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| NCRWMS |
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| Warehouse Management System |
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Table of Contents

[About this document 6](#_Toc383532653)

[Intended Audiences 6](#_Toc383532654)

Introduction …………..………..………….…………………………………………………….6

Requirements………………………………………………………………………………….7

Analysis………………………………………………………………………………………….7

Design……………………………………………………………………………………………7

Tables……………………………………………………………………………….8

Routines…………………………………………………………………………….11

Managing Retention Period…………………………………………………………………….15

Managing Job Type……………………………………………………………………………...16

Managing Log Level……………………………………………………………………………..16

# About this document

This document briefs you about the data archival strategy for RWMS.

## Intended Audiences

The intended audiences for this document are as follows:

RWMS DBA

## Current Scenario and Requirements

The amount of data determines the speed of query execution. With increasing amount of data, it becomes imperative to prune and maintain a small subset of data which will culminate in faster execution times for queries running against the RWMS database. The existing mechanism of archival and purging is outdated, clumsy and difficult to maintain. Thus there is a need to create a better strategy for maintaining a small subset of only required data for queries to run against.

## Prerequisites:

The user should have administrator access to the RWMS production database.

## Purpose:

The Technical Design Document (TDD) contains requirements, analysis, and design information necessary for development, testing, and implementation of the solution.

## Description :

The amount of data determines the speed of query execution. With increasing amount of data, it becomes imperative to prune and maintain a small subset of data which will culminate in faster execution times for queries running against the RWMS database. The existing mechanism of archival and purging is outdated, clumsy and difficult to maintain. The revamped archival and purging strategy is easy to maintain and allows easy tweak for configuration settings like retention period, job type and log level.

## Requirement Specifications :

### Business Requirements :

Create an archival and purging strategy for the RWMS application database.

The existing archival and purging routines are clumsy and tedious to maintain. Also, modifications to the existing code is very difficult and time consuming. As a result, a new revamped strategy that facilitates ease of modifications and maintenance friendly is needed.

### System Requirements :

The following items should be in place for successful operation of the Archival and Purging strategy.

1. SQL Server Standard or Enterprise edition. It is advisable to have the Source and Destination servers on the same domain.

2. At least 15 GB of space is required to store archive data at destination.

3. Identical SQL Server logins with SYSADMIN privileges should be created.

4. Microsoft Distributed Transaction Coordinator (MSDTC) service must be up and running. Please refer to the user guide on how to configure MSDTC.

5. SQL Server Agent must be up and running at Source.

6. A directory "rwms\logs" must exist in the C: drive for the routine to store reports

## Analysis :

### Impact Analysis :

During the job execution, there could be some temporary slowness in accessing data from application but it is expected not to last for long. There will be a slight load on the system during the job execution.

Additional storage is required to store the archive data.

## Design :

The design consists of user tables, lookup tables that store information about the user tables, stored procedures or routines which perform the actual archival and/or purging tasks and an SQL Server Agent job which is scheduled to run the main routine on a daily basis.

Below is the list of tables and their logical structures.

### Tables :

#### RWMS\_ARCHIVAL\_MASTER :

|  |  |  |  |
| --- | --- | --- | --- |
| Column name | Data type | Length | Description |
| dest\_server\_name | nvarchar | 500 bytes | Name of the destination server aka archive server |
| source\_db\_name | nvarchar | 500 bytes | Name of the database at Source |
| dest\_db\_name | nvarchar | 500 bytes | Name of the database at Destination |
| Linkedservername | nvarchar | 500 bytes | Name of the linked server which links Source with Destination |

#### RWMS\_ARCHIVAL\_DETAIL :

|  |  |  |  |
| --- | --- | --- | --- |
| Column name | Data type | Length | Description |
| ARCH\_ID | INT | 4 bytes | Auto incrementing identity column and Primary Key |
| PREFIX\_CODE | NVARCHAR | 100 bytes | Indicates the table name and/or dependent tables |
| DESCRIPTION | NVARCHAR | 500 bytes | Description of the table |
| JOB\_TYPE | CHAR | 1 byte | Indicates whether the job type is archival or purging or both. See dbo.RWMS\_LOOKUP\_JOBTYPE for further information |
| RETENTION\_PERIOD | INT | 4 bytes | Indicates the retention period in terms of number of days |
| VALID\_FROM | DATETIME | 8 bytes | - |
| VALID\_TO | DATETIME | 8 bytes | - |
| CREATED\_BY | NVARCHAR | 40 bytes | Defaulted to System |
| CREATED\_DATE | DATETIME | 8 bytes | Date on which the entry was made in the table |
| MODIFIED\_BY | NVARCHAR | 40 bytes | Indicates the name of user who modified the record |
| MODIFIED\_DATE | DATETIME | 8 bytes | Date on which the record was modified |
| LOGLEVEL | CHAR | 1 byte | Indicates the level of log information that should be captured |
| PROC\_NAME | NVARCHAR | 116 bytes | Computed column. Stores the procedure name of the table involved |

#### RWMS\_LOG\_DETAIL :

|  |  |  |  |
| --- | --- | --- | --- |
| Column name | Data type | Length | Description |
| LOG\_ID | INT | 4 bytes | Auto incrementing identity column and Primary Key |
| ARCH\_ID | INT | 4 bytes | Foreign key to RWMS\_ARCHIVAL\_DETAIL AND Primary key |
| MESSAGE\_TYPE | CHAR | 1 byte | E indicates Error and M indicates execution successful |
| MSG | NVARCHAR | MAX | The log information |
| EXECUTION\_DATE | DATETIME | 8 bytes | Timestamp at which the routine is executed |
| RUN\_STATUS | SMALLINT | 2 bytes | 0 indicates success and 1 indicates failure |
| PARAMETERS\_PASSED | VARCHAR | 250 bytes | The procedure execution syntax along with the parameter attributes. |

#### RWMS\_LOOKUP\_JOBTYPE :

|  |  |  |  |
| --- | --- | --- | --- |
| Column name | Data type | Length | Description |
| JOB\_TYPE | CHAR | 1 byte | Can be either 'A' or 'P' or 'B' |
| JOB\_DESC | NVARCHAR | 1000 bytes | A - Archival, P-Purging and B-Both Archival and Purging |

#### RWMS\_LOOKUP\_LOGLEVEL :

|  |  |  |  |
| --- | --- | --- | --- |
| Column name | Data type | Length | Description |
| LOGLEVEL | CHAR | 1 byte | Indicates the level of log information that should be captured. Values can be either 'M', 'D' or 'E' |
| LOG\_DESC | NVARCHAR | 500 bytes | M - Informational messages, E - Error messages, D - Debug messages |

Here is the list of stored procedures aka routines used in Archival/Purging.

dbo.RWMS\_SP\_CREATE\_LINKED\_SERVER - Creates linked server between Source and Destination servers for Archival/Purging to execute successfully.



dbo.RWMS\_SP\_LOG\_MESSAGE - Logs messages into the RWMS\_LOG\_DETAIL table.



dbo.RWMS\_SP\_CREATE\_LOG - Creates a HTML report by reading the RWMS\_LOG\_DETAIL table.



dbo.RWMS\_SP\_PRUNE\_LOG - Prunes the RWMS\_LOG\_DETAIL table and prevents unexpected table growth.



dbo.RWMS\_SP\_ARCHIVAL\_PURGE - This routine is the main driving procedure which performs the actual archive/purge of tables.



dbo.RWMS\_SP\_AUDIT - Performs archival/purging for the AUDIT table.



dbo.RWMS\_SP\_COUNTING - Performs archival/purging for the COUNTING table.



dbo.RWMS\_SP\_HANDLINGUNITTRANSACTIONS - Performs archival/purging for the HANDLINGUNITTRANSACTIONS and related tables.



dbo.RWMS\_SP\_INVENTORYTRANS - Performs archival/purging for the INVENTORYTRANS and related tables.



dbo.RWMS\_SP\_OUTBOUND - Performs archival/purging for the OUTBOUND and related tables.



dbo.RWMS\_SP\_PARALLELPICK - Performs archival/purging for the PARALLELPICK and related tables.



dbo.RWMS\_SP\_RECEIPT - Performs archival/purging for the RECEIPT and related tables.



dbo.RWMS\_SP\_TRANSSHIPMENT - Performs archival/purging for the TRANSSHIPMENT and related tables.



dbo.RWMS\_SP\_WAVE - Performs archival/purging for the WAVE and related tables.



dbo.RWMS\_SP\_WORKORDER - Performs archival/purging for the WORKORDER tables.



### SQL Server Agent Job :

The job is responsible for executing the main routine “RWMS\_SP\_ARCHIVAL\_PURGE” and is scheduled to run daily.



## Managing Retention Period:

The retention period for individual tables can be tweaked to decrease/increase the number of days through the RWMS\_ARCHIVAL\_DETAIL table.

For example, to update the default retention period of 31 days to 99 days for a particular table, run the below command in SQL Server Management Studio.

Command :

UPDATE RWMS\_SYS.dbo.RWMS\_ARCHIVAL\_DETAIL SET retention\_period = 99 WHERE [PREFIX\_CODE] = 'AUDIT';

## Managing Job Type:

Also, the job type ( A - Archival, P - Purging , B - Both ) can tweaked as well. See the example below.

Command :

UPDATE RWMS\_SYS.dbo.RWMS\_ARCHIVAL\_DETAIL SET JOB\_TYPE = 'A' WHERE [PREFIX\_CODE] = 'AUDIT';

## Managing Log Level:

Similarly, the log level ( E - Error messages only , M - All informational, debug and error messages , D - Debug messages only ) can be tweaked at the table level as well. See below.

Command :

UPDATE RWMS\_SYS.dbo.RWMS\_ARCHIVAL\_DETAIL SET LOGLEVEL = 'D' WHERE [PREFIX\_CODE] = 'AUDIT';