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| **Description** |  | |
| Knowledge article on jobs needed for object/table/index usage and table size history logging. | |

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| Objects Used by Logging process: |
| **Tables:**  **Config Tables:**   * **[Audit].[ConfigDatabase]** * Used in the Audit.IndexUsage process. * Populated by proc [[Audit](https://golfnow.atlassian.net/wiki/display/DS/Audit)].[usp\_ConfigDatabaseInsert] * No Parameters * Needs to be run before any other jobs are run, upon deployment logging solution.   EXECUTE [DBNAME].[Audit].[usp\_ConfigDatabaseInsert]   * Verify if there are any additional databases that need to be set as ExcludeFromCleanup=1 * Anything marked exclude will not log either. Can be manually updated in table to exclude logging of objects from that DB. * This proc needs to be evaluated in how it stores/updates exclude for secondary dbs when we start looking into logging on secondary readable nodes. (hopefully future work)   **Usage Stats Tables:**  ObjectExecution only has functions and procs. However it is volitile due to the fact that it relies on plan cache and it's usage. In a system with volitile plan cache with lots of churn to procs with (WITH RECOMPILE) can be missed. This can be used as a good start for intestigation into a list to provide for research throughout code to see if it is actually called. If found to not be called, rename the proc to see if anything breaks to begin sunsetting process of unused procs.  Tables without any scans, seeks, lookups, updates are potentially unused and also a great starting point for investigation into use and if the data can be archive/deleted. rename table and being sunsetting process. Best to use the [Audit].[IndexUsageHistory] table and validate historical usage as it is logged over time.  Both tables here are logging only and populated as part of a job called: **Audit Object Usage**  **Steps:**   * **Step 1:** Audit Table Scan Insert - Populates [Audit].[TableScan] table * **Step 2:** Audit Object Execution Insert - Populates [Audit].[ObjectExectuion] table   **Schedule:**   * My current solution in a DW environment is running every 5 minutes * My current solution in a Prod environment is running every 30 minutes * **[Audit].[TableScan]** * Populated by proc [[Audit](https://golfnow.atlassian.net/wiki/display/DS/Audit)].[[usp\_TableScanInsert\_v2](https://golfnow.atlassian.net/wiki/display/DS/usp_TableScanInsert_v2)] * Proc records data only * **[Audit].[ObjectExecution]** * Populated by proc [[Audit](https://golfnow.atlassian.net/wiki/display/DS/Audit)].[usp\_ObjectExecutionInsert] * Proc records data only * Set at a higher run time for our DW trying to capture proc usage stats before they fall out of cache. * These are not 100 % accurate as stats might fall out of cache before you can ever log them for procs. * If part of an AG cluster with readable secondary, when evaluating what is used or not, need to take into account both nodes. However, currently only logging DBs if it is the primary on a node of an AG. This needs work.   Table for logging Index Stats can be used to assist in any other index usage when evaluating the Tables above and what should go through the sunset process. Also, to use for finding unused indexes that could potentially be dropped. A process still needs to be written to report/send unused index data, but is logging for use for analysis.  **Index Stats table:**   * **[Audit].[IndexUsage]** * Logs all indexes on all tables in active DBs being logged. Uses table [Audit].[ConfigDatabase] table to determine databases to log. * Populated by proc [[Audit](https://golfnow.atlassian.net/wiki/display/DS/Audit)].[usp\_IndexUsageInsert] * Parameter List: * @TestMode BIT = NULL --If not passed defaults to 0 - Can use TestMode=1 to see what it would pull without writing to table * @HistoryRetentionMonths = NULL --If not passed defaults to 18 * Logs all indexes for all tables in Databases not being excluded. * Currently do not log on Secondaries of an AG. * **[Audit].[IndexUsageHistory]** * If a SQL Restart is detected since last time the job was run and logged into [Audit].[IndexUsage], the data will be pulled from [Audit].[IndexUsage] into the History table before updating IndexUsage due to the fact that SQL DMV counts restart. Logs all indexes on all tables in active DBs being logged. Uses table [Audit].[ConfigDatabase] table to determine databases to log. * Populated by proc [Audit].[usp\_IndexUsageHistoryInsert] which is called from within [Audit].[usp\_IndexUsageInsert]. * Parameter List: * @RetentionMonths INT = NULL--If not passed defaults to 18   **Size History table(s):**   * **[Audit].[TableSizeHistory]** * Logs all tables sizes on all tables in active DBs being logged. Uses table [Audit].[ConfigDatabase] table to determine databases to log. * Populated by proc [[Audit](https://golfnow.atlassian.net/wiki/display/DS/Audit)].[usp\_TableSizeHistoryInsert] * Parameter List: * @TestMode BIT = NULL --If not passed defaults to 0 - Can use TestMode=1 to see what it would pull without writing to table * @HistoryRetentionMonths = NULL --If not passed defaults to never delete * Logs all indexes for all tables in Databases not being excluded. * Currently do not log on Secondaries of an AG.   Useful Table Value Function to get the last object use date of all objects stored in [Audit].[TableScan] and [Audit].[ObjectExecution]   * **[Audit].[tvf\_ObjectLastUse]** * Gets the Max(last date) of any usage date columns from the TableScan or the ObjectExecution tables.   SELECT \*  FROM [Audit].tvf\_ObjectLastUse() |
| Jobs to run process above and start logging: |
| **Jobs:**   * **Audit Object Usage** * **Steps:** * **Refresh database list** * EXECUTE [DBNAME].[Audit].[usp\_ConfigDatabaseInsert] * **Audit Table Scan Insert** * EXECUTE [DBNAME].[Audit].[usp\_TableScanInsert\_v2] * **Audit Object Execution Insert** * EXECUTE [DBNAME].[Audit].[usp\_ObjectExecutionInsert] * **Schedule:** Set to your environment, my current environment settings. * **Prod Env:** * **Every 30 minutes** * Daily, every 30 minutes starting at 12:04:00 am - 11:59:59 pm * **OLAP/DW environment:** * **Every 5 minutes** * Daily, every 5minutes starting at 12:02:00 am - 11:59:59 pm * *Set a faster interval trying to catch proc execution stats due to falling out of cache quicker. Still falls out too quickly to capture.* * **Notifications**: * On failure - Email: CompanyDBATeam * **Audit Index Usage** * **Steps:** * **Refresh database list** * EXECUTE [DBNAME].[Audit].[usp\_ConfigDatabaseInsert] * **Audit Index Usage Insert/Merge** * EXECUTE [DBNAME].[Audit].[usp\_IndexUsageInsert] @TestMode = 0, @HistoryRetentionMonths = 60 * **Schedule:** Set to your environment, my current environment settings. * **All Prod Env:** * **Daily 11PM Eastern** * Daily, starting at 11:00pm eastern (Set accordingly to server time zone) * **Notifications**: * On failure - Email: CompanyDBATeam * **Audit Table Size History** * **Steps:** * **Refresh database list** * EXECUTE [DBNAME].[Audit].[usp\_ConfigDatabaseInsert] * **Audit Table Size Histroy Insert** * EXECUTE [DBNAME].[Audit].[usp\_TableSizeHistoryInsert] @TestMode = 0, @HistoryRetentionMonths = NULL * **Schedule:** Set to your environment, my current environment settings. * **All Prod Env:** * **Tuesday's 2:15am Eastern** * Daily, starting at 2:15am eastern (Set accordingly to server time zone) * **Notifications**: * On failure - Email: CompanyDBATeam |