# Oracle® Revenue Management and Billing

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# Information Lifecycle Management (ILM) Implementation Guide

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Oracle Revenue Management and Billing Information Lifecycle Management (ILM) Implementation Guide

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# Preface

## About This Document

This document provides an overview of the Information Lifecycle Management (ILM) feature. It describes how to implement ILM for the Transaction Feed Management (TFM) and Billing modules.

**Note:** The ILM implementation is certified on Oracle Revenue Management and Billing Version 2.8.0.0.0 which is based on Oracle Utilities Application Framework Version 4.3.0.6.0.

## Intended Audience

This document is intended for the following audience:

- End-Users
- Consulting Team
- Implementation Team

## Organization of the Document

The information in this document is organized into the following sections:

| Section No. | Section Name | Description |
|---|---|---|
| Section 1 | Information Lifecycle Management (ILM) Overview | Provides an overview of the Information Lifecycle Management (ILM) feature. |
| Section 2 | ILM Implementation Overview | Provides high-level information about how to implement ILM in Oracle Revenue Management Billing. |
| Section 3 | Scope of ILM Implementation | Lists the maintenance objects and modules for which ILM is implemented. |
| Section 4 | ILM-Specific Option Types Available for Maintenance Object | Lists and describes the ILM-specific option types available for each maintenance object. |
| Section 5 | ILM Implementation | Explains how to implement ILM for the TFM and Billing modules. |
| Section 6 | ILM Batches | Lists and describes batches which are added to implement ILM for the TFM and Billing modules. |
| Section 7 | Eligible Table Partitions for Archival | Explains how to view the table partitions which are eligible for archival. |
| Section 8 | Drop Eligible Table Partitions | Explains how to drop an eligible table partition. |
| Section 9 | Additional Tasks After Dropping Table Partitions | Lists and describes additional tasks that you need to perform after dropping eligible table partitions. |

# Related Documents

You can refer to the following documents for more information:

| Document | Description |
|---|---|
| *Oracle Revenue Management and Billing Banking User Guide* | Lists and describes various banking features in Oracle Revenue Management and Billing. It also describes all screens related to these features and explains how to perform various tasks in the application. |

# Contents

# 1. Information Lifecycle Management (ILM) Overview

Information Lifecycle Management (ILM) is a methodology designed to address data management issues. Old data starts becoming an overhead to the overall application not only in terms of storage, but also in terms of performance. This older data, which has completed its lifecycle, can be possibly removed from the system to make an overall savings in terms of cost and performance. The archival implementation need to ensure that referential integrity of the overall system is maintained. Archiving keeps the volume of data in the production database at a manageable level without compromising the system's ability to perform normal operations.

The Information Lifecycle Management (ILM) includes the following three processes:

1. **Setup** - The setup process is all about how you implement the ILM feature. The following figure indicates the different steps that you need to perform to implement the ILM feature:

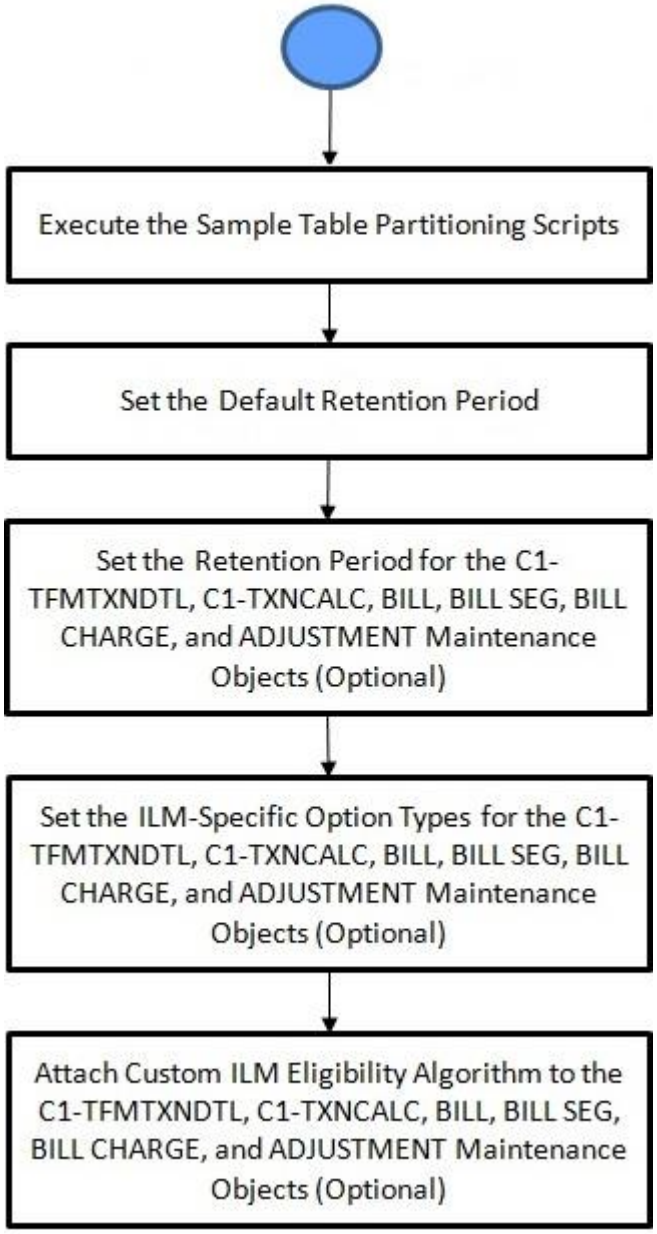


**Figure 1: ILM Setup Process**

2. **Execution** - The Execution process is a process where you execute the ILM batches to identify and mark the records which are eligible for archival. You can either execute the required ILM Crawler batch (i.e. **C1-ADCRL**, **C1-BLCRL**, **C1-BCCRL**, **C1-TCCRL**, or **C1-FMCRL**) or just execute the **ILM Crawler Initiator (F1-ILMIN)** batch. The following figure indicates how the ILM Crawler batch identifies and marks the records which are eligible for archival:

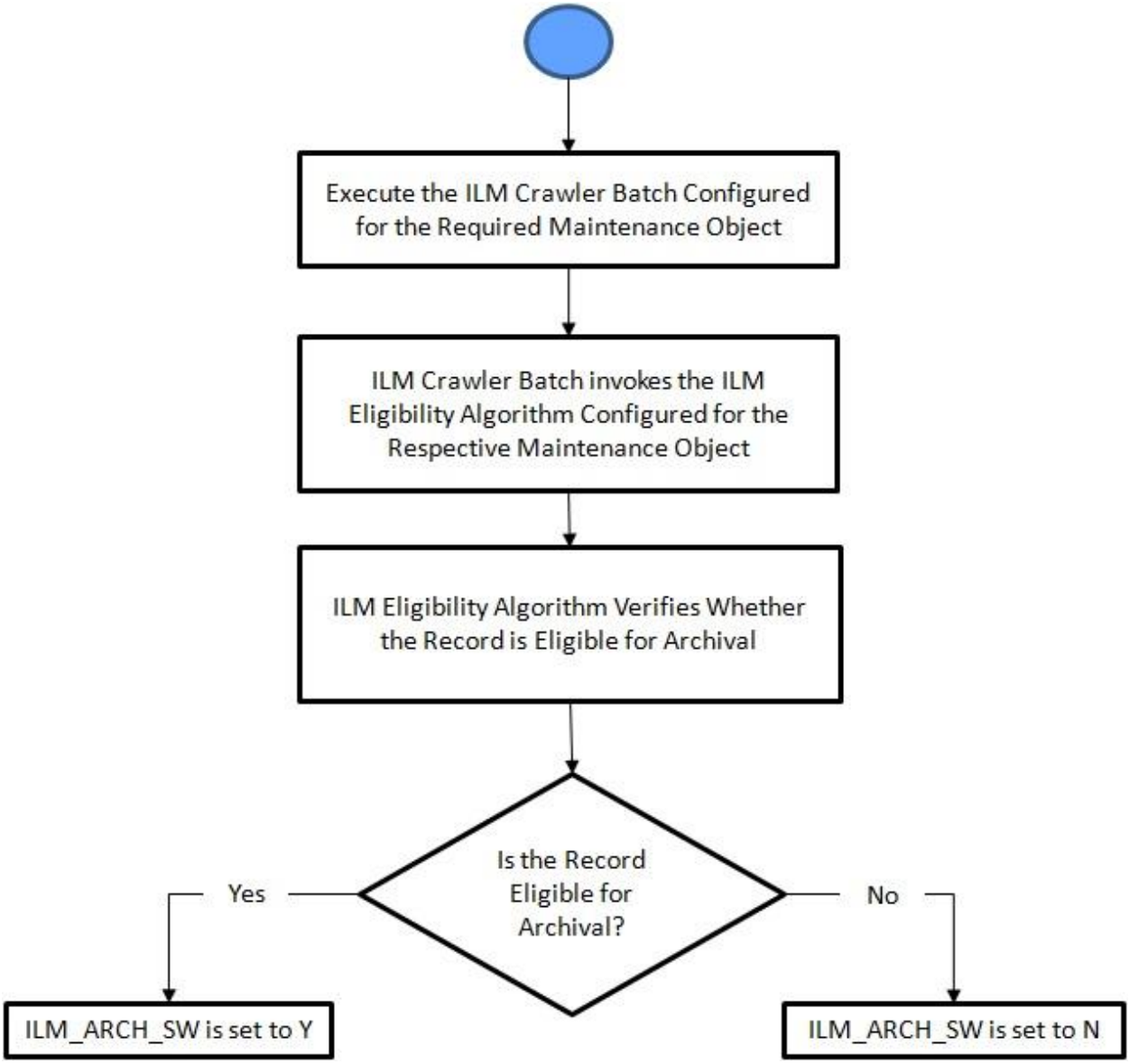


**Figure 2: ILM Crawler Batch Execution Process**

The following figure indicates how the ILM Crawler Initiator batch identifies and marks the records which are eligible for archival:

 

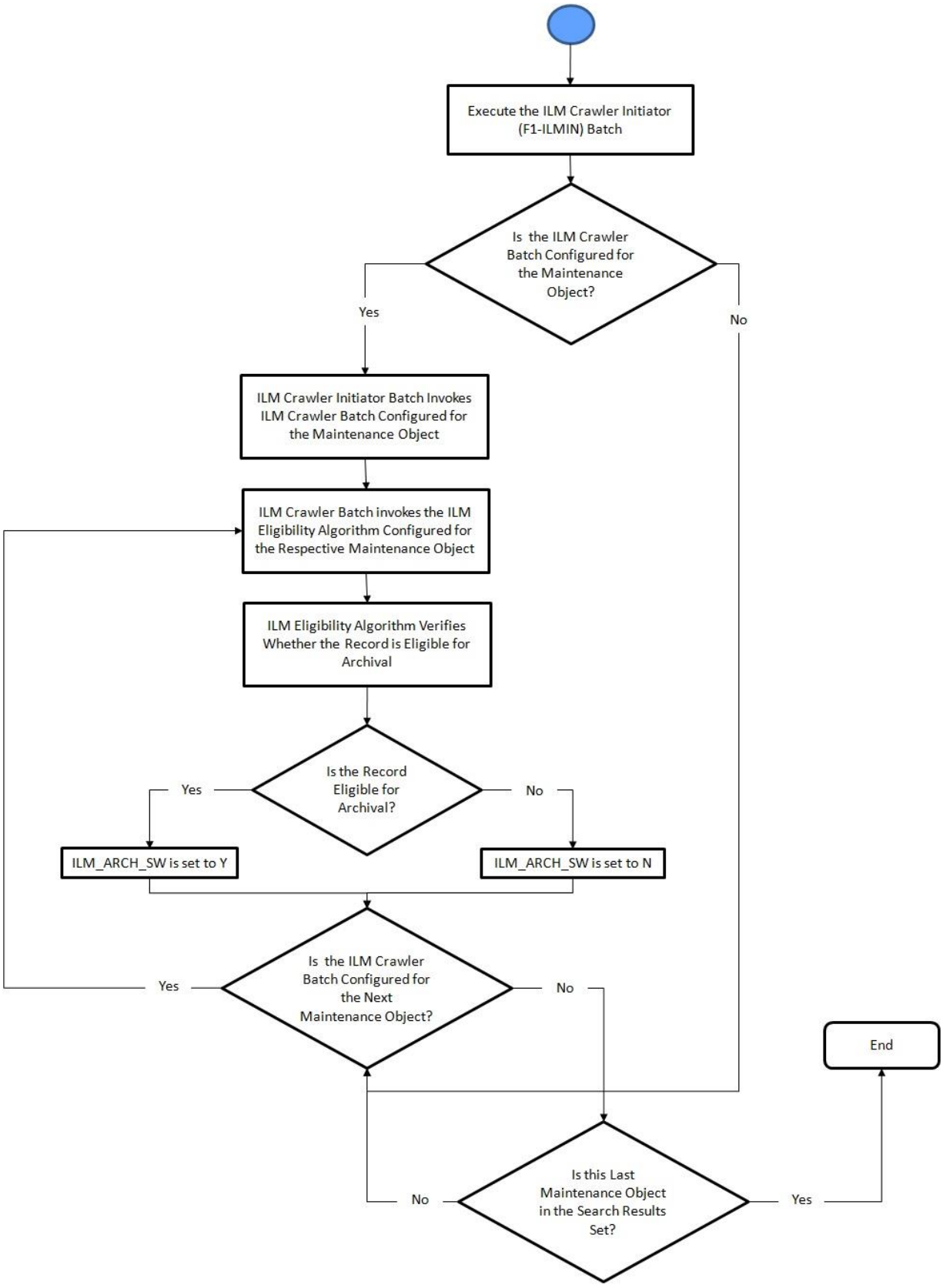


**Figure 3: ILM Crawler Initiator Batch Execution Process**

3. **Maintenance** - The Maintenance process is a process where you archive and then drop the table partitions where all records are eligible for archival. The following figure indicates the steps involved in the maintenance process:

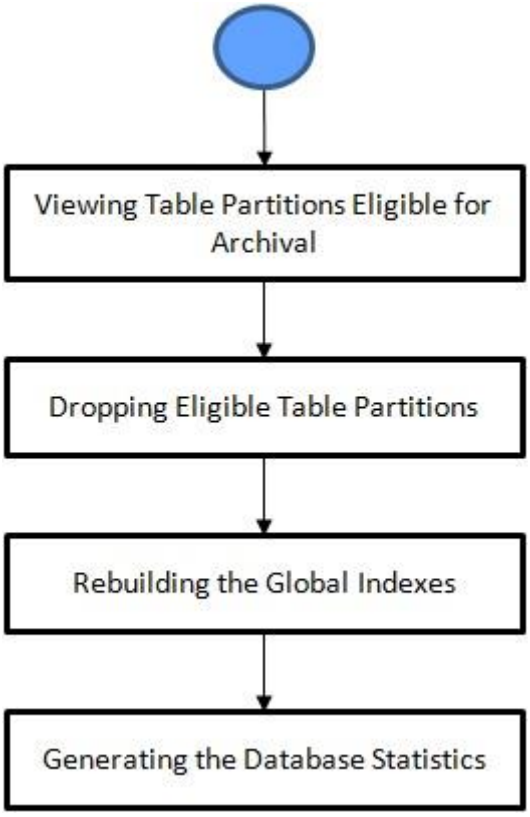


**Figure 4: ILM Maintenance Process**

 

# 2. ILM Implementation Overview

An underlying design principle of the ILM implementation is based on the concept that the age of the data may not only be used as a criterion to determine when a record must be archived. There may be business rules that dictate that some records are still current and must not be archived yet.

ILM enabled objects has two additional columns - **ILM Date (ILM_DT)** and **ILM Archival Switch (ILM_ARCH_SW)**. The **ILM Date** is used for partitioning to group data by age. The **ILM Archival Switch** is set by a background process when the record meets the business rules specific to the maintenance object and is eligible for archival. The **ILM Archival Switch** allows the database administrator to check whether all records in a partition meet the business criteria defined for archival. If the ILM Archival Switch is set to **Y** for all records, then the DBA can take the required steps to archive the partition.

# 3. Scope of ILM Implementation

At present, the ILM is implemented for the following maintenance objects:

- Transaction Detail (C1-TFMTXNDTL)
- Transaction Calculation Detail (C1-TXNCALC)
- Bill (BILL)
- Bill Segments (BILL SEG)
- Billable Charge (BILL CHARGE)
- Adjustment (ADJUSTMENT)

In other words, the out of box ILM implementation is provided for the Transaction Feed Management and Billing modules. If you want to implement ILM for any other maintenance object or module, you need to do the required configurations and write the custom logic to identify the records which are eligible for archival.

# 4. ILM-Specific Option Types Available for Maintenance Object

The following table lists the ILM-specific option types which you can define for each maintenance object:

| Option Type | Description | Mandatory (Yes or No) |
|---|---|---|
| ILM Crawler Batch Control | Used to specify the batch control that you want to use to identify and mark the records which are eligible for archival.<br>**Note:** As we are supporting ILM implementation for the TFM and Billing modules, by default, the parameter value is defined for the **C1-TFMTXNDTL**, **C1-TXNCALC**, **BILL**, **BILL CHARGE**, and **ADJUSTMENT** maintenance objects. | Yes<br>**Note:** This data is required when you want to implement ILM for the maintenance object. |
| ILM Retention Period In Days | Used to specify the number of days for which you want to retain the records which are created using the business objects of the maintenance object.<br>**Note:** This parameter value overrides the default retention period defined in the ILM master configuration. | No |
| ILM Restrict By Status | Used to indicate whether you want to verify and mark records which are in a particular status. The valid values are:<br>• Y<br>• N<br>If you set this parameter value to **Y**, you can use either the **ILM Restrict By BO Final Status** or **Status Field** option type to filter the records based on the status.<br>**Note:** By default, the parameter value is set to **N**. | No |
| Status Field | Used to specify the field name (which is used to store the status) based on which you want to filter the records. | No |
| ILM Final Status Field Value | Used when you want to verify and mark the records which are in a particular status. | No |

| Option Type | Description | Mandatory (Yes or No) |
|---|---|---|
| ILM Restrict By BO Final Status | Used to indicate whether you want to verify and mark the records which are in the status which is defined as final in the lifecycle of the business object. The valid values are:<br>• Y<br>• N<br>**Note:** By default, the parameter value is set to **N**. | No |

# 5. ILM Implementation

To implement ILM for the Transaction Feed Management and Billing modules, you need to do the following:

1. Execute the Sample Table Partitioning Scripts
2. Set the Retention Period in the Application

## 5.1 Executing the Sample Table Partitioning Scripts

You need to partition the master and child tables in such a way that referential integrity is not hampered. Partitioning is mandatory for ILM implementation. This helps to segregate the data into multiple table partitions. There are many partitioning strategies which can be used to partition tables. However, we recommend you to partition the TFM and Billing related tables using the following partition type and keys:

| Table Name | Partition Type | Partition Key | Sub-Partition Key |
|---|---|---|---|
| CI_TXN_DETAIL | Range | CURR_SYS_PRCS_DT | - |
| CI_ROLLBACK_TXN_DETAIL | Range | CURR_SYS_PRCS_DT | - |
| CI_TXN_DETAIL_EXCP | Range | CURR_SYS_PRCS_DT | - |
| CI_TXN_DTL_PRITM | Range | CURR_SYS_PRCS_DT | - |
| CI_TXN_CALC | Range | ILM_DT | - |
| CI_TXN_CALC_LN | Range | ILM_DT | - |
| CI_TXN_CALC_LN_CHAR | Range | ILM_DT | - |
| CI_TXN_SQ | Range | ILM_DT | - |
| CI_BILL | Range | ILM_DT | BILL_ID |
| CI_BILL_CHAR | Reference | ILM_DT | BILL_ID |
| CI_BILL_EXCP | Reference | ILM_DT | BILL_ID |
| CI_BILL_MSG_PRM | Reference | ILM_DT | BILL_ID |
| CI_BILL_ROUTING | Reference | ILM_DT | BILL_ID |
| CI_BILL_SA | Reference | ILM_DT | BILL_ID |
| CI_BILL_ACH | Reference | ILM_DT | BILL_ID |
| CI_BILL_MSGS | Reference | ILM_DT | BILL_ID |
| CI_BILL_LOG | Reference | ILM_DT | BILL_ID |
| CI_BSEG | Range | ILM_DT | BSEG_ID |
| CI_BSEG_CALC | Reference | ILM_DT | BSEG_ID |
| CI_BSEG_CALC_LN | Reference | ILM_DT | BSEG_ID |

| Table Name | Partition Type | Partition Key | Sub-Partition Key |
|---|---|---|---|
| CI_BSEG_CL_CHAR | Reference | ILM_DT | BSEG_ID |
| CI_BSEG_EXCP | Reference | ILM_DT | BSEG_ID |
| CI_BSEG_EXT | Reference | ILM_DT | BSEG_ID |
| CI_BSEG_ITEM | Reference | ILM_DT | BSEG_ID |
| CI_BSEG_MSG | Reference | ILM_DT | BSEG_ID |
| CI_BSEG_READ | Reference | ILM_DT | BSEG_ID |
| CI_BSEG_SQ | Reference | ILM_DT | BSEG_ID |
| CI_BILL_CHG | Range | ILM_DT | BILLABLE_CHG_ID |
| CI_BCHG_READ | Reference | ILM_DT | BILLABLE_CHG_ID |
| CI_BCHG_SQ | Reference | ILM_DT | BILLABLE_CHG_ID |
| CI_BILL_CHG_CHAR | Reference | ILM_DT | BILLABLE_CHG_ID |
| CI_B_CHG_LINE | Reference | ILM_DT | BILLABLE_CHG_ID |
| CI_B_LN_CHAR | Reference | ILM_DT | BILLABLE_CHG_ID |
| CI_ADJ | Range | ILM_DT | ADJ_ID |
| CI_ADJ_APREQ | Reference | ILM_DT | ADJ_ID |
| CI_ADJ_CALC_LN | Reference | ILM_DT | ADJ_ID |
| CI_ADJ_CHAR | Reference | ILM_DT | ADJ_ID |
| CI_ADJ_CL_CHAR | Reference | ILM_DT | ADJ_ID |

An out of box table partitioning scripts for ILM implementation are provided by Oracle Revenue Management and Billing for 2.8.0.0.0 release. To use the sample table partitioning scripts:

1. Download the `ILM SAMPLE SQL PARTITIONING SCRIPTS FOR ORMB 2.8.0.0.0` patch (Patch Number: `30528242`) from My Oracle Support. A zip file is downloaded.
2. Unzip the downloaded file in your local folder. The contents include the `V28000_sample_ILM_partitioning_scripts` folder and the `ReadMe` file.
3. Verify the downloaded sample partitioning scripts for the existing indexes and columns in the database.
4. If you have any data in the tables which you want to partition, then take a backup of the existing data and tables.
5. Drop the existing ILM related tables.
6. Partition the tables using the sample partitioning scripts (as mentioned in this section).
7. Import the backup data in the newly created ILM partitioned tables.

 

To partition the tables using the sample partitioning scripts:

1. Change to the V28000_sample_ILM_partitioning_scripts folder using the following command:

   cd <DESTINATION_FOLDER_1>\V28000_sample_ILM_partitioning_scripts

**Note:** The <DESTINATION_FOLDER_1> folder is the location where you have extracted the contents of the downloaded file.

   The contents include the following SQL files - v28000_CI_ADJ, v28000_CI_BILL, v28000_CI_BILL_CHG, v28000_CI_BSEG, and v28000_TFM.

2. Connect to the ORMB database using a utility named SQL*Plus and the administrator's (for example, CISADM) credentials.
3. Execute the following SQL queries from the V28000_sample_ILM_partitioning_scripts folder:
   - v28000_CI_ADJ.sql
   - v28000_CI_BILL.sql
   - v28000_CI_BILL_CHG.sql
   - v28000_CI_BSEG.sql
   - v28000_TFM.sql

   The execution logs are generated in the V28000_sample_ILM_partitioning_scripts folder which you can use for verification.

 

Once you execute the sample table partitioning scripts, the tables would be partitioned as shown in the following figure:

| Module | Table name | Child table name | Partition type | Partition key | Sub Partition Key |
|---|---|---|---|---|---|
| TFM | CI_TXN_DETAIL | | RANGE (DATE INTERVAL) | CURR_SYS_PRCS_DT | |
| TFM | CI_TXN_DTL_PRITM | | RANGE (DATE INTERVAL) | CURR_SYS_PRCS_DT | |
| TFM | CI_ROLLBACK_TXN_DETAIL | | RANGE (DATE INTERVAL) | CURR_SYS_PRCS_DT | |
| TFM | CI_TXN_DETAIL_EXCP | | RANGE (DATE INTERVAL) | CURR_SYS_PRCS_DT | |
| TFM | CI_TXN_CALC | | RANGE (DATE INTERVAL) | ILM_DT | |
| TFM | CI_TXN_SQ | | RANGE (DATE INTERVAL) | ILM_DT | |
| TFM | CI_TXN_CALC_LN | | RANGE (DATE INTERVAL) | ILM_DT | |
| TFM | CI_TXN_CALC_LN_CHAR | | RANGE (DATE INTERVAL) | ILM_DT | |
| | | | | | |
| BILLING | CI_BILL | | RANGE (DATE INTERVAL) | ILM_DT | BILL_ID |
| BILLING | | CI_BILL_CHAR | REFERENCE (Key : BILL_ID) | ILM_DT | BILL_ID |
| BILLING | | CI_BILL_EXCP | REFERENCE (Key : BILL_ID) | ILM_DT | BILL_ID |
| BILLING | | CI_BILL_MSG_PRM | REFERENCE (Key : BILL_ID) | ILM_DT | BILL_ID |
| BILLING | | CI_BILL_ROUTING | REFERENCE (Key : BILL_ID) | ILM_DT | BILL_ID |
| BILLING | | CI_BILL_SA | REFERENCE (Key : BILL_ID) | ILM_DT | BILL_ID |
| BILLING | | CI_BILL_ACH | REFERENCE (Key : BILL_ID) | ILM_DT | BILL_ID |
| BILLING | | CI_BILL_MSGS | REFERENCE (Key : BILL_ID) | ILM_DT | BILL_ID |
| BILLING | | CI_BILL_LOG | REFERENCE (Key : BILL_ID) | ILM_DT | BILL_ID |
| | | | | | |
| BILLING | CI_BSEG | | RANGE (DATE INTERVAL) | ILM_DT | BSEG_ID |
| BILLING | | CI_BSEG_CALC | REFERENCE (Key : BSEG_ID) | ILM_DT | BSEG_ID |
| BILLING | | CI_BSEG_CALC_LN | REFERENCE (Key : BSEG_ID) | ILM_DT | BSEG_ID |
| BILLING | | CI_BSEG_CL_CHAR | REFERENCE (Key : BSEG_ID) | ILM_DT | BSEG_ID |
| BILLING | | CI_BSEG_EXCP | REFERENCE (Key : BSEG_ID) | ILM_DT | BSEG_ID |
| BILLING | | CI_BSEG_ITEM | REFERENCE (Key : BSEG_ID) | ILM_DT | BSEG_ID |
| BILLING | | CI_BSEG_MSG | REFERENCE (Key : BSEG_ID) | ILM_DT | BSEG_ID |
| BILLING | | CI_BSEG_READ | REFERENCE (Key : BSEG_ID) | ILM_DT | BSEG_ID |
| BILLING | | CI_BSEG_SQ | REFERENCE (Key : BSEG_ID) | ILM_DT | BSEG_ID |
| BILLING | | CI_BSEG_EXT | REFERENCE (Key : BSEG_ID) | ILM_DT | BSEG_ID |
| | | | | | |
| BILLING | CI_ADJ | | RANGE (DATE INTERVAL) | ILM_DT | ADJ_ID |
| BILLING | | CI_ADJ_APREQ | REFERENCE (Key : ADJ_ID) | ILM_DT | ADJ_ID |
| BILLING | | CI_ADJ_CALC_LN | REFERENCE (Key : ADJ_ID) | ILM_DT | ADJ_ID |
| BILLING | | CI_ADJ_CHAR | REFERENCE (Key : ADJ_ID) | ILM_DT | ADJ_ID |
| BILLING | | CI_ADJ_CL_CHAR | REFERENCE (Key : ADJ_ID) | ILM_DT | ADJ_ID |
| | | | | | |
| BILLING | CI_BILL_CHG | | RANGE (DATE INTERVAL) | ILM_DT | BILLABLE_CHG_ID |
| BILLING | | CI_BCHG_READ | REFERENCE (Key : BILLABLE_CHG_ID) | ILM_DT | BILLABLE_CHG_ID |
| BILLING | | CI_BCHG_SQ | REFERENCE (Key : BILLABLE_CHG_ID) | ILM_DT | BILLABLE_CHG_ID |
| BILLING | | CI_BILL_CHG_CHAR | REFERENCE (Key : BILLABLE_CHG_ID) | ILM_DT | BILLABLE_CHG_ID |
| BILLING | | CI_B_CHG_LINE | REFERENCE (Key : BILLABLE_CHG_ID) | ILM_DT | BILLABLE_CHG_ID |
| BILLING | | CI_B_LN_CHAR | REFERENCE (Key : BILLABLE_CHG_ID) | ILM_DT | BILLABLE_CHG_ID |

The range interval of each partition for a table could vary as per the client's volume. For example, the Transaction Feed Management (TFM) related tables can have one partition per day, whereas the Billing related tables can have one partition per month. This range interval is used for partitioning tables in the sample table partitioning scripts.

If you want to change the range interval (i.e. to daily, monthly or quarterly), you need to accordingly modify the sample table partitioning scripts. You need to ensure that the range interval is same for all tables highlighted in the same color (as shown in the above figure). For example, you must use the same range interval for the **CI_TXN_DETAIL**, **CI_ROLLBACK_TXN_DETAIL**, **CI_TXN_DETAIL_EXCP**, and **CI_TXN_DTL_PRITM** tables. However, this range interval may vary from the range interval which is defined for **CI_TXN_CALC**, **CI_TXN_CALC_LN**, **CI_TXN_CALC_LN_CHAR**, and **CI_TXN_SQ** tables or for the **CI_BILL**, **CI_BSEG**, **CI_BILL_CHG**, and **CI_ADJ** tables.

The partitioning key for any table where the **Owner** flag is set to **Base** should not be changed in any case as it will violate the support from ORMB team.

# 5.2 Setting the Retention Period in the System

The retention period is the number of days you want to retain the data in the application. The system enables you to define the default retention period through the ILM master configuration. This default retention period is applicable for all maintenance objects which are defined in the system. Alternatively, you can define the retention period for each maintenance object. It will override the default retention period defined in the ILM master configuration.

## 5.2.1 Setting the Default Retention Period

To set the default retention period through the ILM master configuration:

1. Login to Oracle Revenue Management and Billing Version 2.8.0.0.0.
2. Click the **Admin** link in the **Application** toolbar. A list appears.
3. From the **Admin** menu, select **M** and then click **Master Configuration**. The **Master Configuration** screen appears.
4. In the **Master Configuration** zone, click the **Edit** (  ) icon corresponding to the ILM Configuration whose details you want to edit. The **ILM Configuration** screen appears. It contains the following section:
   - **Main** – Used to specify details for the ILM configuration.

   The **Main** section contains the following fields:

| Field Name | Field Description | Mandatory (Yes or No) |
|---|---|---|
| Business Object | Indicates the business object using which the ILM master configuration is created. | Not applicable |
| Default Retention Period | Used to specify the number of days you want to retain the data in the application. | Yes |

**Tip**: Alternatively, you can edit the ILM configuration by clicking the **Edit** button in the **Master Configuration Details** zone.

5. Enter the default retention period in days.
6. Click **Save**. The changes made to the ILM configuration are saved.

### 5.2.2 Setting the Retention Period for a Maintenance Object

To set the retention period for a maintenance object:

1. Login to Oracle Revenue Management and Billing Version 2.8.0.0.0.
2. Click the **Admin** link in the **Application** toolbar. A list appears.
3. From the **Admin** menu, select **M** and then click **Maintenance Object**. A sub-menu appears.
4. Click the **Search** option from the **Maintenance Object** sub-menu. The **Maintenance Object Search** window appears.
5. Enter the required search criteria in the **Maintenance Object Search** window.

**Note:**

You must specify at least one search criterion while searching for a maintenance object.

ORMB search engine supports wildcard search, where you can substitute the percentage (%) symbol as a stand in for any word or letter in a search criteria. You can use the '%' wildcard character in all input fields except the date and ID fields. The '%' wildcard character is suffixed automatically at the end of the partial search criteria. Therefore, you may or may not specify the wildcard character at the end of the partial search criteria. However, you have to prefix the wildcard character manually wherever required.

6. Click the **Search** button corresponding to the field in which you have specified the criteria. A list of maintenance objects that meet the search criteria appears in the search results.
7. Select the required maintenance object from the list. The **Maintenance Object** screen appears.
8. Click the **Options** tab. The **Options** tab appears.
9. Click the **Add** ( ) icon corresponding to an option type. A new row is added in the grid.
10. Select the **ILM Retention Period In Days** option from the **Option Type** list.
11. Enter the sequence number in the respective field.
12. Enter the number of days for which you want to retain the records, which are created using the business objects of the respective maintenance object, in the **Option Value** field.
13. Click **Save**. The changes made to the maintenance object are saved.

# 6. ILM Batches

The following batches are added to implement ILM for the Transaction Feed Management and Billing modules:

- ILM Crawler - Adjustments (C1-ADCRL)
- ILM Crawler - Bill and Bill Segments (C1-BLCRL)
- ILM Crawler - Billable Charges (C1-BCCRL)
- ILM Crawler - TFM Daily Rating Transaction Calculations (C1-TCCRL)
- ILM Crawler - Transaction Feed Management (C1-FMCRL)

You can execute the above mentioned each batch individually or just execute the **ILM Crawler Initiator (F1-ILMIN)** batch.

## 6.1 ILM Crawler Initiator (F1-ILMIN)

The **ILM Crawler Initiator (F1-ILMIN)** batch is used when you want to execute ILM Crawler batch for each maintenance object where the **ILM Crawler Batch Control** option type is defined. It executes the batch which is specified as the value for the **ILM Crawler Batch Control** option type.

This batch is a multi-threaded batch. The multi-threading is based on maintenance object and chunks for multi-threading are created based on alphabetical distribution of maintenance object.

You can specify the following parameters while executing this batch:

| Parameter Name | Mandatory (Yes or No) | Description |
|---|---|---|
| Thread Pool Name | No | Used to specify the thread pool on which you want to execute the batch. |

**Note:** If the **ILM Crawler Initiator (F1-ILMIN)** batch fails or aborts due to some reason, you can restart the batch over and over again with the same set of parameters.

**Post Execution Check/Clean Up:**

On successful completion of this batch, records which are eligible for archival are marked for each maintenance object where the **ILM Crawler Batch Control** option type is defined.

## 6.2 ILM Crawler - Adjustments (C1-ADCRL)

The **ILM Crawler - Adjustments (C1-ADCRL)** batch is used to identify and mark the adjustments which are eligible for archival. It considers the system date minus retention period as the cutoff date. It uses the retention period which is defined for the **ADJUSTMENT** maintenance object. If the retention period is not defined for the **ADJUSTMENT** maintenance object, it uses the default retention period defined in the ILM master configuration.

It considers those adjustments where the **ILM Archival** flag is set to **N** and ILM date is earlier than or equal to the cutoff date, and then executes the ILM eligibility algorithm for each such record. The ILM eligibility algorithm checks whether:

- The adjustment creation date is earlier than or equal to the cutoff date.
- The adjustment is in the **Frozen** status.
- The adjustment is not linked to a pay tender or statement.
- All financial transactions related to the adjustment are in the **Frozen** status.
- The GL Distribution Status of the adjustment financial transaction is set to **D** (i.e. Distributed).
- The Foreign Exchange Gain Loss Calculation Status of the adjustment financial transaction is not set to **N** or **NULL**.
- If the account for which the adjustment is created belongs a customer class where the **Open Item Accounting** option is selected, the adjustment financial transaction is linked to a match event which is in the **Balanced** status.

If any of the above conditions fail, the adjustment is not eligible for archival. It also checks whether the bill on which the adjustment is swept has ILM date earlier than the adjustment's ILM date. If so, the adjustment's ILM date is set to the Bill's ILM date. In addition, it checks whether the adjustment is associated to any transfer adjustment. If the adjustment is associated to a transfer adjustment, it also verifies whether the transfer adjustment is eligible for archival. If so, it marks both the adjustments as eligible for archival. However, it the transfer adjustment is not yet eligible for archival, it moves both the adjustments on the same table partition and marks them as not eligible for archival.

**Note:** The system enables you to add additional conditions which should be considered while verifying whether the records are eligible for archival. You can define a custom algorithm and attach it to the **ILM Eligibility** system event of the **ADJUSTMENT** maintenance object.

This batch is a multi-threaded batch. The multi-threading is based on adjustment ID and chunks for multi-threading are created based on numerical distribution of adjustment ID.

You can specify the following parameters while executing this batch:

| Parameter Name | Mandatory (Yes or No) | Description |
|---|---|---|
| Maintenance Object | Yes | Used to indicate that you want to verify the adjustments which are created using the business objects of a particular maintenance object.<br>**Note:** By default, the parameter value is set to **ADJUSTMENT**. |

 

| Parameter Name | Mandatory (Yes or No) | Description |
|---|---|---|
| Override Cutoff Date | No | Used when you want to override the calculated cutoff date (i.e. system date minus retention period).<br>**Note:**<br>You must specify a date which is earlier than or equal to the calculated cutoff date.<br>You must specify the date in the YYYY-MM-DD format. |
| Thread Pool Name | No | Used to specify the thread pool on which you want to execute the batch. |

**Note:** If the **ILM Crawler - Adjustments (C1-ADCRL)** batch fails or aborts due to some reason, you can restart the batch over and over again with the same set of parameters.

**Post Execution Check/Clean Up:**

On successful completion of this batch, the **ILM_ARCH_SW** column corresponding to the adjustments, which are eligible for archival, is set to **Y** in the **CI_ADJ** table.

## 6.3 ILM Crawler - Bill and Bill Segments (C1-BLCRL)

The **ILM Crawler - Bill and Bill Segments (C1-BLCRL)** batch is used to identify and mark the bills and their bill segments which are eligible for archival. It considers the system date minus retention period as the cutoff date. It uses the retention period which is defined for the **BILL** maintenance object. If the retention period is not defined for the **BILL** maintenance object, it uses the default retention period defined in the ILM master configuration.

It considers those bills where the **ILM Archival** flag is set to **N** and ILM date is earlier than or equal to the cutoff date, and then executes the ILM eligibility algorithm for each such bill. The ILM eligibility algorithm checks whether:

- The bill date is earlier than or equal to the cutoff date.
- The bill is in the **Complete** status.
- The bill is not a credit note bill or is not linked to a credit note bill.
- The bill is not linked to a statement.
- All financial transactions related to the bill and its bill segments are in the **Frozen** status.
- The GL Distribution Status of the bill and its bill segment financial transactions is set to **D** (i.e. Distributed)
- The Foreign Exchange Gain Loss Calculation Status of the bill and its bill segment financial transactions is not set to **N** or **NULL**.
- If the account for which the bill is created belongs a customer class where the **Open Item Accounting** option is selected, the bill and its bill segment financial transactions are linked to match events which are in the **Balanced** status.
- The Bill ID, Parent ID, and the Presentment Bill ID on the bill financial transaction are same.

 

If any of the above conditions fail, the bill and its bill segments are not eligible for archival. It also checks whether the end date of any billable charge which is swept on the bill is later than the cutoff date. If so, the bill's and bill segment's ILM date is set to the billable charge's ILM date.

**Note:** The system enables you to add additional conditions which should be considered while verifying whether the records are eligible for archival. You can define a custom algorithm and attach it to the **ILM Eligibility** system event of the **BILL** maintenance object.

This batch is a multi-threaded batch. The multi-threading is based on bill ID and chunks for multi-threading are created based on numerical distribution of bill ID.

You can specify the following parameters while executing this batch:

| Parameter Name | Mandatory (Yes or No) | Description |
|---|---|---|
| Maintenance Object | Yes | Used to indicate that you want to verify the bills which are created using the business objects of a particular maintenance object.<br>**Note:** By default, the parameter value is set to **BILL**. |
| Override Cutoff Date | No | Used when you want to override the calculated cutoff date (i.e. system date minus retention period).<br>**Note:**<br>You must specify a date which is earlier than or equal to the calculated cutoff date.<br>You must specify the date in the YYYY-MM-DD format. |
| Thread Pool Name | No | Used to specify the thread pool on which you want to execute the batch. |

**Note:** If the **ILM Crawler - Bill and Bill Segments (C1-BLCRL)** batch fails or aborts due to some reason, you can restart the batch over and over again with the same set of parameters.

**Post Execution Check/Clean Up:**

On successful completion of this batch, the **ILM_ARCH_SW** column corresponding to the bills and their bill segments, which are eligible for archival, is set to **Y** in the **CI_BILL** and **CI_BSEG** tables, respectively.

 

## 6.4 ILM Crawler - Billable Charges (C1-BCCRL)

The **ILM Crawler - Billable Charges (C1-BCCRL)** batch is used to identify and mark the billable charges which are eligible for archival. It considers the system date minus retention period as the cutoff date. It uses the retention period which is defined for the **BILL CHARGE** maintenance object. If the retention period is not defined for the **BILL CHARGE** maintenance object, it uses the default retention period defined in the ILM master configuration.

It considers those billable charges where the **ILM Archival** flag is set to **N** and ILM date is earlier than or equal to the cutoff date, and then executes the ILM eligibility algorithm for each such billable charge. The ILM eligibility algorithm checks whether:

- The billable charge end date is earlier than or equal to the cutoff date.
- The billable charge is in the **Canceled** status and the **Recurring** flag is set to **NULL**.
- If the billable charge is in the **Billable** status and the **Recurring** flag is set to **NULL**, there should be bill segments and financial transactions associated with the billable charge.
- The status of the corresponding bill segment is not **Error**.
- All financial transactions related to the corresponding bill segment are in the **Frozen** status.
- The GL Distribution Status of the corresponding bill segment financial transactions is set to **D** (i.e. Distributed)
- The Foreign Exchange Gain Loss Calculation Status of the corresponding bill segment financial transactions is not set to **N** or **NULL**.
- If the account for which the billable charge is created belongs a customer class where the **Open Item Accounting** option is selected, the corresponding bill segment financial transactions are linked to match events which are in the **Balanced** status.
- The Bill ID, Parent ID, and the Presentment Bill ID on the corresponding bill segment financial transaction are same.

If any of the above conditions fail, the billable charge is not eligible for archival. It also checks whether the billable charge end date is later than the cutoff date. If so, the billable charge's ILM date is set to the billable charge's end date.

**Note:** The system enables you to add additional conditions which should be considered while verifying whether the records are eligible for archival. You can define a custom algorithm and attach it to the **ILM Eligibility** system event of the **BILL CHARGE** maintenance object.

This batch is a multi-threaded batch. The multi-threading is based on billable charge ID and chunks for multi-threading are created based on numerical distribution of billable charge ID.

You can specify the following parameters while executing this batch:

| Parameter Name | Mandatory (Yes or No) | Description |
|---|---|---|
| Maintenance Object | Yes | Used to indicate that you want to verify the billable charges which are created using the business objects of a particular maintenance object.<br>**Note:** By default, the parameter value is set to **BILL CHARGE**. |
| Override Cutoff Date | No | Used when you want to override the calculated cutoff date (i.e. system date minus retention period).<br>**Note:**<br>You must specify a date which is earlier than or equal to the calculated cutoff date.<br>You must specify the date in the YYYY-MM-DD format. |
| Thread Pool Name | No | Used to specify the thread pool on which you want to execute the batch. |

**Note:** If the **ILM Crawler - Billable Charges (C1-BCCRL)** batch fails or aborts due to some reason, you can restart the batch over and over again with the same set of parameters.

**Post Execution Check/Clean Up:**

On successful completion of this batch, the **ILM_ARCH_SW** column corresponding to the billable charges, which are eligible for archival, is set to **Y** in the **CI_BILL_CHG** table.

## 6.5 ILM Crawler - Transaction Feed Management (C1-FMCRL)

The **ILM Crawler - Transaction Feed Management (C1-FMCRL)** batch is used to identify and mark the transaction and its transaction legs which are eligible for archival. It considers the system date minus retention period as the cutoff date. It uses the retention period which is defined for the **C1-TFMTXNDTL** maintenance object. If the retention period is not defined for the **C1-TFMTXNDTL** maintenance object, it uses the default retention period defined in the ILM master configuration.

 

It considers those transactions where the **ILM Archival** flag is set to **N** and the current system processing date (CURR_SYS_PRCS_DT) is earlier than or equal to the cutoff date, and then executes the ILM eligibility algorithm for each such transaction. The ILM eligibility algorithm checks whether:

- The status of the transaction is **Invalid**, **Ignored**, or **Cancelled**.
- The status of the transaction is **Compete** and its transaction legs are either in the **Ignore** status or belong to a frozen bill segment.
- The status of the transaction and its transaction legs is **Error**.

If the above conditions fail, the transaction and its transaction legs are not eligible for archival.

**Note:** The system enables you to add additional conditions which should be considered while verifying whether the records are eligible for archival. You can define a custom algorithm and attach it to the **ILM Eligibility** system event of the **C1-TFMTXNDTL** maintenance object.

This batch is a multi-threaded batch. The multi-threading is based on transaction ID and chunks for multi-threading are created based on numerical distribution of transaction ID.

You can specify the following parameters while executing this batch:

| Parameter Name | Mandatory (Yes or No) | Description |
|---|---|---|
| Maintenance Object | Yes | Used to indicate that you want to verify the transactions which are created using the business objects of a particular maintenance object.<br>**Note:** By default, the parameter value is set to **C1-TFMTXNDTL**. |
| Override Cutoff Date | No | Used when you want to override the calculated cutoff date (i.e. system date minus retention period).<br>**Note:**<br>You must specify a date which is earlier than or equal to the calculated cutoff date.<br>You must specify the date in the YYYY-MM-DD format. |
| Chunk Size | Yes | Used to specify the number of transactions you want to verify in each work unit.<br>**Note:** By default, the parameter value is set to **500**. |
| Thread Pool Name | No | Used to specify the thread pool on which you want to execute the batch. |

**Note:** If the **ILM Crawler - Transaction Feed Management (C1-FMCRL)** batch fails or aborts due to some reason, you can restart the batch over and over again with the same set of parameters.

**Post Execution Check/Clean Up:**

On successful completion of this batch, the **ILM_ARCH_SW** column corresponding to the transactions, which are eligible for archival, is set to **Y** in the **CI_TXN_DETAIL** table.

## 6.6 ILM Crawler - TFM Daily Rating Transaction Calculations (C1-TCCRL)

The **ILM Crawler - TFM Daily Rating Transaction Calculations (C1-TCCRL)** batch is used to identify and mark the transaction leg calculation records which are eligible for archival. It considers the system date minus retention period as the cutoff date. It uses the retention period which is defined for the **C1-TXNCALC** maintenance object. If the retention period is not defined for the **C1-TXNCALC** maintenance object, it uses the default retention period defined in the ILM master configuration.

It considers those transaction leg calculation records where the **ILM Archival** flag is set to **N** and ILM date is earlier than or equal to the cutoff date, and then executes the ILM eligibility algorithm for each such transaction leg calculation record. The ILM eligibility algorithm checks whether:

- The **ILM Archival** flag of the corresponding transaction leg is set to **Y**.

If the above condition fails, the transaction leg calculation records are not eligible for archival.

**Note:** The system enables you to add additional conditions which should be considered while verifying whether the records are eligible for archival. You can define a custom algorithm and attach it to the **ILM Eligibility** system event of the **C1-TXNCALC** maintenance object.

This batch is a multi-threaded batch. The multi-threading is based on transaction calculation ID and chunks for multi-threading are created based on numerical distribution of transaction calculation ID.

You can specify the following parameters while executing this batch:

| Parameter Name | Mandatory (Yes or No) | Description |
|---|---|---|
| Maintenance Object | Yes | Used to indicate that you want to verify the transaction leg calculation records which are created using the business objects of a particular maintenance object.<br>**Note:** By default, the parameter value is set to **C1-TXNCALC**. |
| Override Cutoff Date | No | Used when you want to override the calculated cutoff date (i.e. system date minus retention period).<br>**Note:**<br>You must specify a date which is earlier than or equal to the calculated cutoff date.<br>You must specify the date in the YYYY-MM-DD format. |
| Chunk Size | Yes | Used to specify the number of transaction leg calculation records you want to verify in each work unit.<br>**Note:** By default, the parameter value is set to **500**. |

 

| Parameter Name | Mandatory (Yes or No) | Description |
|---|---|---|
| Thread Pool Name | No | Used to specify the thread pool on which you want to execute the batch. |

**Note:** If the **ILM Crawler - TFM Daily Rating Transaction Calculations (C1-TCCRL)** batch fails or aborts due to some reason, you can restart the batch over and over again with the same set of parameters.

**Post Execution Check/Clean Up:**

On successful completion of this batch, the **ILM_ARCH_SW** column corresponding to the transaction leg calculation records, which are eligible for archival, is set to **Y** in the **CI_TXN_CALC** table.

# 7. Eligible Table Partitions for Archival

Once you execute the ILM Crawler batches, you can view the table partitions which are eligible for archival. A table partition is eligible for archival only when:

- All records in the table partition are eligible for archival.
- The high value of the table partition is earlier than or equal to the cutoff date.

To view the table partitions which are eligible for archival:

1. Login to Oracle Revenue Management and Billing Version 2.8.0.0.0.
2. Click the **Admin** link in the **Application** toolbar. A list appears.
3. From the **Admin** menu, select **I** and then click **ILM Archival**. The **ILM Archival** screen appears. It contains the **Search** zone which allows you to search for the table partitions of a module which are eligible for archival. This zone contains the following fields:

| Field Name | Field Description | Mandatory (Yes or No) |
|---|---|---|
| Module | Used to search table partitions of a particular module which are eligible for archival. The valid values are:<br>• Billing<br>• Transaction Feed Management | No |
| Cutoff Date | Used to search table partitions whose high value date is earlier than or equal to the cutoff date. | Yes |

4. Enter the required search criteria and then click **Search**. A list of table partitions which are eligible for archival appears in the search results. The **Search Results** section contains the following columns:

| Column Name | Column Description |
|---|---|
| Table Name | Displays the parent table name. |
| Partition Name | Displays the name of the table partition. |
| High Value | Displays the upper boundary date for the range based table partition. |
| Eligible to Purge | Indicates whether the table partition is eligible for purging or dropping. The valid values are:<br>• Y<br>• N |

# 8. Drop Eligible Table Partitions

Once you identify the table partitions which are eligible for dropping, you can drop the eligible table partitions. However, we recommend you to take a backup of the eligible table partitions before dropping them.

To drop an eligible table partition:

1. Connect to the ORMB database using a utility named SQL*Plus and the administrator's (for example, CISADM) credentials.
2. Execute the following command:

   `ALTER TABLE <TABLE_NAME> DROP PARTITION <PARTITION_NAME>`

   For example, `ALTER TABLE CI_BSEG DROP PARTITION SYS_P0264`

**Note:**

When a partition from the parent table is dropped, the corresponding partitions from the child tables are automatically dropped due to reference partitioning. For example, **CI_ADJ** is a parent table and **CI_ADJ_APREQ**, **CI_ADJ_CALC_LN**, **CI_ADJ_CHAR**, and **CI_ADJ_CL_CHAR** are its child tables. When you drop a partition from the **CI_ADJ** table, all corresponding partitions from all child tables are dropped, automatically.

While dropping the table partitions for the Billing module, ensure that all eligible table partitions on the **CI_BILL**, **CI_BSEG**, **CI_BILL_CHG**, and **CI_ADJ** tables are dropped together for a particular high value date.

This activity of dropping eligible table partitions should be taken up during off peak hours to avoid performance issues.

# 9. Additional Tasks After Dropping Table Partitions

Once you drop the eligible table partitions, you need to do the following:

1. Rebuild the Global Indexes
2. Generate the Database Statistics

## 9.1 Rebuilding the Global Indexes

You need to rebuild all global indexes of the tables whose partitions are dropped. To rebuild the global indexes:

1. Connect to the ORMB database using a utility named SQL*Plus and the administrator's (for example, CISADM) credentials.
2. Execute the following command:

```
select 'ALTER INDEX' || INDEX_NAME || 'REBUILD PARTITION' || PARTITION_NAME || ';' from DBA_ind_partitions where status = 'UNUSABLE' AND INDEX_OWNER = 'CISADM';
```

**Note:**

This activity of rebuilding global indexes should be taken up during off peak hours to avoid performance issues.

Adequate disk space must be allocated for redo logs as considerable amount of redo is expected to be generated during the index rebuild activity.

## 9.2 Generating the Database Statistics

You need to gather the statistics for all tables whose partitions are dropped and indexes are rebuilt. To generate the database statistics for individual table, use the following statement:

```
BEGIN
DBMS_STATS.GATHER_TABLE_STATS(OWNNAME=>'CISADM',
TABNAME=>'<Table_Name>', GRANULARITY=>'ALL', CASCADE=>TRUE,
METHOD_OPT=> 'FOR ALL COLUMNS SIZE AUTO', DEGREE=>32);
END;
```