GLOBAL
- MEMORY_ALLOCATOR_POOLSIZE_PRIVATE
- MEMORY_ALLOCATOR_TYPE
- MEMORY_ALLOCATOR_USE_PRIVATE

1.5 Other

- MEMORY_RECYCLEBIN_SIZE
- NCHAR_DEFAULT_PRECISION
- NVARCHAR_DEFAULT_PRECISION
- PARALLEL_QUERY_QUEUE_SIZE
- PARALLEL_QUERY_THREAD_MAX
- QUERY_PROF_LOG_DIR
- RECYCLEBIN_ENABLE
- REPLICATION_ALLOW_DUPLICATE_HOSTS
- REPLICATION_SENDER_ENCRYPT_XLOG
- REPLICATION_GAPLESS_ALLOW_TIME
- REPLICATION_GAPLESS_MAX_WAIT_TIME
- REPLICATION_GROUPING_AHEAD_READ_NEXT_LOG_FILE
- REPLICATION_GROUPING_TRANSACTION_MAX_COUNT
- REPLICATION_RECEIVER_APPLIER_ASSIGN_MODE
- REPLICATION_RECEIVER_APPLIER_QUEUE_SIZE
- SNMP_ALARM_FETCH_TIMEOUT
- SNMP_ALARM_QUERY_TIMEOUT
- SNMP_ALARM_SESSION_FAILURE_COUNT
- SNMP_ALARM_UTRANS_TIMEOUT
- SNMP_ENABLE
- SNMP_MSGLOG_FLAG
- SNMP_PORT_NO
- SNMP_RECV_TIMEOUT
- SNMP_SEND_TIMEOUT
- SNMP_TRAP_PORT_NO
- SSL_CA
- SSL_CAPATH
- SSL_CERT
- SSL_CIPHER_LIST
- SSL_CLIENT_AUTHENTICATION

- SSL_ENABLE
- SSL_KEY
- SSL_MAX_LISTEN
- SSL_PORT_NO
- SSL_VERIFY
- TRC_MSGLOG_COUNT
- TRC_MSGLOG_FILE
- TRC_MSGLOG_FLAG
- TRC_MSGLOG_RESERVE_SIZE
- TRC_MSGLOG_SIZE
- VARCHAR_DEFAULT_PRECISION

The following property has been dropped.

- LOG_FILE_GROUP_COUNT

1.5.3 Meta Tables

The following meta tables have been added.

- SYS_RECYCLEBIN_
- SYS_TABLE_SIZE_
- SYS_USER_ROLES_

The following meta tables have been altered.

- SYS_INDICES_
- SYS_USERS_

1.5.4 Performance Views

The following performance views have been added.

- V\$DR_CONNECTION_INFO
- V\$DR_GAP
- V\$DR_SERVERS
- V\$DR_STATUS
- V\$INTERNAL_SESSION

1.5 Other

- V\$REPRECEIVER_PARALLEL_APPLY

The following performance views have been altered.

- V\$MEMSTAT
- V\$REPRECEIVER
- V\$REPRECEIVER_TRANSTBL
- V\$SESSION

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