

In-Database Archiving Quick Overview

RELATED MOS NOTES

- **1592186.1** – In-Database Archiving and Compression

RELATED ORACLE WHITE PAPERS

For more information about Oracle Database Information Lifecycle Management (ILM) solutions, please see these Oracle White Papers.

[Implementing ILM with Automatic Data Optimization and Heat Map](#)

[Flashback Data Archive](#)

In-Database Archiving allows users and applications to set the archive state for individual rows. Rows that have been marked as archived stay where they are, but are not visible unless the session is enabled to see archived data. To manage In-Database Archiving for a table, you must enable **ROW ARCHIVAL** for the table using either CREATE TABLE or ALTER TABLE, for example:

```
CREATE TABLE residents (
    id      NUMBER,
    street  VARCHAR2(50),
    CONSTRAINT tbb1_pk PRIMARY KEY (id))
ROW ARCHIVAL;
```

Enabling in-database archiving causes the addition of a system generated hidden column called **ORA_ARCHIVE_STATE**.

```
SELECT column_id,
       column_name,
       data_type,
       data_length,
       hidden_column
FROM   user_tab_cols
WHERE  table_name = 'RESIDENTS'
ORDER BY column_id;
```

COLUMN_ID	COLUMN_NAME	DATA_TYPE	DATA_LENGTH	HID
1	ID	NUMBER	22	NO
2	STREET	VARCHAR2	50	NO
	ORA_ARCHIVE_STATE	VARCHAR2	4000	YES

By default, this column is populated with the value '0' for each row. When the value for ORA_ARCHIVE_STATE is set to '0' then that row is visible to applications, meaning that the row is active and visible via a standard query. In the example below, all four records have ORA_ARCHIVE_STATE set to '0'.

```
SELECT id, street FROM residents;
```

ID	STREET
1	Maple St
2	Main St
3	Elm St
4	Poplar St

To make rows invisible to applications, update the `ORA_ARCHIVE_STATE` system generated hidden column with the value '1'. In the example below, two records (ID #'s 2 and 4) have been updated and have had their `ORA_ARCHIVE_STATE` set to '1', making those records invisible to applications, so now the same query would return the following results:

```
SELECT id, street FROM residents;
```

```

ID  STREET
-----
1   Maple St
3   Elm St

```

Note that the `ORA_ARCHIVE_STATE` column can be set to any string value other than '0' to archive the data, the `DBMS_ILM` package uses the following constants:

- `ARCHIVE_STATE_ACTIVE='0'`
- `ARCHIVE_STATE_ARCHIVED='1'`

Optionally, you can specify either `ACTIVE` or `ALL` for the `ROW ARCHIVAL VISIBILITY` session parameter to make archived rows visible or invisible for the session. If you specify `ACTIVE`, then the database will consider only active rows when performing queries on tables that are enabled for row archival. This is the default.

```
ALTER SESSION SET ROW ARCHIVAL VISIBILITY = ACTIVE;
```

If you specify `ALL`, then the database will consider all rows when performing queries on tables that are enabled for row archival.

```
ALTER SESSION SET ROW ARCHIVAL VISIBILITY = ALL;
```

As seen above, In-database archiving adds a hidden column to the table to specify the visibility of each row. For every query and DML, Oracle then injects a predicate to limit the query/DML to only the visible rows. This added predicate could affect the optimizer, indexes, etc. just like any other predicate.

Oracle Documentation Link:

For a description of In-Database Archiving and its benefits, please see the *VLDB and Partitioning Guide*:





<https://docs.oracle.com/en/database/oracle/oracle-database/18/vldb/control-validity-visibility->

CONTACT US

For more information about Advanced Compression, visit oracle.com or call +1.800.ORACLE1 to speak to an Oracle representative.



CONNECT WITH US

-  blogs.oracle.com/oracle
-  facebook.com/oracle
-  twitter.com/oracle
-  oracle.com

Hardware and Software, Engineered to Work Together

Copyright © 2019, Oracle and/or its affiliates. All rights reserved. This document is provided for information purposes only, and the contents hereof are subject to change without notice. This document is not warranted to be error-free, nor subject to any other warranties or conditions, whether expressed orally or implied in law, including implied warranties and conditions of merchantability or fitness for a particular purpose. We specifically disclaim any liability with respect to this document, and no contractual obligations are formed either directly or indirectly by this document. This document may not be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose, without our prior written permission.

Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Xeon are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Opteron, the AMD logo, and the AMD Opteron logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group. 0219

