Oracle Utilities Market Settlements Management

Database Administrator's Guide

Release 2.4.0.0.0

F38814-01

April 2021

ORACLE

Oracle Utilities Market Settlements Management Database Administrator's Guide, Release 2.4.0.0.0

Contents

Chapter 4

Chapter 5

Chapter 6

Appendix A

Preface

Welcome to the Oracle Utilities Market Settlements Management Database Administrator's Guide.

This guide provides instructions for installing and maintaining the database for Oracle Utilities Market Settlements Management.

The preface includes:

Audience

This guide is intended for database administrators who will be installing and maintaining the database for Oracle Utilities Market Settlements Management.

Related Documents

The following documentation is included with this release.

Installation, Configuration, and Release Notes

- *Oracle Utilities Market Settlements Management Release Notes*
- *Oracle Utilities Market Settlements Management Quick Install Guide*
- *Oracle Utilities Market Settlements Management Installation Guide*
- *Oracle Utilities Market Settlements Management Database Administrator's Guide*
- *Oracle Utilities Market Settlements Management Licensing Information User Manual*

User Guides

- *Oracle Utilities Meter Solution Business User Guide*
- *Oracle Utilities Meter Solution Administrative User Guide*

Supplemental Documents

- *Security Guide*
- *Server Administration Guide*

Updates to this Documentation

Visit My Oracle Support for additional and updated information about the product. The documentation updates are posted on the Oracle Technology Network documentation page as they become available.

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.

Convention	Meaning
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Acronyms

The following table lists the terms used in this document and their descriptions:

Term	Description
MDM	Oracle Utilities Meter Data Management
JDK	Java Development Kit
DDL	Data Definition Language
ILM	Information Lifecycle Management

Additional Resources

For more information and support, visit the Oracle Support website.

Chapter 1

Database Overview

This chapter provides an overview of the Oracle Utilities Market Settlements Management database, including:

- Supported Database Platforms
- Prerequisite Software for Database Server
- Database Maintenance Rules

Supported Database Platforms

Oracle Utilities Market Settlements Management is supported on the following platforms:

Platform	Database Version
AIX 7.1 TL5/7.2. TL3+ (POWER 64-bit)	Oracle Database Server 19c (64-bit) Oracle Database Server 19c
Oracle Enterprise Linux 7.x/8.x x86_64 (64-bit) (Based on Red Hat Enterprise Linux (64-bit))*	Oracle Database Server 19c (64-bit) Oracle Database Server 19c
Oracle Solaris 12 (SPARC 64-bit)	Oracle Database Server 19c (64-bit) Oracle Database Server 19c
Windows Server 2012 R2 (x86_64 64-bit)	Oracle Database Server 19c (64-bit) Oracle Database Server 19c

* Oracle Utilities Market Settlements Management is tested and supported on the versions of Oracle Linux specified. Because Oracle Linux is 100% userspace-compatible with Red Hat Enterprise Linux, Oracle Utilities Market Settlements Management also is supported on Red Hat Enterprise Linux for this release.

Note: For Oracle Linux 7.x applicable end of support dates, refer to the Oracle Lifetime Support Policy: Oracle and Sun System Software and Operating Systems document.

Windows Server is **not** supported for Production environments. Wherever Windows Server is referenced within this guide, it is supported for Test or Development environments **only**.

The following Oracle Database Server Edition is supported:

- Oracle Database Enterprise Edition 19c

  Note: Oracle Database Enterprise Edition and Partitioning and Advanced Compression options are strongly recommended in all situations.

Visit My Oracle Support for additional details.

Prerequisite Software for Database Server

The prerequisite software for the database component of Oracle Utilities Market Settlements Management is as follows:

Oracle Database Server 19c: This is required for installing the database component of the Oracle Utilities Market Settlements Management product. The following version of the database server is supported:

- Oracle Database Enterprise Edition

The following database feature is required:

- Oracle Locator

  Oracle Spatial is not required.

Database Maintenance Rules

The database supplied with the product consists of the following elements:

- A set of users to administrate, execute and read the database schema provided.
- A set of database roles to implement security for each of the users provided.
- A tablespace and a schema containing the base database objects used by the product.

The installation instructions are outlined in the installation section of this document.

Permitted Database Changes

During and after installation of the product the following changes may be performed by the database administrator personnel on site:

- Users supplied by product may be changed according to the site standards.
- Database objects may be added to the schema according to database naming standards outlined later in this document.
- Database views and indexes may be created against base database objects. Please make sure to prefix new items with "CM" (for customer modification).
- Database storage attributes for base indexes and base tables may be changed according to site standards and hardware used.
- Tablespace names, attributes and locations may be changed according to site standards.
- Database topology (base table/index to tablespace, tablespace to data file, data file to location) may be altered according to tuning and/or site standards.
- Database triggers may be created against base database objects unless they attempt to contravene base data integrity rules.
- Database initialization and parameter settings may be altered according to site standards unless otherwise advised by Oracle Support or outlined.

Non-Permitted Database Changes

In order to maintain operability and upgradeability of the product, during and after the installation of the product, the following changes may *not* be performed by the database administration personnel on site.

Base objects must not be removed or altered in the following ways:

- Columns in base tables must not be altered, removed or added in anyway.
- Columns in Indexes must not be altered or removed.
- Tables must not be renamed or removed.
- Base views must not be renamed or removed.
- Base Triggers and Sequences must not be renamed or removed.
- Base indexes must not be altered or removed.

Chapter 2

Installing the Database

This chapter provides the steps required to install or upgrade the Oracle Utilities Market Settlements Management database, including:

- Installation Overview
- Initial Install
- Upgrade Install
- Demo Install

Installation Overview

Refer to the Supported Database Platforms section for the hardware and software versions required to install Oracle Utilities Market Settlements Management database components.

The following types of installation is available:

- **Initial Install** - a database with no demo data.
- **Demo Install** - a database populated with demo data.

Note that the Oracle Utilities Meter Data Management database component is a cumulative package comprising of data used by Oracle Utilities Market Settlements Management.

The database installation requires a supported version of the Java Development Kit to be installed on the Windows desktop where the install package is staged and run from. Refer to the Supported Platform section of the *Oracle Utilities Market Settlements Management Installation Guide* for the required version of Java.

For an Initial Install or Demo Install you will create an empty database on the Unix or Windows server and then populate the database with data. For a database Upgrade Install you will upgrade your current Oracle Utilities Market Settlements Management database.

Review the Storage.xml file prior to an Initial Install or Upgrade Install. Information in this file is used by ORADBI while installing and upgrading the Oracle Utilities Market Settlements Management database objects.

For optimum storage allocation, database administrators should create multiple tablespaces with extents sized to store different types of tables/indexes. They can then edit this file before each upgrade and install process, to spread tables and indexes across these tablespaces. Tables and indexes can be created in parallel by editing degree of parallelism.

Tablespace, storage options, securefile options, Advanced Compression, and parallel information are used only for new objects. Therefore, for initial installs, information for each object should be reviewed. For upgrades, only tablespace information for objects added in the current release needs to be reviewed. Be careful while editing the Storage.xml file. Make sure that tablespace names being used exist in the database. Do not change the basic format of this file.

> **Note:** Prior to the installation of the database schema for the product, make sure that the Database Management System software is installed according to your site standards and the installation guide provided by the database vendor.

Initial Install

This section describes how to install the database components of Oracle Utilities Market Settlements Management, including:

- Copying and Decompressing Install Media
- Database Globalization Support Consideration
- Creating the Database
- Installing the CISADM Schema
- Post-installation Tasks

Copying and Decompressing Install Media

To copy and decompress the Oracle Utilities Application Framework and Oracle Utilities Market Settlements Management databases:

1. Download the Oracle Utilities Application Framework V4.4.0.3.0.Multiplatform and Oracle Utilities Meter Data Management V2.4.0.0.0.Multiplatform from the Oracle Software Delivery Cloud.
2. Create a temporary directory, such as C:\OUMSM\temp or /OUMSM/temp (referred to below as <TEMPDIR>. This directory must be located outside any current working Oracle Utilities application environment. All the files that are placed in this directory as a part of the installation can be deleted after a successful installation.
3. Copy the FW_V4.4.0.3.0.zip and MDM_V2.4.0.0.0.zip files from the downloaded package to the <TEMPDIR>/DB directory.
4. Unzip the FW_V4.4.0.3.0.zip and MDM_V2.4.0.0.0.zip files to a temporary folder. These files contains the database components required to install the Oracle Utilities Application Framework and Oracle Utilities Market Settlements Management databases.

Database Globalization Support Consideration

The Oracle Utilities Application Framework is a multilingual capable application that supports the storage, processing and retrieval of data in multiple languages by leveraging the Oracle Database globalization support architecture. Use of the AL32UTF8 Unicode character encoding system allows the database to support multiple languages.

By default the database is created with BYTE length semantics. If the data is being stored using CHARACTER length semantics, set NLS_LENGTH_SEMANTICS to CHAR at session level via a login trigger during installation.

Example:

```
CREATE OR REPLACE TRIGGER RCU_INSTALL_TRIGGER after logon on
database
declare
user_name varchar2(100);
begin
select user into user_name from dual;
if ( user_name LIKE 'CISADM' or user_name LIKE 'STG%' ) THEN
execute immediate 'alter session set nls_length_semantics=CHAR';
```

```
END IF;
END;
```

There are multiple ways to migrate a database from BYTE to CHAR length sematnics:

- By Script: Refer to Doc ID 313175.1 on My Oracle Support.
- Alternative procedure: The following is an alternate way to create a schema with character-length semantics and to import the date from a byte-based export.

Migrating from BYTE based storage to CHARACTER based storage

1. Create database using DBCA.
2. Run following statement to set nls_length_semantics=CHAR.

   ```
   SQL> ALTER SYSTEM SET nls_length_semantics=CHAR SCOPE=BOTH;
   ```

3. Restart the database.
4. Make sure nls_length_semantics is CHAR.

   ```
   SQL> SHOW PARAMETER nls_length_semantics
   ```

   Note: For pluggable database make sure to set nls_length_semantics=CHAR for pluggable database.
5. Export schema from database which has nls_semantics_legth=BYTE.

   ```
   expdp userid=system/<code>@<SID> directory=<DIR_NAME>
   schemas=<schema_name> dumpfile=<schema_name>.dmp
   logfile=<schema_name>.log
   ```

6. Generate DDL from dump file using Oracle impdp utility.

   ```
   impdp userid=system/<code>@<SID> directory=<DIR_NAME>
   DUMPFILE=<schema_name>.dmp SCHEMAS=<schema_name>
   SQLFILE=<schema_name>_DDL.sql
   ```

7. Replace the word 'Byte' with 'Char' in <schema_name>DDL.sql.

   For vi editor in Linux environment use the following command to replace Byte with Char.

   ```
   :%s/BYTE/CHAR/g
   ```

8. Replace the schema name also if it is required for the environment.
9. Run <schema_name>DDL.sql (generated in step 6) to create objects in the schema.
   Run the following command to make sure the number of objects at source and target are equal.

   ```
   SQL>select OWNER || '  ' || OBJECT_TYPE || '  ' ||  COUNT(*)
   || '  ' ||  STATUS FROM DBA_OBJECTS WHERE OWNER in
   ('<SCHEMA_NAMe>') GROUP BY OWNER, OBJECT_TYPE , STATUS ORDER
   BY OBJECT_TYPE;
   ```

10. If any object is missing for any reason, create it, by fixing DDL manually (DDL for each object is available in the file which was created in step 6). Then, execute DDL for the objects which are not created.

11. Generate DDL to disable triggers using following command.

```
SQL> SELECT 'ALTER TABLE' || ' ' ||TABLE_NAME || ' ' ||
'DISABLE ALL TRIGGERS;' FROM USER_TABLES;
```

12 Run the script generated from step 11 to disable all triggers.

13. Import data only. Use the following command to import data only into the schema created to support CHAR based database storage.

```
impdp userid=system/<code>@<SID> dumpfile=<schema_name>.dmp
CONTENT=DATA_ONLY SCHEMAS=<schema_name>
LOGFILE=<schema_name>_import.log
```

14. Enable triggers.

    To generate DDL for triggers:

```
SQL>SELECT 'ALTER TABLE' || ' ' ||TABLE_NAME || ' ' ||
'ENABLE ALL TRIGGERS;' FROM USER_TABLES;
```

15. Run the script generated in step 14 to enable all triggers.

Extended Datatypes: Some of the Oracle Utilities Application Framework application table varchar2 fields require byte size beyond 4000 bytes to store data for new application requirements. To support this requirement, the Oracle Utilities Application Framework database needs to make use of Extended Data Types - Oracle Database 12c feature (EXTENDED - the 32767 byte limit introduced in Oracle Database 12c applies).

Enable the Extended Data Types by setting DB parameter, max_string_size = EXTENDED

Make sure to follow the instructions provided in the Oracle Database documentation for making this change in your database.

Exclude Table/Index

To exclude an index or table during the upgrade process, follow these steps:

1. Edit the file OraSchUpg.inp in the Install-Upgrade directory.
2. Add the tables/indexes in the following format.

```
INDEX: 'INDEX_NAME','INDEX_NAME'
TABLE: 'TABLE1_NAME','TABLE2_NAME'
```

Creating the Database

Note: You must have Oracle Database Server installed on your machine in order to create the database. The database can be created using Database Configuration Assistant (DBCA).

Using DBCA

For creating an Initial Install or production database it is recommended that you use the Database Configuration Assistant (DBCA). Once the database is created the instance configuration can be done according to the environment needs and based on your production recommendations.

The script for creating the product users is located under the relevant database version subdirectory of the DatabaseCreation directory.

1. You must create tablespace CISTS_01 before running the script for creating the product users.
2. Run the …/DB/MDM_V2.4.0.0.0/DatabaseCreation/users.sql after logging into the database as sys user, to create the product users.

Granting Privileges to Database Roles

Make sure to provide the CREATE SYNONYM grants to database role with read-write privileges and read-only privileges.

```
GRANT CREATE SYNONYM TO CIS_USER;
GRANT CREATE SYNONYM TO CIS_READ;
```

Installing the CISADM Schema

You must install the Oracle Utilities Application Framework V4.4.0.3.0 prior to installing Oracle Utilities Market Settlements Management V2.4.0.0.0. The files for Oracle Utilities Application Framework installation are located in the FW_V4.4.0.3.0 folder.

This section includes the following:

- Installing the Oracle Utilities Application Framework Database Component using OraDBI.jar
- Installing the Oracle Utilities Market Settlements Management Database Component
- Configuring Security

Installing the Oracle Utilities Application Framework Database Component using OraDBI.jar

Prepare the following parameters before installation:

- The name of the database server in which the database is configured- DB_SERVER
- The listener port number of the database - PORT
- The target database name in which the product is to be installed - SERVICE_NAME
- A database user that will own the application schema (for example: CISADM) - DBUSER
- Password of the database user that will own the application schema - DBPASS
- A database user that has read-write (select/update/insert/delete) privileges to the objects in the application schema (for example: CISUSER). The application will access the database as this user - RWUSER
- A database user with read-only privileges to the objects in the application schema. (for example: CISREAD) - RUSER
- A database role that has read-write (select/update/insert/delete) privileges to the objects in the application schema. (for example: CIS_USER) - RW_USER_ROLE

- A database role with read-only privileges to the objects in the application schema. (for example: CIS_READ)- R_USER_ROLE
- Location for jar files. (The Jar files are bundled with the database package) - CLASS_PATH
- Java Home (for example: <Java Install location>) - JAVA_HOME
- Database user password with read-write privileges - RWUSER_PASS
- Database user password with read-only privileges - RUSER_PASS

You can execute OraDBI.jar using either of the following methods:

- Using the Interactive Mode
- Using the Command Line Mode

Using the Interactive Mode

The following procedure lists the steps to install the schema for Oracle Utilities Application Framework V4.4.0.3.0 using OraDBI.

Run the following command with the defined parameters on the command prompt from the ../DB/FW_V4.4.0.3.0/Install-Upgrade directory.

1. Open a command line prompt.
2. Set Java Home.

   ```
   export JAVA_HOME=<Java Install location>/jdk1.8.0
   ```

3. Set the class path.

   ```
   export CLASSPATH=<TEMPDIR>/DB/FW_V4.4.0.3.0/jarfiles/*
   ```

4. Run the following command:

   ```
   $JAVA_HOME/bin/java -Xmx1500M -cp $CLASSPATH
   com.oracle.ouaf.oem.install.OraDBI -p <RWUSER_PASS>,<RUSER_PASS>
   ```

   The utility prompts you to enter values for the following parameters as per your environment:

   - Name of the database server: <DB SERVER>
   - Port no: <PORT>
   - Name of the target database: <SERVICE_NAME>
   - Name of the owner of the database schema: <DBUSER>
   - Password of the user name: <DBPASS>
   - Location of Java Home: (example: <Java Install location>): <Java Home>
   - Oracle user with read-write privileges to the Database Schema: <CISUSER>
   - Oracle user with read-only privileges to the Database Schema: <CISREAD>
   - Oracle database role with read-write privileges to the Database Schema: <CIS_USER>
   - Oracle database role with read-only privileges to the Database Schema: <CIS_READ>

- Enter the name of the target schema where you want to install or upgrade: <CISADM>
- Enter the password for the target schema: <CISADM password>

This process generates log files in the directory Install-Upgrade\logs. Make sure to check log files for any errors.

> **Note**: For OraDBI jar, you may receive the following message in the display output or logs. These errors can be safely ignored and the process should proceed to completion.

```
-  2016-05-23 16:31:38,315 [main] ERROR
(common.cryptography.KeyStoreWrapperFactory) The keystore file
'<filename>' does not exist.…
This file is either provided by the property
com.oracle.ouaf.system.keystore.file or expected to exist at the
default file location null Attempting to use the legacy
cryptography.
 -  2016-05-23 16:31:38,566 [main] INFO  (oem.install.OraDBI)
```

Using the Command Line Mode

Run the following command with the defined parameters on the command prompt from ../DB/FW_V4.4.0.3.0/Install-Upgrade directory.

```
java com.oracle.ouaf.oem.install.OraDBI -d
jdbc:oracle:thin:@<DB_Server>:1521/
<SERVICE_NAME>,<DBUSER>,<DBPASS>,<RWUSER>,<RUSER>,<RW_USER_ROLE>,<
R_USER_ROLE>,<DBUSER> -l 1,2 - q true -p <RWUSER_PASS>,<RUSER_PASS>
```

This process generates log files in the directory Install-Upgrade\logs. Make sure to check log files for any errors.

> **Note**: For OraDBI jar, you may receive the following message in the display output or logs. These errors can be safely ignored and the process should proceed to completion.

```
-  2016-05-23 16:31:38,315 [main] ERROR
(common.cryptography.KeyStoreWrapperFactory) The keystore file
'<filename>' does not exist.…
This file is either provided by the property
com.oracle.ouaf.system.keystore.file or expected to exist at the
default file location null Attempting to use the legacy
cryptography.
 -  2016-05-23 16:31:38,566 [main] INFO  (oem.install.OraDBI)
```

Installing the Oracle Utilities Market Settlements Management Database Component

Note that the Oracle Utilities Meter Data Management database component is a cumulative package comprising of data used by Oracle Utilities Market Settlements Management.

To install the Oracle Utilities Market Settlements Management database component, prepare the following parameters:

- The name of the database server in which the database is configured - DB_SERVER
- The listener port number of the database - PORT

- The target database name in which the product is to be installed - SERVICE_NAME
- A database user that will own the application schema (for example, CISADM) - DBUSER
- Password of the database user that will own the application schema - DBPASS
- A database user that has read-write (select/update/insert/delete) privileges to the objects in the application schema (for example: CISUSER). The application will access the database as this user - RWUSER
- A database user with read-only privileges to the objects in the application schema. (for example: CISREAD) - RUSER
- A database role that has read-write (select/update/insert/delete) privileges to the objects in the application schema. (for example: CIS_USER) - RW_USER_ROLE
- A database role with read-only privileges to the objects in the application schema. (for example: CIS_READ)- R_USER_ROLE
- Location for jar files. (The Jar files are bundled with the database package) - CLASSPATH
- Java Home (for example: <Java Install location>) - JAVA_HOME
- Database user password with read-write privileges - RWUSER_PASS
- Database user password with read-only privileges - RUSER_PASS

You can run OraDBI.jar using either of the following methods:

- Using the Interactive Mode
- Using the Command Line Mode

Using the Interactive Mode

The following procedure lists the steps to install the schema for Oracle Utilities Market Settlements Management using OraDBI.

Run the following command with the defined parameters on the command prompt from the ../DB/MDM_V2.4.0.0.0/Install-Upgrade/ directory.

1. Open a command line prompt.
2. Set Java Home.

   ```
   export JAVA_HOME=<Java Install location>/jdk1.8.0
   ```

3. Set the class path.

   ```
   export CLASSPATH=<TEMPDIR>/DB/FW_V4.4.0.3.0/jarfiles/*
   ```

4. Run the following command:

   ```
   $JAVA_HOME/bin/java -Xmx1500M -cp $CLASSPATH
   com.oracle.ouaf.oem.install.OraDBI -p <RWUSER_PASS>,<RUSER_PASS>
   ```

   The utility prompts you to enter values for the following parameters as per your environment:

   - Name of the database server: <DB SERVER>
   - Port no: <PORT>

- Name of the target database: <SERVICE_NAME>
- Name of the owner of the database schema: <DBUSER>
- Password of the user name: <DBPASS>
- Location of Java Home: (example: <Java Install location>): <Java Home>
- Oracle user with read-write privileges to the Database Schema: <CISUSER>
- Oracle user with read-only privileges to the Database Schema: <CISREAD>
- Oracle database role with read-write privileges to the Database Schema: <CIS_USER>
- Oracle database role with read-only privileges to the Database Schema: <CIS_READ>
- Enter the name of the target schema where you want to install or upgrade: <CISADM>
- Enter the password for the target schema: <CISADM password>

This process generates log files in the directory Install-Upgrade/logs. Make sure to check log files for any errors.

> **Note**: For OraDBI jar, you may receive the following message in the display output or logs. These errors can be safely ignored and the process should proceed to completion.

```
-  2016-05-23 16:31:38,315 [main] ERROR
(common.cryptography.KeyStoreWrapperFactory) The keystore file
'<filename>' does not exist.…
This file is either provided by the property
com.oracle.ouaf.system.keystore.file or expected to exist at the
default file location null Attempting to use the legacy
cryptography.
 -  2016-05-23 16:31:38,566 [main] INFO  (oem.install.OraDBI)
```

Using the Command Line Mode

Run the following command with the defined parameters on the command prompt from ../DB/MDM_V2.4.0.0.0/Install-Upgrade/ directory.

```
java com.oracle.ouaf.oem.install.OraDBI -d
jdbc:oracle:thin:@<DB_Server>:1521/
<SERVICE_NAME>,<DBUSER>,<DBPASS>,<RWUSER>,<RUSER>,<RW_USER_ROLE>,<
R_USER_ROLE>,<DBUSER> -l 1,2 - q true -p <RWUSER_PASS>,<RUSER_PASS>
```

This process generates log files in the directory Install-Upgrade/logs. Make sure to check log files for any errors.

> **Note**: For OraDBI jar, you may receive the following message in the display output or logs. These errors can be safely ignored and the process should proceed to completion.

```
-  2016-05-23 16:31:38,315 [main] ERROR
(common.cryptography.KeyStoreWrapperFactory) The keystore file
'<filename>' does not exist.…
This file is either provided by the property
com.oracle.ouaf.system.keystore.file or expected to exist at the
default file location null Attempting to use the legacy
cryptography.
 -  2016-05-23 16:31:38,566 [main] INFO  (oem.install.OraDBI)
```

If you chose to continue, OraDBI first checks for the existence of each of the users specified and prompts for their password, default tablespace, and temporary tablespace.

Optional: This optional step should be executed if you have installed Oracle Utilities Meter Data Analytics 2.5.0.0.2 (2.5 Patch Set 2), or if you plan to install it in the future.

Navigate to ../DB/MDM_V2.4.0.0.0/Post-Upgrade/ folder and run Materialized_View_Creation.sql from sql prompt as follows:

a. Connect to Database Owner Schema. (for example: <CISADM>/<CISADM>@<SERVICE_NAME>)

b. Run Materialized_View_Creation.sql as @Materialized_View_Creation.sql from sql prompt.

After the required changes are complete, configure security by following the steps in the Configuring Security section.

Configuring Security

To configure security:

1. Set PATH.

```
export JAVA_HOME=<Java Install location>/jdk1.8.0
export PATH=$JAVA_HOME/bin:$PATH
```

2. Set CLASSPATH.

```
export CLASSPATH=<TEMPDIR>/DB/FW_V4.4.0.3.0/jarfiles/*
```

3. Run the following command with the defined parameters on the command prompt.

```
java com.oracle.ouaf.oem.install.OraGenSec -d
<DBUSER>,<DBPASS>,jdbc:oracle:thin:@<DB_Server>:1521/
<SERVICE_NAME> -a A -r <RW_USER_ROLE>,<R_USER_ROLE> -u
<RWUSER>,<RUSER> -p <RWUSER_PASS>,<RUSER_PASS>
```

OraDBI Performs the Following Tasks

- Interacts with the user to collect information about the name of Oracle account that will own the application schema (for example: CISADM), password of this account, and the name of the Oracle account that the application user will use (for example: CISUSER), and the name of the Oracle account that will be assigned read-only privileges to the application schema (for example: CISREAD).
- Connects to the database as CISADM account, checks whether the user already has the application schema installed to verify whether this is an initial installation.
- Verifies whether tablespace names already exist in the Storage.xml file (if not, the process will abort).
- Installs the schema, installs the system data, and configures security.
- Maintains upgrade log tables in the database.
- Updates release ID when the upgrade is completed successfully.
- If an error occurs while executing a SQL script or another utility, it logs and displays the error message and allows you to re-execute the current step. Log files OraDBI###.log are created in the same folder as OraDBI and contains all

the SQL commands executed against the database along with the results. The log files are incremental so that the results are never overwritten. If warning messages are generated during the upgrade, OraDBI prompts the user at the end of the process. Users should check the log files to verify the warning messages.

- Warning messages are only alerts and do not necessarily mean a problem exists.
- Stores the Schema owner and password in the feature configuration table. The password is stored in encrypted format.

Post-installation Tasks

The post-installation tasks include:

Populating Language Data

Please note that this database contains data in the ENGLISH language only. If you use any other supported language, you can run the F1-LANG batch program to duplicate the entries for new language records.

For more information on running this batch program, refer to the **Background Processes** section in the *Oracle Utilities Meter Solution Administrative User Guide* included in this release.

Generating Database Statistics

During an install process, new database objects may be added to the target database. Before starting to use the database, generate the complete statistics for these new objects using the DBMS_STATS package.

Enabling USER_LOCK Package

For in-bound web services to work the USER_LOCK must be enabled at the database level. This is a one-time step. If this is not already enabled, do so as follows:

1. Login as SYS user.
2. On SQL prompt run:

   ```
   @?/rdbms/admin/userlock.sql
   ```

3. Grant permission by running following SQL:

   ```
   grant execute on USER_LOCK to public;
   ```

Note that grant can also be made to the database user which the Application connects to only instead of to public. For example: cisuser

Creating Activity Statistics Materialized View

To improve the performance of drill down queries, create the materialized view, and then refresh it.

Navigate to ../DB/MDM_V2.4.0.0.0/Post-Upgrade/ and run the scripts below.

1. Login as CISADM user.
2. On SQL prompt run the following:

```
@Materialized_View_Creation.sql
```

Configuring Security

To configure security:

1. Set PATH.

```
export JAVA_HOME=<Java Install location>/jdk1.8.0
export PATH=$JAVA_HOME/bin:$PATH
```

2. Set CLASSPATH.

```
export CLASSPATH=<TEMPDIR>/DB/FW_V4.4.0.3.0/jarfiles/*
```

3. Run the following command with the defined parameters on the command prompt.

```
java com.oracle.ouaf.oem.install.OraGenSec -d
<DBUSER>,<DBPASS>,jdbc:oracle:thin:@<DB_Server>:1521/
<SERVICE_NAME> -a A -r <RW_USER_ROLE>,<R_USER_ROLE> -u
<RWUSER>,<RUSER> -p <RWUSER_PASS>,<RUSER_PASS>
```

Creating Index D1T304S3 for Payload Statistic Functionality (Optional)

For an initial installation, this index does not exist. If you are using the payload statistic functionality, create the index.

Connect to CISADM schema and execute the following:

```
CREATE UNIQUE INDEX D1T304S3 ON D1_INIT_MSRMT_DATA
(IMD_EXT_ID,INIT_MSRMT_DATA_ID);
```

Populating the CI_INSTALL_PROD Table

After completing the Oracle Utilities Market Settlements Management database installation, navigate to ..\MDM.V2.4.0.0.0\Post-Upgrade, connect to the CISADM schema and run the following script:

```
@MSM_D1_Update.sql
```

Applying Patch 29049452

After completing the Oracle Utilities Market Settlements Management database installation, download the Patch 29049452 from My Oracle Support and apply it to the

application. For more information, refer to the ReadMe included the patch installation package.

Upgrade Install

This section describes how to upgrade the database components of Oracle Utilities Market Settlements Management, including:

- Supported Upgrade Path
- Copying and Decompressing Install Media
- Installing the CISADM Schema
- Post-installation Tasks

Supported Upgrade Path

Direct upgrade to Oracle Utilities Market Settlements Management V2.4.0.0.0 is supported from Oracle Utilities Market Settlements Management V2.3.0.2.0.

The section assumes an existing Oracle Utilities Market Settlements Management V2.3.0.2.0 installation on top of an Oracle Utilities Application Framework V4.4.0.2.0 installation.

Copying and Decompressing Install Media

Note that the Oracle Utilities Meter Data Management database component is a cumulative package comprising of data used by Oracle Utilities Market Settlements Management.

To copy and decompress the Oracle Utilities Application Framework and Oracle Utilities Meter Data Management database:

1. Download the Oracle Utilities Application Framework V4.4.0.3.0 Multiplatform and Oracle Utilities Meter Data Management V2.4.0.0.0 Multiplatform from the Oracle Software Delivery Cloud.
2. Create a temporary directory, such as C:\OUMDM\temp or /OUMDM/temp (referred to below as <TEMPDIR>. This directory must be located outside any current working Oracle Utilities application environment. All the files that are placed in this directory as a part of the installation can be deleted after a successful installation.
3. Copy the FW_V4.4.0.3.0.zip and MDM_V2.4.0.0.0.zip files from the downloaded package to <TEMPDIR>/DB directory.
4. Unzip the FW_V4.4.0.3.0.zip and MDM_V2.4.0.0.0.zip files to a temporary folder. These files contains the database components required to install Oracle Utilities Application Framework and Oracle Utilities Meter Data Management databases.

Installing the CISADM Schema

Important: Make sure to take a backup of your database before carrying out the upgrade process.

You must install Oracle Utilities Application Framework V4.4.0.3.0 prior to Oracle Utilities Market Settlements Management. The files for Oracle Utilities Application Framework installation are located in the FW_V4.4.0.3.0 folder. Install Oracle Utilities Application Framework V4.4.0.3.0.

This section includes the following:

Installing the Oracle Utilities Application Framework Database Component using OraDBI.jar

Prepare the following parameters before installation:

- The name of the database server in which the database is configured - DB_SERVER
- The listener port number of the database - PORT
- The target database name in which the product is to be installed - SERVICE_NAME
- A database user that will own the application schema (for example: CISADM) - DBUSER
- Password of the database user that will own the application schema - DBPASS
- A database user that has read-write (select/update/insert/delete) privileges to the objects in the application schema (for example, CISUSER). The application will access the database as this user - RWUSER
- A database user with read-only privileges to the objects in the application schema. (for example: CISREAD) - RUSER
- A database role that has read-write (select/update/insert/delete) privileges to the objects in the application schema. (for example: CIS_USER) - RW_USER_ROLE
- A database role with read-only privileges to the objects in the application schema. (for example: CIS_READ) - R_USER_ROLE
- Location for jar files. (The Jar files are bundled with the database package) - CLASSPATH
- Java Home (for example: <Java Install location>) - JAVA_HOME
- Database user password with read-write privileges - RWUSER_PASS
- Database user password with read-only privileges - RUSER_PASS

You can execute OraDBI.jar using either of the following methods:

- Using the Interactive Mode
- Using the Command Line Mode

Granting Privileges to Database Roles

Make sure to provide the CREATE SYNONYM grants to database role with read-write privileges and read-only privileges.

```
GRANT CREATE SYNONYM TO CIS_USER;
GRANT CREATE SYNONYM TO CIS_READ;
```

Using the Interactive Mode

The following procedure lists the steps to install the schema for Oracle Utilities Application Framework V4.4.0.3.0 using OraDBI.

Run the following command with the defined parameters on the command prompt from the ..\DB/FW_V4.4.0.3.0/Install-Upgrade/ directory.

1. Open a command line prompt.
2. Set Java Home.

   ```
   export JAVA_HOME=<Java Install location>/jdk1.8.0
   ```

3. Set the class path.

   ```
   export CLASSPATH=<TEMPDIR>/DB/FW_V4.4.0.3.0/jarfiles/*
   ```

4. Run the following command:

   ```
   $JAVA_HOME/bin/java -Xmx1500M -cp $CLASSPATH
   com.oracle.ouaf.oem.install.OraDBI -p <RWUSER_PASS>,<RUSER_PASS>
   ```

   The utility prompts you to enter values for the following parameters as per your environment:

   - Name of the database server: <DB SERVER>
   - Port no: <PORT>
   - Name of the target database: <SERVICE_NAME>
   - Name of the owner of the database schema: <DBUSER>
   - Password of the user name: <DBPASS>
   - Location of Java Home: (for example: <Java Install location>): <Java Home>
   - Oracle user with read-write privileges to the database schema: <CISUSER>
   - Oracle user with read-only privileges to the database schema: <CISREAD>
   - Oracle database role with read-write privileges to the database schema: <CIS_USER>
   - Oracle database role with read-only privileges to the database schema: <CIS_READ>
   - Enter the name of the target schema where you want to install or upgrade: <CISADM>
   - Enter the password for the target schema: <CISADM password>

This process generates log files in the directory Install-Upgrade/logs. Make sure to check log files for any errors.

> **Note**: For OraDBI jar, you may receive the following message in the display output or logs. These errors can be safely ignored and the process should proceed to completion.

```
-  2016-05-23 16:31:38,315 [main] ERROR
(common.cryptography.KeyStoreWrapperFactory) The keystore file
'<filename>' does not exist.…
This file is either provided by the property
com.oracle.ouaf.system.keystore.file or expected to exist at the
default file location null Attempting to use the legacy
cryptography.
 -  2016-05-23 16:31:38,566 [main] INFO  (oem.install.OraDBI)
```

Using the Command Line Mode

Run the following command with the defined parameters on the command prompt from ../DB/FW_V4.4.0.3.0/Install-Upgrade directory.

```
java com.oracle.ouaf.oem.install.OraDBI -d
jdbc:oracle:thin:@<DB_Server>:1521/
<SERVICE_NAME>,<DBUSER>,<DBPASS>,<RWUSER>,<RUSER>,<RW_USER_ROLE>,<
R_USER_ROLE>,<DBUSER> -l 1,2 - q true -p <RWUSER_PASS>,<RUSER_PASS>
```

This process generates log files in the directory Install-Upgrade/logs. Make sure to check log files for any errors.

> **Note**: For OraDBI jar, you may receive the following message in the display output or logs. These errors can be safely ignored and the process should proceed to completion.

```
-  2016-05-23 16:31:38,315 [main] ERROR
(common.cryptography.KeyStoreWrapperFactory) The keystore file
'<filename>' does not exist.…
This file is either provided by the property
com.oracle.ouaf.system.keystore.file or expected to exist at the
default file location null Attempting to use the legacy
cryptography.
 -  2016-05-23 16:31:38,566 [main] INFO  (oem.install.OraDBI)
```

Drop Column from Database

Connect to CISADM schema through SQL and the drop the following column.

```
ALTER TABLE CI_XAI_RCVR_CTX DROP COLUMN CTXT_VAL;
```

If you are running Oracle GoldenGate, you may need to drop the log group. Use following script to drop the column.

```
select LOG_GROUP_NAME from user_log_groups where
table_name='CI_XAI_RCVR_CTX'
/

ALTER TABLE CI_XAI_RCVR_CTX DROP supplemental log group
GGS_CI_XAI_RCVR_CTX_111254
/
```

Installing the Oracle Utilities Market Settlements Management Database

Note that the Oracle Utilities Meter Data Management database component is a cumulative package comprising the data used by Oracle Utilities Market Settlements Management.

Prepare the following parameters before installation:

- The name of the database server in which the database is configured - DB_SERVER
- The listener port number of the database - PORT
- The target database name in which the product is to be installed - SERVICE_NAME
- A database user that will own the application schema (for example: CISADM) - DBUSER
- Password of the database user that will own the application schema - DBPASS
- A database user that has read-write (select/update/insert/delete) privileges to the objects in the application schema (for example: CISUSER). The application will access the database as this user - RWUSER
- A database user with read-only privileges to the objects in the application schema. (for example: CISREAD) - RUSER
- A database role that has read-write (select/update/insert/delete) privileges to the objects in the application schema. (for example: CIS_USER) - RW_USER_ROLE
- A database role with read-only privileges to the objects in the application schema. (for example: CIS_READ) - R_USER_ROLE
- Location for jar files. (The Jar files are bundled with the database package) - CLASSPATH
- Java Home (for example: <Java Install location>) - JAVA_HOME
- Database user password with read-write privileges - RWUSER_PASS
- Database user password with read-only privileges - RUSER_PASS

You can execute OraDBI.jar using either of the following methods:

- Using the Interactive Mode
- Using the Command Line Mode

Using the Interactive Mode

The following procedure lists the steps to install the schema for Oracle Utilities Market Settlements Management using OraDBI.

Run the following command with the defined parameters on the command prompt from the ../DB/MDM_V2.4.0.0.0/Install-Upgrade/ directory.

1. Open a command line prompt.
2. Set Java Home.

```
export JAVA_HOME=<Java Install location>/jdk1.8.0
```

3. Set the class path.

```
export CLASSPATH=<TEMPDIR>/DB/FW_V4.4.0.3.0/jarfiles/*
```

4. Run the following command:

```
$JAVA_HOME/bin/java -Xmx1500M -cp $CLASSPATH
com.oracle.ouaf.oem.install.OraDBI -p <RWUSER_PASS>,<RUSER_PASS>
```

The utility prompts you to enter values for the following parameters as per your environment:

- Name of the database server: <DB SERVER>
- Port no: <PORT>
- Name of the target database: <SERVICE_NAME>
- Name of the owner of the database schema: <DBUSER>
- Password of the user name: <DBPASS>
- Location of Java Home: (for example: <Java Install location>): <Java Home>
- Oracle user with read-write privileges to the Database Schema: <CISUSER>
- Oracle user with read-only privileges to the Database Schema: <CISREAD>
- Oracle database role with read-write privileges to the Database Schema: <CIS_USER>
- Oracle database role with read-only privileges to the Database Schema: <CIS_READ>
- Enter the name of the target schema where you want to install or upgrade: <CISADM>
- Enter the password for the target schema: <CISADM password>

This process generates log files in the directory Install-Upgrade/logs. Make sure to check log files for any errors.

> **Note**: For OraDBI jar, you may receive the following message in the display output or logs. These errors can be safely ignored and the process should proceed to completion.

```
-  2016-05-23 16:31:38,315 [main] ERROR
(common.cryptography.KeyStoreWrapperFactory) The keystore file
'<filename>' does not exist.…
This file is either provided by the property
com.oracle.ouaf.system.keystore.file or expected to exist at the
default file location null Attempting to use the legacy
cryptography.
 -  2016-05-23 16:31:38,566 [main] INFO  (oem.install.OraDBI)
```

Using the Command Line Mode

Run the following command with the defined parameters on the command prompt from ../DB/MDM_V2.4.0.0.0/Install-Upgrade/ directory.

```
java com.oracle.ouaf.oem.install.OraDBI -d
jdbc:oracle:thin:@<DB_Server>:1521/
<SERVICE_NAME>,<DBUSER>,<DBPASS>,<RWUSER>,<RUSER>,<RW_USER_ROLE>,<
R_USER_ROLE>,<DBUSER> -l 1,2 - q true -p <RWUSER_PASS>,<RUSER_PASS>
```

This process generates log files in the directory Install-Upgrade/logs. Make sure to check log files for any errors.

> **Note**: For OraDBI jar, you may receive the following message in the display output or logs. These errors can be safely ignored and the process should proceed to completion.

```
-  2016-05-23 16:31:38,315 [main] ERROR
(common.cryptography.KeyStoreWrapperFactory) The keystore file
'<filename>' does not exist.…
This file is either provided by the property
com.oracle.ouaf.system.keystore.file or expected to exist at the
default file location null Attempting to use the legacy
cryptography.
 -  2016-05-23 16:31:38,566 [main] INFO  (oem.install.OraDBI)
```

If you chose to continue, OraDBI first checks for the existence of each of the users specified and prompts for their password, default tablespace, and temporary tablespace.

Optional: This optional step should be executed if you have installed Oracle Utilities Meter Data Analytics 2.5.0.0.2 (2.5 Patch Set 2), or if you plan to install it in the future.

- Navigate to ../DB/MDM_V2.4.0.0.0/Post-Upgrade folder and run Materialized_View_Creation.sql from sql prompt as follows.
- Connect to Database Owner Schema.

  For example: <CISADM>/<CISADM>@<SERVICE_NAME>
- Run Materialized_View_Creation.sql as @Materialized_View_Creation.sql from sql prompt.

After the required changes are complete, configure security by following the steps in the Configuring Security section.

Configuring Security

To configure security:

1. Set PATH.

```
export JAVA_HOME=<Java Install location>/jdk1.8.0
export PATH=$JAVA_HOME/bin:$PATH
```

2. Set CLASSPATH.

```
export CLASSPATH=<TEMPDIR>/DB/FW_V4.4.0.3.0/jarfiles/*
```

3. Run the following command with the defined parameters on the command prompt.

```
java com.oracle.ouaf.oem.install.OraGenSec -d
<DBUSER>,<DBPASS>,jdbc:oracle:thin:@<DB_Server>:1521/
<SERVICE_NAME> -a A -r <RW_USER_ROLE>,<R_USER_ROLE> -u
<RWUSER>,<RUSER> -p <RWUSER_PASS>,<RUSER_PASS>
```

OraDBI Performs the Following Tasks

- Interacts with the user to collect information about the name of Oracle account that will own the application schema (for example, CISADM), password of this account, and the name of the Oracle account that the application user will use (for example: CISUSER), and the name of the Oracle account that will be

assigned read-only privileges to the application schema (for example, CISREAD).

- Connects to the database as CISADM account, checks whether the user already has the application schema installed to verify whether this is an initial installation.
- Verifies whether tablespace names already exist in the Storage.xml file (if not, the process will abort).
- Installs the schema, installs the system data, and configures security.
- Maintains upgrade log tables in the database.
- Updates release ID when the upgrade is completed successfully.
- If an error occurs while executing a SQL script or another utility, it logs and displays the error message and allows you to re-execute the current step. Log files OraDBI###.log are created in the same folder as OraDBI and contains all the SQL commands executed against the database along with the results. The log files are incremental so that the results are never overwritten. If warning messages are generated during the upgrade, OraDBI prompts the user at the end of the process. Users should check the log files to verify the warning messages.
- Warning messages are only alerts and do not necessarily mean a problem exists.
- Stores the Schema owner and password in the feature configuration table. The password is stored in encrypted format.

Post-installation Tasks

The post-installation tasks include:

- Populating Language Data
- Generating Database Statistics
- Environment Registration
- Enabling USER_LOCK Package
- Creating Activity Statistics Materialized View
- Dropping Index D1T304S3 for Payload Statistic Functionality (Optional)
- Populating the CI_INSTALL_PROD Table
- Applying Patch 29049452

Populating Language Data

For more information on running this batch program, refer to the **Background Processes** section in the *Oracle Utilities Meter Solution Administrative User Guide* included in this release. You can also install the language specific demo data packages (if available) into the database. Contact your Oracle representative to receive information on these packages.

Generating Database Statistics

During an install process, new database objects may be added to the target database. Before starting to use the database, generate the complete statistics for these new objects using the DBMS_STATS package.

Environment Registration

> **Note:** If the target database is registered as a configuration laboratory or archiving database in another database, or another database has been registered as a configuration laboratory or archiving database in this database, it is required that you upgrade the registration at this stage.

The detailed instructions for environment registration can be found in the Oracle Utilities Market Settlements Management user documentation. Please refer to this documentation before executing the environment registration utility EnvSetup.exe included in the post-install folder.

Enabling USER_LOCK Package

For In-bound web services to work the USER_LOCK must be enabled at the database level. This is a one time step. If this is not already enabled, follow these steps to enable it.

1. Login as SYS user.
2. On SQL prompt run:

   ```
   @?/rdbms/admin/userlock.sql
   ```

3. Grant permission by running following SQL:

   ```
   grant execute on USER_LOCK to public;
   ```

Please note that grant can also be made to the database user which the Application connects to only instead of to public. For example, cisuser.

Creating Activity Statistics Materialized View

To improve the performance of drill down queries, use the following procedure to create the materialized view and then refresh the materialized view.

Navigate to .. /DB/MDM_V2.4.0.0.0/Post-Upgrade and run the scripts below.

1. Login as CISADM user.
2. At the SQL prompt, run the following:

   ```
   @Materialized_View_Creation.sql
   ```

Dropping Index D1T304S3 for Payload Statistic Functionality (Optional)

For an upgrade installation, this index already exists. If you are not using the Payload statistic functionality, or if you have no other SQL scripts referencing these fields, you may drop the index using the following SQL statement.

Connect to CISADM schema and execute the following:

```
DROP INDEX D1T304S3;
```

Populating the CI_INSTALL_PROD Table

After completing the Oracle Utilities Market Settlements Management database installation, navigate to ..\MDM.V2.4.0.0.0\Post-Upgrade, connect to the CISADM schema and run the following script:

```
@MSM_D1_Update.sql
```

Applying Patch 29049452

After completing the Oracle Utilities Market Settlements Management database installation, download the Patch 29049452 from My Oracle Support and apply it to the application. For more information, refer to the ReadMe included the patch installation package.

Demo Install

This section describes how to install the demo database components for Oracle Utilities Market Settlements Management, including:

- Copying and Decompressing Install Media
- Creating the Database and Importing the Dump File
- Post-installation Tasks

Copying and Decompressing Install Media

To copy and decompress the Oracle Utilities Market Settlements Management database:

1. Download Oracle Utilities Meter Data Management V2.4.0.0.0 Demo from Oracle Software Delivery Cloud.
2. Unzip the downloaded file. It is extracted to the Demo directory.

Creating the Database and Importing the Dump File

This section describes steps to create the database and import the demo data dump file, including:

- Creating the Demo Database on Unix or Windows
- Importing the Demo Dump File

Creating the Demo Database on Unix or Windows

To create the demo database:

1. Create the database using the Database Configuration Assistant (DBCA). Refer to Creating the Database for steps to create the database.
2. Make sure to set character set for database as AL32UTF8.
3. Create a directory in the database with the name 'data_pump_dir'.
4. Copy the demo dump file from ../Demo/ folder to the physical location on the disk that is mapped to data_pump_dir.
5. Unzip the demo dump file.

Importing the Demo Dump File

After a successful database creation, demo data can also be imported by following these steps:

1. Set the correct ORACLE_SID and ORACLE_HOME.
2. Import the demo dump.

```
impdp directory= data_pump_dir dumpfile= exp_demo.dmp
logfile=exp_demo.log schemas=CISADM
```

Post-installation Tasks

This section describes the following post installation tasks:

- Configuring Security
- Populating Language Data
- Applying Patch 29049452

Configuring Security

To configure security:

1. Set PATH.

```
export JAVA_HOME=<Java Install location>/jdk1.8.0
export PATH=$JAVA_HOME/bin:$PATH
```

2. Set CLASSPATH.

```
export CLASSPATH=<TEMPDIR>/DB/FW_V4.4.0.3.0/jarfiles/*
```

3. Run the following command with the defined parameters on the command prompt.

```
java com.oracle.ouaf.oem.install.OraGenSec -d
<DBUSER>,<DBPASS>,jdbc:oracle:thin:@<DB_Server>:1521/
<SERVICE_NAME> -a A -r <RW_USER_ROLE>,<R_USER_ROLE> -u
<RWUSER>,<RUSER> -p <RWUSER_PASS>,<RUSER_PASS>
```

Populating Language Data

Please note that this database contains data in the ENGLISH language only. If you use any other supported language, you can run the F1-LANG batch program to duplicate the entries for new language records.

For more information on running this batch program, refer to the **Defining Background Processes** section in Oracle Utilities Market Settlements Management user documentation. You can also install the language specific demo data packages (if available) into the database. Please contact your Oracle representative to receive information on these packages.

Applying Patch 29049452

After completing the Oracle Utilities Market Settlements Management database installation, download the Patch 29049452 from My Oracle Support and apply it to the application. For more information, refer to the ReadMe included the patch installation package.

Chapter 3

Database Design

This chapter provides a standard for database objects such as tables, columns, and indexes, for products using the Oracle Utilities Application Framework. This standard helps smooth integration and upgrade processes by ensuring clean database design, promoting communications, and reducing errors. Just as Oracle Utilities Application Framework goes through innovation in every release of the software, it is also inevitable that the product will take advantage of various database vendors' new features in each release. The recommendations in the database installation section include only the ones that have been proved by vigorous QA processes, field tests and benchmarks.

The chapter includes:

Database Object Standards

This section discusses the rules applied to naming database objects and the attributes that are associated with these objects.

Categories of Data

A table can belong to one of the three categories:

- Control (admin)
- Master
- Transaction

For purposes of physical table space design, metadata and control tables can belong to the same category.

Example of tables in each category:

- **Control:** SC_USER, CI_ADJ_TYPE, F1_BUS_OBJ
- **Master:** CI_PER, CI_PREM,
- **Transaction:** F1_FACT, CI_FT

All tables have the category information in their index name. The second letter of the index carries this information. Refer to the Indexes section for more information.

Naming Standards

The following naming standards must be applied to database objects.

Table

Table names are prefixed with the owner flag value of the product. For customer modification **CM** must prefix the table name. The length of the table names must be less than or equal to 30 characters. A language table should be named by suffixing **_L** to the main table. The key table name should be named by suffixing **_K** to the main table.

It is recommended to start a table name with the 2-3 letter acronym of the subsystem name that the table belongs to. For example, **MD** stands for metadata subsystem and all metadata table names start with **CI_MD**.

Some examples are:

- CI_ADJ_TYPE
- CI_ADJ_TYPE_L

A language table stores language sensitive columns such as a description of a code. The primary key of a language table consists of the primary key of the code table plus language code (LANGUAGE_CD).

A key table accompanies a table with a surrogate key column. A key value is stored with the environment id that the key value resides in the key table.

The tables prior to V2.0.0 are prefixed with CI_ or SC_.

Columns

The length of a column name must be less than or equal to 30 characters. The following conventions apply when you define special types of columns in the database.

- Use the suffix **FLG** to define a lookup table field. Flag columns must be CHAR(4). Choose lookup field names carefully as these column names are defined in the lookup table (CI_LOOKUP_FLD) and must be prefixed by the product owner flag value.
- Use the suffix **CD** to define user-defined codes. User-defined codes are primarily found as the key column of the admin tables.
- Use the suffix **ID** to define system assigned key columns.
- Use the suffix **SW** to define Boolean columns. The valid values of the switches are 'Y' or 'N'. The switch columns must be CHAR(1)
- Use the suffix **DT** to define Date columns.
- Use the suffix **DTTM** to define Date Time columns.
- Use the suffix **TM** to define Time columns.

Some examples are:

- ADJ_STATUS_FLG
- CAN_RSN_CD

Indexes

Index names are composed of the following parts:

[OF][*application specific prefix*][C/M/T]NNN[P/S]n

- **OF**- Owner Flag. Prior to Version 4.1.0 of the framework the leading character of the base Owner Flag was used. From 4.1.0 on the first two characters of product's owner flag value should be used. For client specific implementation of index, use CM for Owner Flag.
- Application specific prefix could be C, F, T or another letter.
- **C/M/T** - The second character can be either C or M or T. C is used for control tables (Admin tables). M is for the master tables. T is reserved for the transaction tables.
- **NNN** - A three-digit number that uniquely identifies the table on which the index is defined.
- **P/S** - P indicates that this index is the primary key index. S is used for indexes other than primary keys.
- **n** is the index number, unique across all indexes on a given table (0 for primary and 1, 2, etc., for the secondary indexes).

Some examples are:

- F1C066P0
- F1C066S1
- CMT206S2

  Warning! Do not use index names in the application as the names can change due to unforeseeable reasons.

Updating Storage.xml

The storage.xml file that comes with the product allocates all base tables and indexes to the default tablespace CISTS_01. If you decide to allocate some tables or indexes outside of the default tablespace, then this has to be reflected in the storage.xml file by changing the tablespace name from the default value to a custom value, according to the format shown below:

Format:

```
<Table_Name>
  <TABLESPACE>CISTS_01</TABLESPACE>
  <PARALLEL>1</PARALLEL>
- <LOB>
- <Column Name>
  <TABLESPACE>CISTS_01</TABLESPACE>
  <SECUREFILE>Y</SECUREFILE>
  <CHUNK>8192</CHUNK>
  <CACHE>N</CACHE>
  <LOGGING>Y</LOGGING>
  <INROW>Y</INROW>
  <COMPRESS>N</COMPRESS>
  </Column Name>
  </LOB>
  </Table_Name>
```

Where Parallel defines the number of threads, that Oracle DB Server will use to access a table or create an index.

For instance, if a DBA decided to allocate table CI_ACCT in a tablespace MyTablespace, then they would have to change the storage.xml as follows:

```
<CI_ACCT>
<TABLESPACE>MyTablespace</TABLESPACE>
</CI_ACCT>
```

The oradbi process uses the storage.xml file to place the new database objects into defined tablespaces. A tablespace referenced in the storage.xml file must exist in the database.

The storage.xml file has to be adjusted before each upgrade and/or new installation as required to allocate the tables and indexes across those tablespaces.

Table name is included as a comment for each of the indexes for clarity.

For initial installs, information for each object should be reviewed by a DBA. For upgrades, only tablespace information for the objects added in the new release needs to be reviewed by a DBA.

Be careful while editing this file. Make sure that the tablespace names being used exist in the database. Do not change the basic format of this file.

Sequence

The base sequence name must be prefixed with the owner flag value of the product. For customer modification **CM** must prefix the sequence name. The sequence numbers should be named as below:

1. If the Sequence is used for a specific Table then use the following sequence name:

   [OF][C/M/T]NNN_SEQ

- OF stands for Owner Flag. For example, Framework its F1. Other examples are D1,D2, etc.
- C/M/T stands for Control (Admin)/Master/Transaction Tables.
- NNN is a three digit unique Identifier for a Table on which the Sequence is defined.

For example: F1T220_SEQ

2. If more than one Sequence is used for a specific Table then use the following Sequence Name:

   [OF][C/M/T]NNN_Column_Name_SEQ

   - OF stands for Owner Flag. For example, the framework is F1. Other examples are D1,D2, etc.
   - C/M/T stands for Control (Admin)/Master/Transaction tables.
   - NNN is a three digit unique identifier for a table on which the sequence is defined.

   For example: F1T220_BO_STATUS_CD_SEQ and F1T220_BUS_OBJ_CD_SEQ

3. If sequence is used for a generic requirement and not specific to a table, then use the following sequence name.

   [OF]Column_Name_SEQ

   - OF stands for Owner Flag. For example, the framework is F1. Other examples are D1,D2, etc.

   For example: F1FKVALID_SEQ

   - For a customer modification, CM must prefix the sequence name.

Trigger

The base trigger name must be prefixed with the owner flag value of the product.

When implementers add database objects, such as tables, triggers and sequences, the name of the objects should be prefixed by CM.

Column Data Type and Constraints

This section discusses the rules applied to column data type and constraints, and the attributes that are associated with these objects.

User Defined Code

User Defined Codes are defined as CHAR type. The length can vary by the business requirements but a minimum of eight characters is recommended. You will find columns defined in less than eight characters but with internationalization in mind new columns should be defined as CHAR(10) or CHAR(12). Also note that when the code is referenced in the application the descriptions are shown to users in most cases.

System Assigned Identifier

System assigned random numbers are defined as CHAR type. The length of the column varies to meet the business requirements. Number type key columns are used when a sequential key assignment is allowed or number type is required to interface with external software. For example, Notification Upload Staging ID is a Number type because most EDI software uses a sequential key assignment mechanism. For sequential key assignment implementation, the DBMS sequence generator is used in conjunction with Number Type ID columns.

Date/Time/Timestamp

Date, Time and Timestamp columns are defined physically as DATE in Oracle. Non-null constraints are implemented only for the required columns.

Number

Numeric columns are implemented as NUMBER type in Oracle. The precision of the number should always be defined. The scale of the number might be defined. Non-null constraints are implemented for all number columns.

Fixed Length/Variable Length Character Columns

When a character column is a part of the primary key of a table define the column in CHAR type. For the non-key character columns, the length should be the defining factor. If the column length should be greater than 10, use VARCHAR2 type in Oracle.

Null Column Support

Oracle Utilities Application Framework 4.1.0 Group Fix 2 and later versions support Nullable columns. This means that the application can write NULLs instead of a blank space or zero (for numeric columns) by using NULLABLE_SW on CI_MD_TBL_FLD. If REQUIRED_SW is set to 'N' and the NULLABLE_SW is set to 'Y', the application will write a NULL in that column. The artifact generator will create hibernate mapping files with appropriate parameters so that the framework hibernate mapping types will know if a given property supports a null value.

NULLABLE_SW is not new, but has previously been used for certain fields such as dates, and some string and number foreign-key columns. Because of this, there is the possibility that there is incorrect metadata for some columns, and that turning on this new feature could result in incorrect behavior when using that metadata. The upgrade script added to FW410 Group Fix 2 fixes the metadata to make sure that the existing tables will not be affected.

This new feature only supports tables maintained by Java. Thus, enhancing any existing tables to use null columns must be done only after making sure that the tables are maintained by Java, and not COBOL.

XML Type Support

Oracle Utilities Application Framework v4.2.0.0 onwards supports XML Type. XML Type provides following advantages

1. The ability to use XQuery for querying nodes in the XML document stored within a column defined as XMLType.
2. The option to use the XML engine, which is built into the Oracle Database, to create indexes using nodes within the XML document stored in the XMLType column.

Cache and Key Validation Flags

By default, the Cache Flag is set to NONE. For most of the admin tables the CACHE Flag should be 'Cached for Batch'. This specifies that the table is cached as L2 cache to reduce database trips.

By default the Key Validation Flag is set to ALL. For tables which have the user defined keys, the KEY_VALIDATION_FLG should be set as 'ALL'. This checks the existence of the key before inserting a new one.

Table Classification and Table Volume Flags

There are multiple types of tables in the application, namely Admin system tables, Admin non-system tables, master tables and transaction tables. The Table Classification flag (TBL_CLASSIFICATION_FLG) sets the appropriate value for this lookup field to give a better view of the table classification.

Table Volume flag (TBL_VOLUME_FLG) is a customer modifiable field which is initially populated by product, but can be overridden by implementation. The field gives an idea of the relative data volume (categorized as highVolume, lowVolume and mediumVolume) of the table to make informed decisions.

Default Value Setting

The rules for setting the database default values are as follows:

- When a predefined default value is not available, set the default value of Non-null CHAR or VARCHAR columns to blank except the primary key columns.
- When a predefined default value is not available, set the default value Non-null Number columns to 0 (zero) except the primary key columns.
- No database default values should be assigned to the Non Null Date, Time, and Timestamp columns.

Foreign Key Constraints

In general, referential integrity is enforced by the application and the FK constraints are not defined in the database. Indexes are created on most of Foreign Key columns to make sure about the desired performance characteristics. However, in the specific case of

ILM implementation, a few tables require Foreign Key constraints due to the referential partitioning. Such tables and corresponding Foreign Key constraints are listed in **Appendix 6: Information Lifecycle Management and Data Archiving in MDM**.

Standard Columns

This section discusses the rules applied to standard columns and the attributes that are associated with these objects.

Owner Flag

Owner Flag (OWNER_FLG) columns exist on the system tables that are shared by multiple products. Oracle Utilities Application Framework limits the data modification of the tables that have owner flag to the data owned by the product.

Version

The Version column is used for optimistic concurrency control in the application code. Add the Version column to all tables that are maintained by a Row Maintenance program.

Chapter 4

Database Implementation Guidelines

This chapter outlines the general implementation guidelines for the database components, including:

- Configuration Guidelines
- Oracle Database Implementation Guidelines

Configuration Guidelines

This section describes the general recommendations for configuring various database objects and includes a brief syntax overview. It covers the general aspects of the database objects and does not cover any specific implementation requirements.

Index

Index recommendations specify points that need to be considered when creating indexes on a table.

1. Indexes on a table should be created according to the functional requirements of the table and not in order to perform SQL tuning.
2. The foreign keys on a table should be indexes.

   Note: If the implementation creates a CM index on table-columns where the product already provides an index, then the CM index will be overridden by the base index.

Table Partitioning Recommendations

Oracle Utilities recommends using a minimum of 'n' partitions for selective database objects, where 'n' is number of RAC nodes.

Transparent Data Encryption Recommendations

Oracle Utilities supports Oracle Transparent Data Encryption (TDE). Oracle 11gR1 supports tablespace level encryption. The application supports tablespace level encryption for all application data. Make sure that the hardware resources are sufficiently sized for this as TDE uses additional hardware resources. The Oracle Advanced Security license is a prerequisite for using TDE.

Please consider the following when implementing TDE:

- Create a wallet folder to store the master key. By default, the wallet folder should be created under $ORACLE_BASE/admin/<sid>.

- The wallet containing the master key can be created using the following command:

```
alter system set encryption key authenticated by "keypasswd"
```

- The wallet can be closed or opened using the following commands:

```
alter system set wallet open identified by "keypasswd";
alter system set wallet close;
```

- Column level encryption can be achieved using the following commands:

```
create table <table_name>
(name varchar2(200) default ' ' not null,
bo_data_area CLOB encrypt using 'AES128',
bo_status_cd char(12)    encrypt using 'AES128')
lob (bo_data_area) store as securefile (cache compress)
tablespace <tablespace_name>;
```

- AES128 is the default encryption algorithm.
- Tablespace level encryption is also supported using the following command:

```
Create tablespace <tablespace_name> logging datafile '<datafile
location>' size <initial size> reuse autoextend on next <next
size>
maxsize unlimited extent management local uniform size
<uniform size> encryption using 'AES128' default
storage(encrypt);
```

- Indexed columns can only be encrypted using the NO SALT Option. Salt is a way to strengthen the security of encrypted data. It is a random string added to the data before it is encrypted, causing repetition of text in the clear to appear different when encrypted.

Data Compression Recommendations

Oracle Utilities supports Advanced Data Compression, available with Oracle 11gR1 onwards, to reduce the database storage footprint. Make sure that your resources are sufficiently sized for this as it uses additional system resources. Compression can be enabled at the Tablespace level or at the Table level.

Exadata Hardware

For Exadata hardware the compression recommendations are:

- Load data into the uncompressed table partitions using a conventional load and then, once data is loaded using a CTAS operation, load into a temporary heap table. Then truncate the original partition. Alter the original partition into HCC compressed and then partition exchange this with the temporary heap table.
- All multi column Indexes (primary as well as secondary) will be compressed using the default compression. HCC or OLTP compression is not applicable on the top of compressed Indexes.

Non- Exadata Hardware

For non-Exadata hardware the recommendations are the same as above, except that you cannot use HCC compression (it is only available in Exadata database machine). Instead

of HCC you can use any other compression tool available to you for non-Exadata hardware.

CLOB Fields

All CLOB fields should be stored as SecureFiles and Medium compressed. This requires a separate license for Advanced Data Compression. As a part of the schema, we create the product-owned tables with compression turned OFF at the LOB level. If you have the license for Advanced Data Compression, you can enable compression by updating the storage.xml.

Compression Guidelines

- Admin and Metadata tables and their indexes will NOT be compressed.
- All Transactional Tables will be compressed.
  This includes ILM enabled MOs where applicable.
- Compression will be done at the tablespace level.
  - Different MOs will have different tablespaces.
  - Partitioned MOs will have one tablespace per partition.
  - Child tables will use reference partitioning with parent + children sharing the same tablespace. (parent and child will always be managed/archived together).
- All multicolumn indexes on transactional tables will be compressed.
  - Use 'compress advanced low'.
  - Local partitioned indexes will reside in the same tablespace as the table.
  - Each MO will have an index tablespace. All MO (Parent-Child Table) indexes will share this tablespace.
  - Do NOT specify standard index compression.
- Securefile medium compression in row for LOBs and CLOBs.

Database Vault Recommendations

The product supports Database Vault. All non-application User IDs can be prevented from using DDL or DML statements against the application schema. So SYS and SYSTEM cannot issue DDL or DML statements against CISADM schema.

The application-specific administration account can issue DDL statements but should not be able to perform any DML or DCL statements.

Application user must be given DML only permissions.

Database Vault can be used to control access during patch process and Install/Upgrade process.

Oracle Fuzzy Search Support

The product supports Oracle Fuzzy searches. To use this feature, Oracle Text must be installed. After Oracle Text is installed, an index must be created on the table where the fuzzy search needs to be performed from the application. This is only an Oracle database option and is not supported by other databases. Additionally, not all languages are supported. Refer to the Oracle database documentation for more information about fuzzy searching.

A typical syntax for implementation of fuzzy searching is as below. For the most updated syntax, please refer to Oracle Fuzzy documentation.

```
GRANT CTXAPP TO <Application schema owner e.g CISADM>;

GRANT EXECUTE ON CTX_DDL TO <Application schema owner e.g CISADM>;

create index <Application schema owner e.g CISADM>.<Index_Name> on
Application schema owner e.g CISADM>.<Table_Name> (<column_name>)
indextype is ctxsys.context parameters ('sync (on commit)');
begin
ctx_ddl.sync_index('Application schema owner e.g
CISADM>.<Index_Name>');
end
/
```

Information Lifecycle Management (ILM) and Data Archiving Support

The product supports Data Archiving based on Information Lifecycle Management (ILM). If Information Lifecycle Management is part of your implementation, refer to theInformation Lifecycle Management and Data Archiving in MSM chapter for instructions on partitioning objects when using ILM.

Storage Recommendations

This section specifies recommended options for storing the database objects.

SecureFile for Storing LOBs

Beginning with Oracle 11g, tables having fields with data type of CLOB or BLOBS should have the LOB Columns stored as SecureFiles.

- The storage options with SecureFiles for Heap Tables should be ENABLE STORAGE IN ROW, CACHE and COMPRESS.
- For the IOT Table the PCTTHRESHOLD 50 OVERFLOW clause should be specified and the storage options with SecureFiles should be ENABLE STORAGE IN ROW, CACHE and COMPRESS.
- The PCTTHRESHOLD should be specified as a percentage of the block size. This value defines the maximum size of the portion of the row that is stored in the Index block when an overflow segment is used.
- The CHUNK option for storage, which is the data size used when accessing or modifying LOB values, can be set to higher than one database block size if big LOBs are used in the IO Operation.
- For SecureFiles, make sure that the initialization parameter db_securefile is set to ALWAYS.

- The Tablespace where you are creating the SecureFiles should be enabled with Automatic Segment Space Management (ASSM). In Oracle Database 11g, the default mode of Tablespace creation is ASSM so it may already be set for the Tablespace. If it's not, then you have to create the SecureFiles on a new ASSM Tablespace.

  Note: To enable compression on SecureFiles, you must have an Oracle Advanced Compression license in addition to Oracle Database Enterprise Edition. This feature is not available for the standard edition of the Oracle database.

  If you are using Oracle Database Enterprise Edition, please verify that the "COMPRESS" flag is turned on by setting it to "Y" in Storage.xml.

Refer to the Database Syntax section for more information on SecureFiles.

ILM Enabled Tablespace Requirements

- One tablespace for each partition of Parent table (Child table is referenced partitioned and would inherit the tablespace from Parent partition)
- One tablespace for each MO's global indexes (including child tables indexes) and _K table

Database Configuration Recommendations

This section specifies the recommended methods for configuring the database with a focus on specific functional area.

Large Redo Log File Sizes

The Redo Log files are written by the Log Writer Background process. These log files are written in a serial manner. Once a log File is full, a log switch occurs and the next log file starts getting populated.

It is recommended that the size of the Redo log files should be sufficiently high so that you do not see frequent Log Switches in the alert logs of the database. Frequent Log Switches impact the IO performance and can be avoided by having a larger Redo log file size.

Frequent Log Switches impacts the IO performance and can be avoided by having a bigger Redo log File Size.

Database Syntax

SecureFile

```
CREATE TABLE <Table_Name>
     ( COLUMN1 …..,
       COLUMN2 (CLOB)
     )
LOB(COLUMN2) STORE AS SECUREFILE (CACHE COMPRESS);

CREATE TABLE <Table_Name>
```

```
      ( COLUMN1 ….,
        COLUMN2 (CLOB)
        CONTRAINT <> PRIMARY KEY(…)
      )
ORGANIZATION INDEX PCTTHRESHOLD 50 OVERFLOW
LOB(COLUMN2) STORE AS SECUREFILE (ENABLE STORAGE IN ROW CHUNK CACHE
COMPRESS);
```

Database Initialization Parameters

The recommended initialization parameters are given below. These parameters are a starting point for database tuning. An optimal value for a production environment may differ from one customer deployment to another.

db_block_size=8192

log_checkpoint_interval=0

db_file_multiblock_read_count=8

transactions=3000

open_cursors=3000

db_writer_processes=10

db_files=1024

dbwr_io_slaves=10 (Only if Asynchronous IO is not Supported)

sessions=4500

memory_target=0

memory_max_target=0

processes=3000

dml_locks=48600

_b_tree_bitmap_plans=FALSE

Oracle Database Implementation Guidelines

This section provides specific guidelines for implementing the Oracle database.

Oracle Partitioning

If you use a base index for the partitioning key, rename the index to CM**.

If you use the primary key index of the table as the partitioning key:

- Make the index non-unique.
- Primary constraints should still exist.

The upgrade on the partitioned table works best if the partitioning key is not unique. This allows the upgrade tool to drop the PK constraints if the primary key columns are modified and recreate the PK constraints without dropping the index.

Database Statistic

During an install process, new database objects may be added to the target database. Before starting to use the database, generate the complete statistics for these new objects by using the DBMS_STATS package. You should gather statistics periodically for objects where the statistics become stale over time because of changing data volumes or changes in column values. New statistics should be gathered after a schema object's data or structure are modified in ways that make the previous statistics inaccurate. For example, after loading a significant number of rows into a table, collect new statistics on the number of rows. After updating data in a table, you do not need to collect new statistics on the number of rows, but you might need new statistics on the average row length.

A sample syntax that can be used is as following:

```
BEGIN
SYS.DBMS_STATS.GATHER_SCHEMA_STATS (
OwnName => 'CISADM'
,Degree => 16
,Cascade => TRUE
,Method_opt => 'FOR ALL COLUMNS SIZE AUTO'
, Granularity => 'ALL' );
END;
/
```

Materialized View

Oracle Enterprise Edition supports query rewrite Materialized view. If you use Oracle Enterprise Edition, you can create following Materialized Views to improve performance of the Monitor batch jobs.

Prerequisites

Make sure to set up the following:

1. Set parameter QUERY_REWRITE_ENABLED=TRUE at database level.

   ```
   ALTER SYSTEM SET QUERY_REWRITE_ENABLED=TRUE; OR
   ALTER SYSTEM SET QUERY_REWRITE_ENABLED=TRUE SCOPE=BOTH;
   ```

2. To create a materialized view in another user's schema you must have the **CREATE ANY MATERIALIZED VIEW** system privilege. The owner of the materialized view must have the CREATE TABLE system privilege. The owner must also have access to any master tables of the materialized view that the schema owner does not own (for example: if the master tables are on a remote database) and to any materialized view logs defined on those master tables, either through a **SELECT** object privilege on each of the tables or through the **SELECT ANY TABLE** system privilege.
3. To create a refresh-on-commit materialized view (**ON COMMIT REFRESH** clause), in addition to the preceding privileges, you must have the **ON COMMIT REFRESH** object privilege on any master tables that you do not own or you must have the **ON COMMIT REFRESH** system privilege.

   To create the materialized view with query rewrite enabled, in addition to the preceding privileges: If the schema owner does not own the master tables, then the schema owner must have the **GLOBAL QUERY REWRITE** privilege or the **QUERY REWRITE** object privilege on each table outside the schema.

To debug materialized views, refer the below URLs:

- Oracle 11g - https://docs.oracle.com/cd/B28359_01/server.111/b28313/qrbasic.htm
- Oracle 12c - https://docs.oracle.com/database/121/DWHSG/qrbasic.htm#DWHSG01813
- Troubleshoot Materialized View - http://docs.oracle.com/database/121/ARPLS/d_mview.htm#ARPLS67193

```
CREATE MATERIALIZED VIEW F1_BO_LIFECYCLE_STATUS_MVW
(
BUS_OBJ_CD,
LIFE_CYCLE_BO_CD,
BO_STATUS_CD,
BATCH_CD
)
BUILD IMMEDIATE REFRESH ON COMMIT ENABLE QUERY REWRITE AS
SELECT
BO2.BUS_OBJ_CD,BO.LIFE_CYCLE_BO_CD,BOSA.BO_STATUS_CD,LCBOS.BATCH_CD as
LC_BATCH_CD
FROM
F1_BUS_OBJ BO2,
F1_BUS_OBJ BO,
F1_BUS_OBJ_STATUS LCBOS,
F1_BUS_OBJ_STATUS_ALG BOSA
WHERE
BO2.LIFE_CYCLE_BO_CD =BO.LIFE_CYCLE_BO_CD AND
BO.BUS_OBJ_CD = BOSA.BUS_OBJ_CD AND
BOSA.BO_STATUS_SEVT_FLG = 'F1AT' AND
LCBOS.BUS_OBJ_CD = BO.LIFE_CYCLE_BO_CD AND
LCBOS.BO_STATUS_CD = BOSA.BO_STATUS_CD
/
```

create synonym SPLUSR.F1_BO_LIFECYCLE_STATUS_MVW for SPLADM.F1_BO_LIFECYCLE_STATUS_MVW;

grant select on F1_BO_LIFECYCLE_STATUS_MVW to FW_DEV;

grant select on F1_BO_LIFECYCLE_STATUS_MVW to SPL_USER;

grant select on F1_BO_LIFECYCLE_STATUS_MVW to SPL_READ;

For more information, refer to the following documents:

- Basic Query Rewrite (Oracle 11g) - https://docs.oracle.com/cd/B28359_01/server.111/b28313/qrbasic.htm
- Basic Query Rewrite for Materialized Views (Oracle 12c) - https://docs.oracle.com/database/121/DWHSG/qrbasic.htm#DWHSG01813
- Troubleshooting Materialized Views - http://docs.oracle.com/database/121/ARPLS/d_mview.htm#ARPLS67193
- Debugging materialized Views - http://docs.oracle.com/cd/B28359_01/server.111/b28313/qradv.htm

Known Issues

The following are some of the known issues at the time of release. For more information, refer to these articles on My Oracle Support:

- Query Did Not Rewrite For A User Other Than The Owner Of the Materialized View (Doc ID 1594725.1) - A patch is available for bug report 14772096 for some platforms.
- Query rewrite not working as expected with SELECT DISTINCT (Doc ID 7661113.8) for Oracle version – 11.2.0.1 and 11.1.0.7 Fixed in version - 12.1.0.1 (Base Release), 11.2.0.2 (Server Patch Set)

Chapter 5

Conversion Tools

This chapter describes the following database conversion tools:

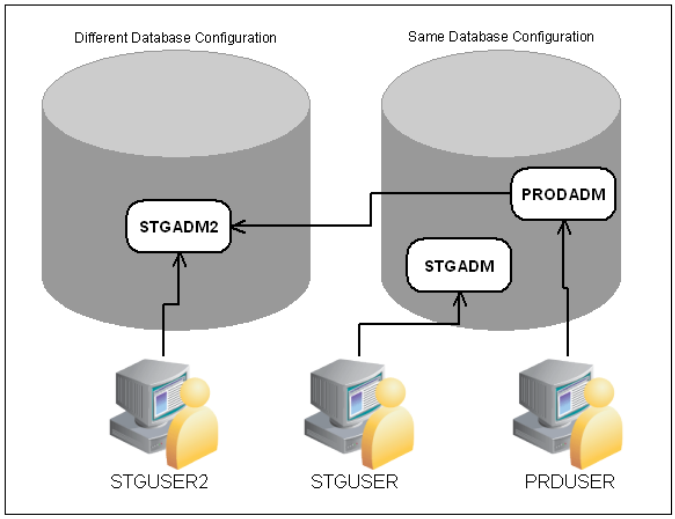
- Database Configuration
- Installing the Script
- Preparing the Production Database
- Preparing the Staging Database

Note that all database related single fixes and service packs need to be applied against the production schema. Staging schema should not be updated with database single fixes or service packs. Staging schema need to be rebuilt for any fixes that contain DDL to create new database objects in production schema.

Database Configuration

The Conversion Tool Kit requires at least two sets of schema. One is to hold the staging data that the conversion tool gets the data from and performs validations. We call this schema the staging database. The target schema, which is referred to as the production database, is where the conversion tool inserts the validated data. Both the production database and the staging databases can reside in a single Oracle database or in different databases that are connected via a database link. Only the single database configuration is supported.

The following schematic diagram shows a sample configuration of both the production and staging environments in which the Conversion Tool Kit operates. The production and staging databases must be the same release level.



All the tables and views for the application are defined in the production database. The staging database has the same set of tables and views as the production database, except the tables that are grouped as part of the business configuration (control tables). Details on the differences of the tables of the two databases and of the conversion tool functionality are found in the Conversion Tool document.

Installing the Script

The Conversion Setup Utility is provided to set up conversion schemas. Install Oracle 19c Client on the Windows desktop and configure SQLNet to connect to the target database. The Conversion folder includes the conversion setup utilities - ConvSetup.tar, scripts to create the users, and jarfiles.

ConversionSetup Java Usage

-a, --apply	Apply Conversion setup on Staging Schema. '-s' is mandatory if '-a' is passed
-d,--dbConnString <arg>	DB connection string: Any "jdbc:oracle:thin"supported format [example: HOST:PORT/SID | HOST:PORT:SERVICE | <TNSSTRING>]
-o,--output <arg>	Output Directory for the generated files. Directory will be created if it doesn't already exist.

-p,--prodSchema <arg>	Primary/Production Schema and credentials to connect: CIS_ADMIN,CIS_PSWD. [example: CISADM,CISADM]
-r,--rollback	Revert Conversion setup on Staging Schema. '-s' is mandatory if '-r' is passed
-s,--stgSchema <arg>	Staging Schema and Staging users:STG_ADMIN,STG_PSWD,STG_RW_USER [example: STGADM,STGADM,STGUSER]

This section of the document describes how to create the databases for the conversion tool kit.

Preparing the Production Database

If the production database does not exist create the database under the production schema owner (CISADM).

> If the production database is upgraded from the previous version of the application make sure all public synonyms that are created on the application tables are deleted. Instead, each application user should have private synonyms created on the application tables in order for the conversion tool configuration to work.

Preparing the Staging Database

After the staging owner (STGADM), application user (STGUSER) and read access user (STGREAD) are created, install the initial database option in the staging schema. The rest of the steps are listed below.

To run the utility:

1. Set JAVA_HOME, PATH, and CLASSPATH.

   UNIX:

   ```
   export JAVA_HOME=/scratch/software/jdk1.8.0_102/
   export PATH=$JAVA_HOME/bin:$PATH
   export CLASSPATH=/../FW-V4.4.0.3.0-Oracle-Database- Multiplatform/
   FW/jarfiles/*
   ```

   WINDOWS:

   ```
   SET JAVA_HOME=C:\Program Files\Java\jdk1.8.0_101
   SET PATH=%JAVA_HOME%\bin:%PATH%
   SET CLASSPATH= C:\FW-V4.4.0.3.0-Oracle-Database-
   Multiplatform\FW\jarfiles\*
   ```

2. Run Conversion from any directory making sure Step 1 is complete. Run the command as necessary.

   UNIX:

   If '-a' (apply on staging flag) is passed, it connects to the database as staging schema admin and performs the conversion setup, in addition to creation of the above files, by running the same SQLs present in the create* SQL files.

```
java com.oracle.ouaf.oem.conversion.ConversionSetup -d
${JDBC_CONN_STRING} -p ${CIS_ADMIN_USR},${CIS_ADMIN_PSWD} -a -s
${STG_ADMIN_USR},${STG_ADMIN_PSWD},${STG_RW_USER}
```

If '-r' (revert staging flag) is passed, it connects to the database as staging schema admin and reverts the staging to a state prior to conversion setup, running the same SQLs present in drop_* or restore_* SQL files.

```
java com.oracle.ouaf.oem.conversion.ConversionSetup -d
${JDBC_CONN_STRING} -p ${CIS_ADMIN_USR},${CIS_ADMIN_PSWD} -r -s
${STG_ADMIN_USR},${STG_ADMIN_PSWD},${STG_RW_USER}
```

To generate ONLY the scripts, the program should be invoked with '-s' parameter with no other flags (no '-a' or '-r'):

```
java com.oracle.ouaf.oem.conversion.ConversionSetup -d
${JDBC_CONN_STRING} -p ${CIS_ADMIN_USR},${CIS_ADMIN_PSWD} -s
${STG_ADMIN_USR},${STG_ADMIN_PSWD},${STG_RW_USER}
```

WINDOWS:

If '-a' (apply on staging flag) is passed, it connects to the database as staging schema admin and performs the conversion setup, in addition to creation of the above files, by running the same SQLs present in the create* SQL files.

```
"%JAVA_HOME%"\bin\java
com.oracle.ouaf.oem.conversion.ConversionSetup -d
%{JDBC_CONN_STRING}% -p %{CIS_ADMIN_USR}%,%{CIS_ADMIN_PSWD}% -a -s
%{STG_ADMIN_USR}%,%{STG_ADMIN_PSWD}%,%{STG_RW_USER}%
```

If '-r' (revert staging flag) is passed, it connects to the database as staging schema admin and reverts the staging to a state prior to conversion setup, running the same SQLs present in drop_* or restore_* SQL files.

```
"%JAVA_HOME%"\bin\java
com.oracle.ouaf.oem.conversion.ConversionSetup -d
%{JDBC_CONN_STRING}% -p %{CIS_ADMIN_USR}%,%{CIS_ADMIN_PSWD}% -r -s
%{STG_ADMIN_USR}%,%{STG_ADMIN_PSWD}%,%{STG_RW_USER}%
```

To generate ONLY the scripts, the program should be invoked with '-s' parameter with no other flags (no '-a' or '-r'):

```
"%JAVA_HOME%"\bin\java
com.oracle.ouaf.oem.conversion.ConversionSetup -d
%{JDBC_CONN_STRING}% -p %{CIS_ADMIN_USR}%,%{CIS_ADMIN_PSWD}% -s
%{STG_ADMIN_USR}%,%{STG_ADMIN_PSWD}%,%{STG_RW_USER}%
```

It creates the following files in current directory (or output directory if passed as '-o') if '-r' (revert staging flag) is not passed.

mainFile.sql	Contains instructions on the order and how to run the files
create_schgrants.sql	Grant read permissions on production schema objects to staging admin user
create_cxviews.sql	Creates Conversion X views on staging schema
create_ctlviews.sql	Create Production Control views on staging schema
createck_tbls.sql	Creates Conversion Key tables on staging schema
createck_pkix.sql	Creates primary indexes on Conversion key tables
createck_secix.sql	Creates secondary indexes on Conversion key tables

createcr_tbls.sql	Creates XML/CLOB Resolution tables on staging schema
create_stggrants.sql	Grants select, insert permissions on above created staging objects to staging read/write user
restore_ctltbls.sql	Restores Control tables
drop_cxviews.sql	Restored Conversion X views
drop_tables.sql	Restores CK & CR tables

After the staging schema has been set up, generate the security for the staging user following the steps in the Configuring Security section.

UNIX:

```
java -Xmx1500M com.oracle.ouaf.oem.install.OraGenSec-d
<STAGING_DBUSER>,< STAGING_DBPASS>,
jdbc:oracle:thin:@<DB_SERVER>:<PORT>/
<SID> -u <STAGING_RW_USER>,<STAGING_R_USER> -r
<STAGING_RW_USER_ROLE>,< STAGING_R_USER_ROLE> -a A -p
<RW_USERPASS>,<R_USERPASS>
```

WINDOWS:

```
"%JAVA_HOME%"\bin\java -Xmx1500M com.oracle.ouaf.oem.install.OraGenSec
-d < STAGING_DBUSER>,< STAGING DBPASS>,
jdbc:oracle:thin:@<DB_SERVER>:<PORT>/
<SID> -u < STAGING RW_USER>,< STAGING R_USER> -r <STAGING
RW_USER_ROLE>,<STAGING R_USER_ROLE> -a A -p
<STAGING_RW_USERPASS>,<STAGING_R_USERPASS>
```

Chapter 6

Information Lifecycle Management and Data Archiving in MSM

Oracle Utilities Market Settlements Management provides support for Information Lifecycle Management (ILM) and Data Archiving.

ILM is process to address data management issues, with a combination of processes, policies, software and hardware so that the appropriate technology can be used for each phase of the lifecycle of the data. The lifecycle of data typically refers to the fact that the most recent data is active in the system and as time passes the data is accessed less frequently or not at all. The costs of storing data that are accessed infrequently can be reduced by moving the data to lower cost mass storage media. Typically this involves a trade-off between cost and increased access times. Based on business needs, data may eventually be archived and purged from the database and kept offline ready to be restored if required.

This chapter includes:

ILM Implementation Overview

The implementation of ILM for products based on Oracle Utilities Application Framework includes a combination of application and database configuration and requires Oracle Partitioning.

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

ILM enabled objects have a combination of an ILM date and an ILM Archive Switch. The ILM date is used in conjunction with partitioning to group data by age. The ILM Archive Switch is set by a background process when the record meets the business rules specific to that Maintenance Object if the record is eligible to be archived. The ILM Archive Switch gives Database Administrators an easy method to check when all records in a partition meet the business criteria that make the partition eligible to be archived. If the ILM Archive Switch is set for all records, then the DBA can take the steps required to archive the partition.

Moving data between storage tiers takes advantage of the partitioning by ILM Date but does not require that the ILM Archive Switch is set. Oracle recommends using the Oracle Database ILM Assistant to assist with this process.

ILM Implementation Components

The ILM based solution contains a number of components.

- ILM Specific Table Columns - For any Maintenance Object (MO) that has been configured to support ILM, the primary table of the MO includes two columns: ILM Date and ILM Archive Switch.
    - ILM_DT - This date column is defaulted to an appropriate date (typically the system date) when a new record is inserted, the MO is partitioned on the ILM_DT, so it should only be updated in exceptional circumstances as this would cause the record to be deleted from its current partition and inserted into a different partition, which is a relatively expensive operation.
    - ILM_ARCHIVE_SW - This field is set to N (Not yet eligible for archiving) when a new record is inserted. Subsequent reviews of "old" records may assess the data and change the value to "Y" based on business rules indicating that the record is eligible to be archived.
- Database Referential Integrity Constraints - These are required for reference partitioning of Child tables of ILM enabled MOs
- Partitioning - Partitioning is mandatory for ILM implementation. It is used to separate the data by ILM date so that data of a similar age is kept together.
- One Tablespace per Partition - The ILM implementation requires that each MO partition resides in a dedicated tablespace so that they can be easily managed.
- Naming Convention - This section covers the recommended naming convention to be used for partitions/subpartitions and tablespaces.

ILM Database Administrator's Tasks

For a database administrator, there are two key phases involved with managing your data using ILM.

- Preparation Phase - This phase covers the database level configuration that needs to be done before the ILM solution runs in a production environment.
- On-going Maintenance Phase - This phase covers the ongoing maintenance tasks.

Preparation Phase

Note: In order to successfully implement ILM as described here, the following DB Version and Patch are pre-requisites: database version 12.1.0.2.0 Enterprise Edition and Patch 15996848.

The steps needed to enable ILM functionality differ depending on whether ILM is enabled as part of the initial implementation of the product or enabled ILM on an existing implementation where data already exists in the respective tables.

- Initial Install – For an initial installation, the section Module Specific ILM Implementation Details outlines the additional steps to be performed on base delivered ILM Enabled Tables to conform to ILM requirements. In addition,Appendix A: Sample SQL for Enabling ILM in MSM (Initial Installation)provides sample reference DDLs using two maintenance objects as examples.
- Transform NON-ILM implementation to ILM Enabled Implementation: The following steps provide a high level overview of steps that must be performed to implement ILM on enabled MOs for an existing implementation. Please refer to the Appendix B: Sample SQL for Enabling ILM in MSM (Existing Installation) section for detailed information using To Do Entry as an example. Also refer to Appendix C: Sample SQL for Enabling ILM with Sub Retention in MSM (Existing Installation) or detailed information using D1_INIT_MSRMT_DATA as an example.

1. Rename the existing tables (Parent table followed by child table), and primary key index associated with ILM enabled MOs by renaming the tables.
2. Save the DDLs for the secondary indexes as you will need to recreate them later.
3. Drop secondary indexes on the renamed tables.
4. Create Partitioned table with no secondary indexes for ILM enabled MOs using a CTAS operation (Create Table as Select), which will also load the data into the partitioned table structure.

   Functional Note: ILM enabled MOs should have the ILM date (ILM_DT) populated when data is moved into the new partitioned table. Please refer to the Module Specific ILM Implementation Details section below for initial load details on which date column to use as the basis for populating the ILM date. Often it is based on Create Date (CRE_DTTM). ILM_ARCH_SW should initially be set to 'N'.

   Note: Certain ILM enabled MOs, specifically IMD, Device Event, and Activity, support more than one retention period also known as sub retention periods. For these MOs the table will be sub-partitioned based

on the retention period. Furthermore, a more detailed approach will be required to set both the ILM date (ILM_DT) and the retention period (<field name>). If your implementation does not wish to leverage the ability to define multiple retention periods for these MOs, this note can be ignored and the general guidelines for ILM enablement can be followed. If your implementation wishes to leverage the multiple retention period capability, refer to the Module Specific ILM Implementation Details For Sub Retention section.

5. Enable logging option.
6. Create Primary Key index.
7. Create Primary Key Constraint of parent table.
8. Create secondary indexes for the newly-created partitioned tables. This includes creating an index used specifically to benefit the ILM Crawler batch. The recommendation for this index name is to prefix it with "ILM".

   Note: This can be created specifying parallel index create; remember to turn off parallelism after the index is created.

9. Follow a similar operation for all child tables for this MO, such as rename child table, and primary key index, generate DDL for secondary index, drop secondary index etc. Sample DDL for child tables their partitioning and indexes can be found in Appendix B: Sample SQL for Enabling ILM in MSM (Existing Installation). If sub retention is supported, sample DDL for child tables can be found in Appendix C: Sample SQL for Enabling ILM with Sub Retention in MSM (Existing Installation). Note that child table should be partitioned using reference partitioning of the parent table's partitioning key.
10. Drop the original, renamed tables after verifying the newly created partitioned tables.
11. If sub-retention is not supported, create the ILM specific indexes from section Module Specific ILM Implementation Details.

Table Name	Index Name
CI_TD_ENTRY	CM_ILM_XT039S8
D1_ACTIVITY	CM_ILM_D1T319S1
D1_COMM_IN	CM_ILM_D1T386S1
D1_COMM_OUT	CM_ILM_D1T380S1
D1_COMPL_EVT	CM_ILM_D1T340S1
D1_DVC_EVT	CM_ILM_D1T400S4
D1_INIT_MSRMT_DATA	CM_ILM_D1T304S4
D1_USAGE	CM_ILM_D1T281S2
D1_USAGE_EXCP	CM_ILM_D1T443S1
D1_VEE_EXCP	CM_ILM_D1T308S2
D1_SNAPSHOT_DL_CTRL	CM_ILM_D1T433S1
D1_SP_SNAP_DL	CM_ILM_D1T434S1
D1_SP_UNR_USG_SNAP_DL	CM_ILM_D1T438S1

Table Name	Index Name
D1_SP_USG_SNAP_DL	CM_ILM_D1T436S1
D1_SP_VEE_EXCP_SNAP_DL	CM_ILM_D1T440S1
F1_BUS_FLG	CM_ILM_F1T681S2
F1_ERASURE_SCHED	CM_ILM_F1T756S1
F1_OBJ_REV	CM_ILM_FT035S6
F1_OUTMSG	CM_ILM_FT010S2
F1_PROC_STORE	CM_ILM_F1T747S1
F1_REMOTE_MSG	CM_ILM_F1T735S7
F1_STATS_SNPSHT	CM_ILM_F1C706S2
F1_SVC_TASK	CM_ILM_F1C474S3
F1_SYNC_REQ	CM_ILM_F1T014S4
F1_SYNC_REQ_IN	CM_ILM_F1T191S3

12. If sub-retention is supported, create the following ILM specific indexes from the Module Specific ILM Implementation Details section:

Table Name	Index Name
CI_TD_ENTRY	CM_ILM_XT039S8
D1_COMM_IN	CM_ILM_D1T386S1
D1_COMM_OUT	CM_ILM_D1T380S1
D1_COMPL_EVT	CM_ILM_D1T340S1
D1_USAGE	CM_ILM_D1T281S2
D1_USAGE_EXCP	CM_ILM_D1T443S1
D1_VEE_EXCP	CM_ILM_D1T308S2
D1_SNAPSHOT_DL_CTRL	CM_ILM_D1T433S1
D1_SP_SNAP_DL	CM_ILM_D1T434S1
D1_SP_UNR_USG_SNAP_DL	CM_ILM_D1T438S1
D1_SP_USG_SNAP_DL	CM_ILM_D1T436S1
D1_SP_VEE_EXCP_SNAP_DL	CM_ILM_D1T440S1
F1_BUS_FLG	CM_ILM_F1T681S2
F1_ERASURE_SCHED	CM_ILM_F1T756S1
F1_OBJ_REV	CM_ILM_FT035S6
F1_OUTMSG	CM_ILM_FT010S2
F1_PROC_STORE	CM_ILM_F1T747S1

Table Name	Index Name
F1_REMOTE_MSG	CM_ILM_F1T735S7
F1_STATS_SNPSHT	CM_ILM_F1C706S2
F1_SVC_TASK	CM_ILM_F1C474S3
F1_SYNC_REQ	CM_ILM_F1T014S4
F1_SYNC_REQ_IN	CM_ILM_F1T191S3

and the ILM subretention specific indexes from the Module Specific ILM Implementation Details For Sub Retention section:

Table Name	Index Name
D1_ACTIVITY	CM_ILM_D1T319S1
D1_DVC_EVT	CM_ILM_D1T400S4
D1_INIT_MSRMT_DATA	CM_ILM_D1T304S4

Module Specific ILM Implementation Details

This section outlines each maintenance object that has been configured to support ILM. The parent table is noted. Other tables are child tables of the parent unless otherwise noted. In each case, the partitioning strategy is indicated.

All indexes are listed with a recommendation whether the index should be global or local and whether the index should be partitioned. In addition to the base delivered indexes, each parent table includes a recommended ILM specific local index to build with the ILM_DT, ILM_ARCH_SW and the primary key of the table. The recommended column that should be used to populate the ILM_DT is also shown.

This section details the following maintenance objects:

- To Do Entry
- Sync Request (Outbound)
- Inbound Sync Request
- Outbound Message
- Service Task
- Object Revision
- Business Flag
- Remote Message
- Statistics Snapshot
- Object Erasure
- Process Flow
- Activity
- Communication In
- Communication Out

- Device Event
- Completion Event
- Initial Measurement Data
- Usage Transaction
- Usage Transaction Exception
- VEE Exception
- Snapshot Tables

To Do Entry

This table describes the To Do Entry maintenance object.

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
CI_TD_ENTRY (Parent)	RANGE (ILM_DT, TD_ENTRY_ ID)					CI_TD_ENTRY. CRE_DTTM
		XT039P0	TD_ENTRY_ID	Global Partitioned	RANGE (TD_ENTRY_ID)	
		XT039S2	ASSIGNED_TO, TD_ENTRY_ID	Global		
		XT039S3	ENTRY_STATUS_FLG, ASSIGNED_TO	Global		
		XT039S4	ROLE_ID, TD_TYPE_CD, ENTRY_STATUS_FLG, TD_PRIORITY_FLG	Global		
		XT039S5	BATCH_CD, BATCH_NBR, ENTRY_STATUS_FLG	Global		
		XT039S6	TD_ENTRY_ID, ASSIGNED_TO, ENTRY_STATUS_FLG	Global		
		XT039S7	COMPLETE_USER_ID, COMPLETE_DTTM, TD_ENTRY_ID	Global		
		CM_ILM_ XT039S8	ILM_DT, ILM_ARCH_SW, TD_ENTRY_ID	Local Partitioned		
CI_TD_ENTRY_ CHA	Reference Partitioning	XT701P0	TD_ENTRY_ID, CHAR_TYPE_CD, SEQ_NUM	Global Partitioned		
		XT701S1	SRCH_CHAR_VAL, CHAR_TYPE_CD, TD_ENTRY_ID	Global		

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
		XT701S2	CHAR_VAL_FK1	Global		
CI_TD_DRLKEY	Reference Partitioning	XT037P0	TD_ENTRY_ID, SEQ_NUM	Global Partitioned		
		XT037S1	KEY_VALUE, TD_ENTRY_ID	Global		
CI_TD_LOG	Reference Partitioning	XT721P0	TD_ENTRY_ID, SEQ_NUM	Global Partitioned		
		XT721S1	LOG_DTTM,USER_ID, LOG_TYPE_FLG, TD_ENTRY_ID	Global		
CI_TD_MSG_ PARM	Reference Partitioning	XT040P0	TD_ENTRY_ID, SEQ_NUM	Global		
CI_TD_SRTKEY	Reference Partitioning	XT041P0	TD_ENTRY_ID, SEQ_NUM	Global Partitioned		
		XT041S1	KEY_VALUE, TD_ENTRY_ID	Global		

Sync Request (Outbound)

This table describes the Sync Request (Outbound) maintenance object.

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
F1_SYNC_REQ (Parent)	RANGE (ILM_DT, F1_SYNC_REQ_ ID)				RANGE (F1_SYNC_REQ_ ID)	F1_SYNC_REQ.C RE_DTTM
		F1T014P0	F1_SYNC_REQ_ID	Global Partitioned		
		F1T014S1	BO_STATUS_CD, BUS_OBJ_CD, F1_SYNC_REQ_ID	Global		
		F1T014S2	BO_STATUS_ REASON_CD	Global		
		F1T014S3	MAINT_OBJ_CD, PK_VALUE1, PK_VALUE2, F1_SYNC_REQ_ID	Global		

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
		CM_ILM_ F1T014S4	ILM_DT, ILM_ARC_SW, F1_SYNC_REQ_ID	Local Partitioned		
F1_SYNC_REQ_ CHAR	Reference Partitioning	F1T017P0	F1_SYNC_REQ_ID, CHAR_TYPE_CD, SEQ_NUM	Global Partitioned		
		F1T017S1	SRCH_CHAR_VAL	Global		
F1_SYNC_REQ_ EXTRACT	Reference Partitioning	F1T019P0	F1_SYNC_REQ_ID, SEQ_NUM	Global Partitioned		
F1_SYNC_REQ_ LOG	Reference Partitioning	F1T015P0	F1_SYNC_REQ_ID, SEQNO	Global Partitioned		
		F1T015S1	CHAR_TYPE_CD, CHAR_VAL_FK1	Global		
		F1T015S2	CHAR_TYPE_CD, CHAR_VAL	Global		
		F1T015S3	BO_STATUS_REAS ON_CD	Global		
F1_SYNC_REQ_ LOG_PARM	Reference Partitioning	F1T016P0	F1_SYNC_REQ_ID, SEQNO, PARM_SEQ	Global Partitioned		

Note: It is recommended that data retention policies and rules for this object match the policies and rules implemented for the Inbound Sync Request on the target system to avoid data inconsistencies when auditing.

Inbound Sync Request

This table describes the Inbound Sync Request maintenance object.

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
F1_SYNC_REQ_ IN (Parent)	RANGE(ILM_DT, F1_SYNC_REQ_I N_ID)				RANGE (F1_SYNC_REQ_ IN_ID)	F1_SYNC_REQ_I N.CRE_DTTM

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
		F1T191P0	F1_SYNC_REQ_ IN_ID	Global Partitioned		
		F1T191S1	BO_STATUS_CD, BUS_OBJ_CD, F1_SYNC_REQ_ IN_ID	Global		
		F1T191S2	MAINT_OBJ_CD, EXT_PK_VALUE1, NT_XID_CD, PK_VALUE1	Global		
		CM_ILM_ F1T191S3	ILM_DT, ILM_ARCH_SW, F1_SYNC_REQ_IN_ID	Local Partitioned		
F1_SYNC_REQ_ IN_CHAR	Reference Partitioning	F1T193P0	F1_SYNC_REQ_IN_ID, CHAR_TYPE_CD, SEQ_NUM	Global Partitioned		
		F1T193S1	SRCH_CHAR_VAL	Global		
F1_SYNC_REQ_ IN_EXCP	Reference Partitioning	F1T197P0	F1_SYNC_REQ_IN_ID, SEQNO	Global Partitioned		
F1_SYNC_REQ_ IN_EXCP_ PARM	Reference Partitioning	F1T198P0	F1_SYNC_REQ_IN_ID, SEQNO, PARM_SEQ	Global Partitioned		
F1_SYNC_REQ_ IN_LOG	Reference Partitioning	F1T194P0	F1_SYNC_REQ_IN_ID, SEQNO	Global Partitioned		
		F1T194S1	CHAR_TYPE_CD, CHAR_VAL_FK1	Global		
		F1T194S2	CHAR_TYPE_CD, CHAR_VAL	Global		
F1_SYNC_REQ_ IN_LOG_PARM	Reference Partitioning	F1T195P0	F1_SYNC_REQ_IN_ID, SEQNO, PARM_SEQ	Global Partitioned		
F1_SYNC_REQ_ IN_REL_OBJ	Reference Partitioning	F1T192P0	F1_SYNC_REQ_IN_ID, MAINT_OBJ_CD, REL_OBJ_TYPE_FLG	Global Partitioned		

Note: It is recommended that data retention policies and rules for this object match the policies and rules implemented for the Outbound Sync

Request on the source system to avoid data inconsistencies when auditing.

Outbound Message

This table describes the Outbound Message maintenance object.

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
F1_OUTMSG (Parent)	RANGE (ILM_DT, OUTMSG_ID)				RANGE (OUMSG_ID)	F1_OUTMSG. CRE_DTTM
		FT010P0	OUTMSG_ID	Global Partitioned		
		FT010S1	OUTMSG_STATUS_FLG, OUTMSG_TYPE_CD	Global		
		CM_ILM_FT010S2	ILM_DT, ILM_ARC_SW, OUTMSG_ID	Local Partitioned		
F1_OUTMSG_ERRPARM	Reference Partitioning	FT011P0	OUTMSG_ID, PARM_SEQ	Global Partitioned		

Service Task

This table describes the Service Task maintenance object.

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
F1_SVC_TASK (Parent)	RANGE (ILM_DT, F1_SVC_TASK_ID)				RANGE (F1_SVC_TASK_ID_)	F1_SVC_TASK. CRE_DTTM
		F1C474P0	F1_SVC_TASK_ID	Global Partitioned		
		F1C474S1	F1_STASK_TYPE_CD	Global		
		F1C474S2	BUS_OBJ_CD	Global		
		CM_ILM_F1C474S2	ILM_DT, ILM_ARC_SW, F1_SVC_TASK_ID	Local Partitioned		

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
F1_SVC_TASK_CHAR	Reference Partitioning	F1C476P0	F1_SVC_TASK_ID, CHAR_TYPE_CD, SEQ_NUM	Global Partitioned		
		F1C476S1	SRCH_CHAR_VAL	Global		
F1_SVC_TASK_LOG	Reference Partitioning	F1C477P0	F1_SVC_TASK_ID, SEQNO	Global Partitioned		
		F1C477S1	CHAR_TYPE_CD, CHAR_VAL_FK1	Global		
		F1C477S2	CHAR_TYPE_CD, CHAR_VAL	Global		
F1_SVC_TASK_LOG_PARM	Reference Partitioning	F1C478P0	F1_SVC_TASK_ID, SEQNO, PARM_SEQ	Global Partitioned		
F1_SVC_TASK_REL_OBJ	Reference Partitioning	F1C479P0	F1_SVC_TASK_ID, MAINT_OBJ_CD, SEQ_NUM	Global Partitioned		
		F1C479S1	MAINT_OBJ_CD, PK_VALUE1, PK_VALUE2, PK_VALUE3	Global		

Object Revision

This table describes the Object Revision maintenance object.

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
F1_OBJ_REV (Parent)	RANGE (ILM_DT, REV_ID)				RANGE (REV_ID)	F1_OBJ_REV. STATUS_UPD_DTTM
		FT035P0	REV_ID	Global Partitioned		

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
		FT035S1	BO_STATUS_CD, BUS_OBJ_CD, REV_ID	Global		
		FT035S2	MAINT_OBJ_CD, PK_VALUE1	Global		
		FT035S3	EXT_REFERENCE_ID, MAINT_OBJ_CD	Global		
		FT035S4	USER_ID, MAINT_OBJ_CD	Global		
		FT035S5	PK_VALUE1	Global		
		CM_ILM_FT035S6	ILM_DT, ILM_ARC_SW, REV_ID	Local Partitioned		
F1_OBJ_REV_CHAR	Reference Partitioning	FT037P0	REV_ID, CHAR_TYPE_CD, SEQ_NUM	Global Partitioned		
		FT037S1	SRCH_CHAR_VAL	Global		
F1_OBJ_REV_LOG	Reference Partitioning	FT039P0	REV_ID, SEQNO	Global Partitioned		
F1_OBJ_REV_LOG_PARM	Reference Partitioning	FT040P0	REV_ID, SEQNO, PARM_SEQ	Global Partitioned		

Note: This maintenance object is enabled for ILM, however it is not used in a production environment. It is typically used in a development or configuration environment. Your implementation should review its use of this functionality and consider whether or not it is a candidate for ILM and in which region.

Business Flag

This table describes the Business Flag maintenance object.

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
F1_BUS_FLG (Parent)	RANGE (ILM_DT,BUS_FLG_ID)				RANGE(BUS_FLG_ID)	F1_BUS_FLG. CRE_DTTM
		F1T681P0	BUS_FLG_ID	Global Partitioned		
		F1T681S1	BUS_OBJ_CD, BO_STATUS_CD, BUS_FLG_ID	Global		
		CM_ILM_ F1T681S2	ILM_DT, ILM_ARCH_SW, BUS_FLG_ID	Local Partitioned		
F1_BUS_FLG_ CHAR	Reference Partitioning	F1T684P0	BUS_FLG_ID, CHAR_TYPE_CD, SEQ_NUM	Global Partitioned		
		F1T684S0	SRCH_CHAR_VAL	Global		
F1_BUS_FLG_ LOG	Reference Partitioning	F1T685P0	BUS_FLG_ID, SEQNO	Global Partitioned		
		F1T685S1	CHAR_TYPE_CD, CHAR_VAL_FK1	Global		
		F1T685S2	CHAR_TYPE_CD, CHAR_VAL	Global		
F1_BUS_FLG_ LOG_PARM	Reference Partitioning	F1T686P0	BUS_FLG_ID, SEQNO, PARM_SEQ	Global Partitioned		
F1_BUS_FLG_ REL	Reference Partitioning	F1T682P0	BUS_FLG_ID, BUS_FLG_REL_ TYPE_FLG, SEQ_NUM	Global Partitioned		
F1_BUS_FLG_ REL_OBJ	Reference Partitioning	F1T683P0	BUS_FLG_ID, BUS_FLG_REL_ OBJ_TYPE_FLG, SEQ_NUM	Global Partitioned		

Remote Message

This table describes the Remote Message maintenance object.

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
F1_REMOTE_MSG (Parent)	RANGE (ILM_DT,F1_REMOTE_MSG_ID)				RANGE(F1_REMOTE_MSG_ID)	F1_REMOTE_MSG.CRE_DTTM
		F1T735P0	F1_REMOTE_MSG_ID	Global Partitioned		
		F1T735S1	CRE_DTTM	Global		
		F1T735S2	F1_MDT_ID	Global		
		F1T735S3	MAINT_OBJ_CD	Global		
		F1T735S4	PK_VALUE1	Global		
		F1T735S5	F1_DEVICE_MSG_ID	Global		
		F1T735S6	F1_MDT_ID, F1_MSG_CLASS_FLG, F1_DELIVERY_STATE_FLG	Global		
		CM_ILM_F1T735S7	ILM_DT, ILM_ARCH_SW, F1_REMOTE_MSG_ID	Local Partitioned		
F1_REMOTE_MSG_CHAR	Reference Partitioning	F1T736P0	F1_REMOTE_MSG_ID, CHAR_TYPE_CD, SEQ_NUM	Global Partitioned		
		F1T736S1	SRCH_CHAR_VAL	Global		
F1_REMOTE_MSG_LOG	Reference Partitioning	F1T737P0	F1_REMOTE_MSG_ID, SEQNO	Global Partitioned		
		F1T737S1	CHAR_TYPE_CD, CHAR_VAL_FK1	Global		
		F1T737S2	CHAR_TYPE_CD, CHAR_VAL	Global		
F1_REMOTE_MSG_LOG_PARM	Reference Partitioning	F1T738P0	F1_REMOTE_MSG_ID, SEQNO, PARM_SEQ	Global Partitioned		

Statistics Snapshot

This table describes the Statistics Snapshot maintenance object.

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
F1_STATS_ SNPSHT(Parent)	RANGE (ILM_DT, SNAPSHOT_ID)				RANGE (SNAPSHOT_ID)	F1_STATS_ SNPSHT. CRE_DTTM
		F1C706P0	SNAPSHOT_ID	Global Partitioned		
		F1C706S1	BUS_OBJ_CD, BO_STATUS_CD, SNAPSHOT_ID	Global		
		CM_ILM_F1C706 S2	ILM_DT, ILM_ARCH_SW, SNAPSHOT_ID	Local Partitioned		
F1_STATS_ SNPSHT_CHAR	Reference Partitioning	F1C707P0	SNAPSHOT_ID, CHAR_TYPE_CD, SEQ_NUM	Global Partitioned		
		F1C707S1	SRCH_CHAR_VAL	Global		
F1_STATS_ SNPSHT_LOG	Reference Partitioning	F1C708P0	SNAPSHOT_ID, SEQNO	Global Partitioned		
		F1C708S1	CHAR_TYPE_CD, CHAR_VAL_FK1	Global		
		F1C708S2	SNAPSHOT_ID, SEQNO, PARM_SEQ	Global Partitioned		
F1_STATS_ SNPSHT_REL_ OBJ	Reference Partitioning	F1C710P0	SNAPSHOT_ID, STATS_SNPSHT_ REL_OBJ_TYPE_ FLG, SEQ_NUM	Global Partitioned		

Object Erasure

This table describes the Object Erasure maintenance object.

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
F1_ERASURE_SCHED (Parent)	RANGE (ILM_DT, ERASURE_SCHED_ID)					F1_ERASURE_SCHED.STATUS_UPD_DTTM
		F1T756P0	ERASURE_SCHED_ID	GLOBAL Partitioned	RANGE (ERASURE_SCHED_ID)	
		CM_ILM_F1T756S1	ILM_DT, ILM_ARCH_SW, ERASURE_SCHED_ID	LOCAL		
F1_ERASURE_SCHED_LOG	Reference partitioning	F1T757P0	ERASURE_SCHED_ID, SEQNO	GLOBAL Partitioned		
F1_ERASURE_SCHED_LOG_PARM	Reference partitioning	F1T758P0	ERASURE_SCHED_ID, SEQNO, PARM_SEQ	GLOBAL Partitioned		

Process Flow

This table describes the Process Flow maintenance object.

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
F1_PROC_STORE (Parent)	RANGE(ILM_DT, PROC_STORE_ID)					F1_PROC_STORE.STATUS_UPD_DTTM
		F1T747P0	PROC_STORE_ID	GLOBAL Partitioned	RANGE(PROC_STORE_ID)	
		CM_ILM_F1T747S1	ILM_DT, ILM_ARCH_SW, PROC_STORE_ID	LOCAL		
F1_PROC_STORE_DTL_ELEMENTS	Reference partitioning	F1T748P0	PROC_STORE_ID, CHAR_TYPE_CD, SEQ_NUM	GLOBAL Partitioned		
F1_PROC_STORE_LOG	Reference partitioning	F1T749P0	PROC_STORE_ID, SEQNO	GLOBAL Partitioned		

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
F1_PROC_STORE_LOG_PARM	Reference partitioning	F1T750P0	PROC_STORE_ID SEQNO, PARM_SEQ	GLOBAL Partitioned		

Activity

If sub retention periods will be defined for this MO, then please follow the guidelines set forth in section Module Specific ILM Implementation Details For Sub Retention.

This table describes the Activity maintenance object.

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
D1_ACTIVITY (Parent)	RANGE (ILM_DT, D1_ACTIVITY_ID) **Note**: Default is to use sub-retention or use RANGE (ILM_DT, D1_ACTIVITY_ID) if not using sub-retention.					D1_ACTIVITY. CRE_DTTM
		D1T319P0	D1_ACTIVITY_ID	Global Partitioned	RANGE (D1_ACTIVITY_ID)	
		D1T319S0	BUS_OBJ_CD, BO_STATUS_CD, D1_ACTIVITY_ID	Global Partitioned	HASH(BUS_OBJ_CD, BO_STATUS_CD, D1_ACTIVITY_ID)	
		CM_ILM_ D1T319S1	ILM_DT, ILM_ARCH_SW, D1_ACTIVITY_ID	Local		
D1_ACTIVITY_ CHAR	REFERENCE (D1_ACTIVITY_ CHAR_FK)					
		D1T320P0	D1_ACTIVITY_ID, CHAR_TYPE_CD, SEQ_NUM	Global Partitioned	RANGE(D1_ ACTIVITY_ID)	
		D1T320S0	SRCH_CHAR_VAL	Global Partitioned	HASH(SRCH_CHAR _VAL)	
D1_ACTIVITY_ IDENTIFIER	REFERENCE (D1_ACTIVITY_ID ENTIFIER_FK)					

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
		D1T330P0	D1_ACTIVITY_ID, ACTIVITY_ID_TYPE_ FLG	Global Partitioned	RANGE(D1_ ACTIVITY_ID)	
		D1T330S0	ACTIVITY_ID_TYPE_ FLG, ID_VALUE	Global Partitioned	HASH(ACTIVITY_I D_TYPE_FLG, ID_VALUE)	
		D1T330S1	ACTIVITY_ID_TYPE_FL G, UPPER(ID_VALUE)			
D1_ACTIVITY_ LOG	REFERENCE (D1_ACTIVITY_ LOG_FK)					
		D1T321P0	D1_ACTIVITY_ID, SEQNO	Global Partitioned	RANGE(D1_ ACTIVITY_ID)	
		D1T321S1	CHAR_TYPE_CD, CHAR_VAL_FK1	Global Partitioned	HASH(CHAR_TYPE _CD, CHAR_VAL_FK1)	
		D1T321S2	CHAR_TYPE_CD, CHAR_VAL	Global Partitioned	HASH(CHAR_TYPE _CD, CHAR_VAL)	
D1_ACTIVITY_ LOG_PARM	REFERENCE (D1_ACTIVITY_ LOG_PARM_FK)					
		D1T322P0	D1_ACTIVITY_ID, SEQNO PARM_SEQ	Global Partitioned	RANGE(D1_ ACTIVITY_ID)	
D1_ACTIVITY_ REL	REFERENCE (D1_ACTIVITY_ REL_FK)					
		D1T323P0	D1_ACTIVITY_ID, ACTIVITY_REL_TYPE_ FLG	Global Partitioned	RANGE(D1_ ACTIVITY_ID)	
		D1T323S0	REL_ACTIVITY_ID	Global Partitioned	HASH(REL_ ACTIVITY_ID)	
D1_ACTIVITY_ REL_OBJ	REFERENCE (D1_ACTIVITY_ REL_OBJ_FK)					
		D1T324P0	D1_ACTIVITY_ID, MAINT_OBJ_CD, ACTIVITY_REL_OBJ_ TYPE_FLG	Global Partitioned	RANGE(D1_ ACTIVITY_ID)	
		D1T324S0	PK_VALUE1, PK_VALUE2, PK_VALUE3, PK_VALUE4, PK_VALUE5, MAINT_OBJ_CD	Global Partitioned	HASH(PK_VALUE1, PK_VALUE2, PK_VALUE3, PK_VALUE4)	

Communication In

This table describes the Communication In maintenance object.

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
D1_COMM_IN (Parent)	RANGE(ILM_DT, D1_COMM_ID)					D1_COMM_IN. CRE_DTTM
		D1T386P0	D1_COMM_ID	Global Partitioned	RANGE (D1_COMM_ID)	
		D1T386S1	BUS_OBJ_CD, BO_STATUS_CD, D1_COMM_ID	Global Partitioned	HASH(BUS_OBJ_CD, BO_STATUS_CD, D1_COMM_ID)	
		CM_ILM_ D1T386S1	ILM_DT, ILM_ARCH_SW, D1_COMM_ID	Local		
D1_COMM_IN_ CHAR	REFERENCE (D1_COMM_IN_ CHAR_FK)					
		D1T387P0	D1_COMM_ID, CHAR_TYPE_CD, SEQ_NUM	Global Partitioned	RANGE (D1_COMM_ID)	
		D1T387S0	SRCH_CHAR_VAL	Global Partitioned	HASH(SRCH_CHAR _VAL)	
D1_COMM_IN_ IDENTIFIER	REFERENCE (D1_COMM_IN_ IDENTIFIER_FK)					
		D1T391P0	D1_COMM_ID, COMM_ID_TYPE_FLG	Global Partitioned	RANGE(D1_COMM _ID)	
		D1T391S0	COMM_ID_TYPE_FLG, ID_VALUE	Global Partitioned	HASH(COMM_ID_ TYPE_FLG, ID_VALUE)	
		D1T391S1	COMM_ID_TYPE_FLG, UPPER(ID_VALUE)			
D1_COMM_IN_ LOG	REFERENCE (D1_COMM_IN_ LOG_FK)					
		D1T388P0	D1_COMM_ID, SEQNO	Global Partitioned	RANGE(D1_COMM _ID)	
		D1T388S1	CHAR_TYPE_CD, CHAR_VAL_FK1	Global Partitioned	HASH(CHAR_ TYPE_CD, CHAR_VAL_FK1)	
		D1T388S2	CHAR_TYPE_CD, CHAR_VAL	Global Partitioned	HASH(CHAR_ TYPE_CD, CHAR_VAL)	
D1_COMM_IN_ LOG_PARM	REFERENCE (D1_COMM_IN_ LOG_PARM_FK)					

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
		D1T389P0	D1_COMM_ID, SEQNO PARM_SEQ	Global Partitioned	RANGE(D1_COMM _ID)	
D1_COMM_IN_ REL_OBJ	REFERENCE (D1_COMM_IN_ REL_OBJ_FK)					
		D1T390P0	D1_COMM_ID, MAINT_OBJ_CD, COMM_REL_OBJ_TYPE_ FLG	Global Partitioned	RANGE(D1_COMM _ID)	
		D1T390S0	PK_VALUE1, PK_VALUE2, PK_VALUE3, PK_VALUE4, PK_VALUE5, MAINT_OBJ_CD	Global Partitioned	HASH(PK_VALUE1, PK_VALUE2, PK_VALUE3, PK_VALUE4)	

Communication Out

This table describes the Communication Out maintenance object.

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
D1_COMM_OUT (Parent)	RANGE(ILM_DT, D1_COMM_ID)					D1_COMM_ OUT. CRE_DTTM
		D1T380P0	D1_COMM_ID	Global Partitioned	RANGE (D1_COMM_ID)	
		D1T380S1	BUS_OBJ_CD, BO_STATUS_CD, D1_COMM_ID	Global Partitioned	HASH(BUS_OBJ_CD, BO_STATUS_CD, D1_COMM_ID)	
		CM_ILM_ D1T380S1	ILM_DT, ILM_ARCH_SW, D1_COMM_ID	Local		
D1_COMM_OUT _CHAR	REFERENCE (D1_COMM_OUT _CHAR_FK)					
		D1T381P0	D1_COMM_ID, CHAR_TYPE_CD, SEQ_NUM	Global Partitioned	RANGE (D1_COMM_ID)	
		D1T381S0	SRCH_CHAR_VAL	Global Partitioned	HASH(SRCH_CHAR _VAL)	

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
D1_COMM_OUT_IDENTIFIER	REFERENCE (D1_COMM_OUT_IDENTIFIER_FK)					
		D1T385P0	D1_COMM_ID, COMM_ID_TYPE_FLG	Global Partitioned	RANGE(D1_COMM_ID)	
		D1T385S0	COMM_ID_TYPE_FLG, ID_VALUE	Global Partitioned	HASH(COMM_ID_TYPE_FLG, ID_VALUE)	
		D1T385S1	COMM_ID_TYPE_FLG, UPPER(ID_VALUE)			
D1_COMM_OUT_LOG	REFERENCE (D1_COMM_OUT_LOG_FK)					
		D1T382P0	D1_COMM_ID, SEQNO	Global Partitioned	RANGE(D1_COMM_ID)	
		D1T382S1	CHAR_TYPE_CD, CHAR_VAL_FK1	Global Partitioned	HASH(CHAR_TYPE_CD, CHAR_VAL_FK1)	
		D1T382S2	CHAR_TYPE_CD, CHAR_VAL	Global Partitioned	HASH(CHAR_TYPE_CD, CHAR_VAL)	
D1_COMM_OUT_LOG_PARM	REFERENCE (D1_COMM_OUT_LOG_PARM_FK)					
		D1T383P0	D1_COMM_ID, SEQNO PARM_SEQ	Global Partitioned	RANGE(D1_COMM_ID)	
D1_COMM_OUT_REL_OBJ	REFERENCE (D1_COMM_OUT_REL_OBJ_FK)					
		D1T384P0	D1_COMM_ID, MAINT_OBJ_CD, COMM_REL_OBJ_TYPE_FLG	Global Partitioned	RANGE(D1_COMM_ID)	
		D1T384S0	PK_VALUE1, PK_VALUE2, PK_VALUE3, PK_VALUE4, PK_VALUE5, MAINT_OBJ_CD	Global Partitioned	HASH(PK_VALUE1, PK_VALUE2, PK_VALUE3, PK_VALUE4)	

Device Event

If sub retention periods will be defined for this MO, then please follow the guidelines set forth in section Module Specific ILM Implementation Details For Sub Retention.

This table describes the Device Event maintenance object.

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
D1_DVC_EVT (Parent)	RANGE(ILM_DT, DVC_EVT_ID) **Note**: Default is to use sub-retention or use RANGE (ILM_DT,DVC_EVT_ID) if not using sub-retention.					D1_DVC_EVT. CRE_DTTM
		D1T400P0	DVC_EVT_ID	Global Partitioned	RANGE (DVC_EVT_ID)	
		D1T400S1	BUS_OBJ_CD, BO_STATUS_CD, DVC_EVT_ID	Global Partitioned	HASH(BUS_OBJ_CD,BO_STATUS_CD, DVC_EVT_ID)	
		D1T400S2	D1_DEVICE_ID, DVC_EVT_DTTM	Global Partitioned	HASH(D1_DEVICE_ID, DVC_EVT_DTTM)	
		D1T400S3	BUS_OBJ_CD, BO_STATUS_CD, D1_DEVICE_ID, DVC_EVT_ID	Global Partitioned	HASH(BUS_OBJ_CD,BO_STATUS_CD, D1_DEVICE_ID, DVC_EVT_ID)	
		CM_ILM_ D1T400S4	ILM_DT, ILM_ARCH_SW, DVC_EVT_ID	Local		
D1_DVC_EVT_ CHAR	REFERENCE (D1_DVC_EVT_ CHAR_FK)					
		D1T401P0	DVC_EVT_ID, CHAR_TYPE_CD, SEQ_NUM	Global Partitioned	RANGE(DVC_EVT_ID)	
		D1T401S0	SRCH_CHAR_VAL	Global Partitioned	HASH(SRCH_CHAR_VAL)	
D1_DVC_EVT_ IDENTIFIER	REFERENCE (D1_DVC_EVT_ IDENTIFIER_FK)					
		D1T405P0	DVC_EVT_ID, DVC_EVT_ID_TYPE_FLG	Global Partitioned	RANGE(DVC_EVT_ID)	
		D1T405S0	DVC_EVT_ID_TYPE_FLG, ID_VALUE	Global Partitioned	HASH(DVC_EVT_ID_TYPE_FLG, ID_VALUE)	
		D1T405S1	DVC_EVT_ID_TYPE_FLG, UPPER(ID_VALUE)			

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
D1_DVC_EVT_LOG	REFERENCE (D1_DVC_EVT_LOG_FK)					
		D1T402P0	DVC_EVT_ID, SEQNO	Global Partitioned	RANGE(DVC_EVT_ID)	
		D1T402S1	CHAR_TYPE_CD, CHAR_VAL_FK1	Global Partitioned	HASH(CHAR_TYPE_CD, CHAR_VAL_FK1)	
		D1T402S2	CHAR_TYPE_CD, CHAR_VAL	Global Partitioned	HASH(CHAR_TYPE_CD, CHAR_VAL)	
D1_DVC_EVT_LOG_PARM	REFERENCE (D1_DVC_EVT_LOG_PARM_FK)					
		D1T403P0	DVC_EVT_ID, SEQNO PARM_SEQ	Global Partitioned	RANGE(DVC_EVT_ID)	
D1_DVC_EVT_REL_OBJ	REFERENCE (D1_DVC_EVT_REL_OBJ_FK)					
		D1T404P0	DVC_EVT_ID, MAINT_OBJ_CD, DVC_EVT_REL_OBJ_TYPE_FLG	Global Partitioned	RANGE(DVC_EVT_ID)	
		D1T404S0	PK_VALUE1, PK_VALUE2, PK_VALUE3, PK_VALUE4, PK_VALUE5, MAINT_OBJ_CD	Global Partitioned	HASH(PK_VALUE1, PK_VALUE2, PK_VALUE3, PK_VALUE4)	

Completion Event

This table describes the Completion Event maintenance object.

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
D1_COMPL_EVT (Parent)	RANGE(ILM_DT, COMPL_EVT_ID)					D1_COMPL_EVT. CRE_DTTM
		D1T340P0	COMPL_EVT_ID	Global Partitioned	RANGE (COMPL_EVT_ID)	

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
		D1T340S0	D1_ACTIVITY_ID	Global Partitioned	HASH(D1_ ACTIVITY_ID)	
		CM_ILM_ D1T340S1	ILM_DT, ILM_ARCH_SW, DVC_EVT_ID	Local		
D1_COMPL_EVT _CHAR	REFERENCE (D1_COMPL_ EVT_CHAR_FK)					
		D1T341P0	COMPL_EVT_ID, CHAR_TYPE_CD, SEQ_NUM	Global Partitioned	RANGE(COMPL_ EVT_ID)	
		D1T341S1	SRCH_CHAR_VAL	Global Partitioned	HASH(SRCH_CHAR _VAL)	
D1_COMPL_EVT _LOG	REFERENCE (D1_COMPL_EVT _LOG_FK)					
		D1T342P0	COMPL_EVT_ID, SEQNO	Global Partitioned	RANGE(COMPL_ EVT_ID)	
		D1T342S1	CHAR_TYPE_CD, CHAR_VAL_FK1	Global Partitioned	HASH(CHAR_ TYPE_CD, CHAR_VAL_FK1)	
		D1T342S2	CHAR_TYPE_CD, CHAR_VAL	Global Partitioned	HASH(CHAR_ TYPE_CD, CHAR_VAL)	
D1_COMPL_EVT _LOG_PARM	REFERENCE (D1_COMPL_EVT _LOG_PARM_FK)					
		D1T343P0	COMPL_EVT_ID, SEQNO PARM_SEQ	Global Partitioned	RANGE(COMPL_ EVT_ID)	
D1_COMPL_EVT _REL_OBJ	REFERENCE (D1_COMPL_EVT _REL_OBJ_FK)					
		D1T344P0	COMPL_EVT_ID, MAINT_OBJ_CD, COMPL_EVT_REL_OBJ_T YP_FLG	Global Partitioned	RANGE(COMPL_ EVT_ID)	
		D1T344S0	PK_VALUE1, PK_VALUE2, PK_VALUE3, PK_VALUE4, PK_VALUE5, MAINT_OBJ_CD	Global Partitioned	HASH(PK_VALUE1, PK_VALUE2, PK_VALUE3, PK_VALUE4)	

Initial Measurement Data

If sub retention periods will be defined for this MO, then please follow the guidelines set forth in section Module Specific ILM Implementation Details For Sub Retention.

This table describes the Initial Measurement Data maintenance object.

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
D1_INIT_MSRMT_DATA (Parent)	RANGE (ILM_DT,MEASR_COMP_ID) Note: Default is to use sub-retention or use RANGE (ILM_DT,MEASR_COMP_ID) if not using sub-retention.					D1_INIT_MSRMT_DATA. CRE_DTTM
		D1T304P0	INIT_MSRMT_DATA_ID	Global Partitioned	RANGE (INIT_MSRMT_DATA_ID)	
		D1T304S1	MEASR_COMP_ID, D1_TO_DTTM			
		D1T304S1	MEASR_COMP_ID, BO_STATUS_CD, BUS_OBJ_CD, D1_TO_DTTM, D1_FROM_DTTM	Global Partitioned	RANGE(MEASR_COMP_ID)	
		CM_ILM_D1T304S4	ILM_DT, ILM_ARCH_SW, INIT_MSRMT_DATA_ID	Local		
D1_INIT_MSRMT_DATA_CHAR	REFERENCE (D1_INIT_MSRMT_DATA_CHAR_FK)					
		D1T305P0	INIT_MSRMT_DATA_ID, CHAR_TYPE_CD, SEQ_NUM	Global Partitioned	RANGE(INIT_MSRMT_DATA_ID)	
		D1T305S1	SRCH_CHAR_VAL	Global Partitioned	HASH(SRCH_CHAR_VAL)	
D1_INIT_MSRMT_DATA_LOG	REFERENCE (D1_INIT_MSRMT_DATA_LOG_FK)					
		D1T306P0	INIT_MSRMT_DATA_ID, SEQNO	Global Partitioned	RANGE (INIT_MSRMT_DATA_ID)	
D1_INIT_MSRMT_DATA_LOG_PARM	REFERENCE (D1_INIT_MSRMT_DATA_LOG_PARM_FK)					

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
		D1T307P0	INIT_MSRMT_DATA_ID, SEQNO PARM_SEQ	Global Partitioned	RANGE (INIT_MSRMT_ DATA_ID)	

Usage Transaction

This table describes the Usage Transaction maintenance object.

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
D1_USAGE (Parent)	RANGE(ILM_DT, D1_USAGE_ID)					D1_USAGE. CRE_DTTM
		D1T281P0	D1_USAGE_ID	Global Partitioned	RANGE (D1_USAGE_ID)	
		D1T281S0	US_ID, START_DTTM	Global Partitioned	RANGE (US_ID)	
		D1T281S1	BUS_OBJ_CD, BO_STATUS_CD, D1_USAGE_ID	Global Partitioned	HASH(BUS_OBJ_ CD, BO_STATUS_CD, D1_USAGE_ID)	
		CM_ILM_ D1T281S2	ILM_DT, ILM_ARCH_SW, D1_USAGE_ID	Local		
		D1T419S1	USG_EXT_ID, D1_USAGE_ID	Global Partitioned	RANGE (USG_EXT_ID)	
D1_USAGE_ CHAR	REFERENCE (D1_USAGE_ CHAR_FK)					
		D1T285P0	D1_USAGE_ID, CHAR_TYPE_CD, SEQ_NUM	Global Partitioned	RANGE(D1_ USAGE_ID)	
		D1T285S1	SRCH_CHAR_VAL	Global Partitioned	HASH(SRCH_CHAR _VAL)	
D1_USAGE_LOG	REFERENCE (D1_USAGE_LOG _FK)					
		D1T286P0	D1_USAGE_ID, SEQNO	Global Partitioned	RANGE(D1_ USAGE_ID)	

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
		D1T286S1	CHAR_TYPE_CD, CHAR_VAL_FK1	Global Partitioned	HASH(CHAR_ TYPE_CD, CHAR_VAL_FK1)	
		D1T286S2	CHAR_TYPE_CD, CHAR_VAL	Global Partitioned	HASH(CHAR_ TYPE_CD, CHAR_VAL)	
D1_USAGE_LOG _PARM	REFERENCE(D1_ USAGE_LOG_ PARM_FK)					
		D1T287P0	D1_USAGE_ID, SEQNO PARM_SEQ	Global Partitioned	RANGE (D1_USAGE_ID)	
D1_USAGE_ PERIOD	REFERENCE(D1_ USAGE_PERIOD_ FK)					
		D1T283P0	D1_USAGE_ID, PERIOD_SEQ_NUM	Global Partitioned	RANGE(D1_ USAGE_ID)	
D1_USAGE_ PERIOD_ITEM_ DET	REFERENCE(D1_ USAGE_PERIOD_ ITEM_DET_FK)					
		D1T431P0	D1_USAGE_ID, PERIOD_SEQ_NUM, ITEM_SEQ_NUM	Global Partitioned	RANGE(D1_USAG E_ID)	
D1_USAGE_ PERIOD_SQ	REFERENCE(D1_ USAGE_PERIOD_ SQ_FK)					
		D1T284P0	D1_USAGE_ID, PERIOD_SEQ_NUM, SQ_SEQ_NUM	Global Partitioned	RANGE(D1_ USAGE_ID)	
D1_USAGE_PERI OD_SQ_DATA	REFERENCE(D1_ USAGE_PERIOD_ SQ_DATA_FK)					
		D1T497P0	D1_USAGE_ID, PERIOD_SEQ_NUM, SQ_SEQ_NUM, SQ_DATA_DTTM	Global Partitioned	RANGE(D1_ USAGE_ID)	
D1_USAGE_REL	REFERENCE (D1_USAGE_REL_ FK)					
		D1T316P0	D1_USAGE_ID, USAGE_REL_TYPE_FLG	Global Partitioned	RANGE(D1_ USAGE_ID)	
		D1T316S0	REL_USAGE_ID, USAGE_REL_TYPE_FLG, D1_USAGE_ID	Global Partitioned	HASH(REL_USAGE _ID, USAGE_REL_TYPE _FLG, D1_USAGE_ID)	

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
D1_USAGE_ SCALAR_DTL	REFERENCE(D1_ USAGE_SCALAR_ DTL_FK)					
		D1T282P0	D1_USAGE_ID, D1_SP_ID, SEQ_NUM	Global Partitioned	RANGE(D1_ USAGE_ID)	

Usage Transaction Exception

This table describes the Usage Transaction Exception maintenance object.

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
D1_USAGE_ EXCP (Parent)	RANGE (ILM_DT, USAGE_EXCP_ ID)					D1_USAGE_ EXCP. CRE_DTTM
		D1T443P0	USAGE_EXCP_ID	Global Partitioned	RANGE (USAGE_EXCP_ ID)	
		CM_ILM_ D1T443S1	ILM_DT, ILM_ARCH_SW, USAGE_EXCP_ID	Local Partitioned		
D1_USAGE_ EXCP_CHAR	REFERENCE (D1_USAGE_ EXCP_CHAR_ FK)	D1T446P0	USAGE_EXCP_ID, CHAR_TYPE_CD, SEQ_NUM	Global Partitioned	RANGE (USAGE_EXCP_ ID)	
		D1T446S1	SRCH_CHAR_VAL	Global Partitioned	HASH (SRCH_CHAR_ VAL)	
D1_USAGE_ EXCP_PARM	REFERENCE (D1_USAGE_ EXCP_PARM_ FK)	D1T445P0	USAGE_EXCP_ID, PARM_SEQ	Global Partitioned	RANGE (USAGE_EXCP_ ID)	

VEE Exception

This table describes the VEE Exception maintenance object.

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
D1_VEE_EXCP (Parent)	RANGE(ILM_DT, VEE_EXCP_ID)					D1_VEE_EXCP. CRE_DTTM
		D1T308P0	VEE_EXCP_ID	Global Partitioned	RANGE (VEE_EXCP_ID)	
		D1T308S1	INIT_MSRMT_DATA_ID	Global Partitioned	HASH(INIT_ MSRMT_DATA_ID)	
		CM_ILM_ D1T308S2	ILM_DT, ILM_ARCH_SW, VEE_EXCP_ID	Local		
D1_VEE_EXCP_ CHAR	REFERENCE (D1_VEE_EXCP_ CHAR_FK)					
		D1T310P0	VEE_EXCP_ID, CHAR_TYPE_CD, SEQ_NUM	Global Partitioned	RANGE(VEE_ EXCP_ID)	
		D1T310S1	SRCH_CHAR_VAL	Global Partitioned	HASH(SRCH_CHAR _VAL)	
D1_VEE_EXCP_ PARM	REFERENCE (D1_VEE_EXCP_ PARM_FK)					
		D1T309P0	VEE_EXCP_ID, PARM_SEQ	Global Partitioned	RANGE(VEE_ EXCP_ID))	

Snapshot Tables

This table below describes the snapshot tables.

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
D1_SNAPSHOT_ DL_CTRL	RANGE(ILM_DT)					D1_SNAPSHOT _DL_CTRL.SNA PSHOT_DTTM
		D1T433P0	SNAPSHOT_FACT_ NAME_CD	Global Partitioned		

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
		CM_ILM_D1T433S1	ILM_DT, ILM_ARCH_SW, SNAPSHOT_FACT_NAME_CD, SNAPSHOT_DTTM	Local		
D1_SP_SNAP_DL	RANGE(ILM_DT, SP_SNAP_ID)					D1_SP_SNAP_DL.SNAPSHOT_DTTM
		D1T434P0	SP_SNAP_ID	Global Partitioned	RANGE(SP_SNAP_ID)	
		D1T434S0	D1_SP_ID, SNAPSHOT_DTTM, SNAPSHOT_TYPE_FLG	Global Partitioned		
		CM_ILM_D1T434S1	ILM_DT, ILM_ARCH_SW, SP_SNAP_ID	Local		
D1_SP_UNR_USG_SNAP_DL	RANGE(ILM_DT, SP_UNR_USG_SNAP_ID)					D1_SP_UNR_USG_SNAP_DL.SNAPSHOT_DTTM
		D1T438P0	SP_UNR_USG_SNAP_ID	Global Partitioned	RANGE(SP_USG_SNAP_ID)	
		D1T436S0	D1_SP_ID, SNAPSHOT_DTTM, MEASR_COMP_ID, USG_SNAPSHOT_TYPE_FLG, D1_TOU_CD, MSRMT_COND_FLG, SNAPSHOT_TYPE_FLG	Global Partitioned		
		CM_ILM_D1T436S1	ILM_DT, ILM_ARCH_SW, SP_USG_SNAP_ID	Local		
D1_SP_VEE_EXCP_SNAP_DL	RANGE(ILM_DT, SP_VEE_EXCP_SNAP_ID)					D1_SP_VEE_EXCP_SNAP_DL.SNAPSHOT_DTTM
		D1T440P0	SP_VEE_EXCP_SNAP_ID	Global Partitioned	RANGE(SP_VEE_EXCP_SNAP_ID)	
		D1T440S0	D1_SP_ID, SNAPSHOT_DTTM, MEASR_COMP_ID, EXCP_TYPE_CD, D1_IMD_TYPE_FLG, EXCP_SEVERITY_FLG, VEE_GRP_CD, VEE_RULE_CD, SNAPSHOT_TYPE_FLG			

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
		CM_ILM_ D1T440S1	ILM_DT, ILM_ARCH_SW, SP_VEE_EXCP_SNAP_ID	Local		

Module Specific ILM Implementation Details For Sub Retention

This section outlines each maintenance object that has been configured to support ILM as well as sub retention periods. This differs from the standard ILM enabled tables in that the partitioning strategy is inclusive of an additional column that defines the retention period for each record. In each case, the recommendation of the initial load of the ILM_DT and the <field name for retention period> for existing records is noted. The CTAS operation for these tables includes an extra step of generating a temporary mapping table that will allow the select for the ILM_DT to also identify the appropriate <retention period field name> for each record.

This section details the following maintenance objects that support ILM as well as sub retention periods:

- Activity
- Device Event
- Initial Measurement Data

Activity

If sub retention periods will not be defined for this MO, then please follow the guidelines set forth in section Module Specific ILM Implementation Details.

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
D1_ACTIVITY (Parent)	RANGE (ILM_DT, RETENTION_ PERIOD)					D1_ACTIVITY. CRE_DTTM
		D1T319P0	D1_ACTIVITY_ID	Global Partitioned	RANGE (D1_ACTIVITY_ID)	
		D1T319S0	BUS_OBJ_CD, BO_STATUS_CD, D1_ACTIVITY_ID	Global Partitioned	HASH(BUS_OBJ_CD, BO_STATUS_CD, D1_ACTIVITY_ID)	
		CM_ILM_ D1T319S1	ILM_DT, RETENTION_PERIOD, ILM_ARCH_SW, D1_ACTIVITY_ID	Local		

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
D1_ACTIVITY_CHAR	REFERENCE (D1_ACTIVITY_CHAR_FK)					
		D1T320P0	D1_ACTIVITY_ID, CHAR_TYPE_CD, SEQ_NUM	Global Partitioned	RANGE(D1_ACTIVITY_ID)	
		D1T320S0	SRCH_CHAR_VAL	Global Partitioned	HASH(SRCH_CHAR_VAL)	
D1_ACTIVITY_IDENTIFIER	REFERENCE (D1_ACTIVITY_IDENTIFIER_FK)					
		D1T330P0	D1_ACTIVITY_ID, ACTIVITY_ID_TYPE_FLG	Global Partitioned	RANGE(D1_ACTIVITY_ID)	
		D1T330S0	ACTIVITY_ID_TYPE_FLG, ID_VALUE	Global Partitioned	HASH(ACTIVITY_ID_TYPE_FLG, ID_VALUE)	
		D1T330S1	ACTIVITY_ID_TYPE_FLG, UPPER(ID_VALUE)			
D1_ACTIVITY_LOG	REFERENCE (D1_ACTIVITY_LOG_FK)					
		D1T321P0	D1_ACTIVITY_ID, SEQNO	Global Partitioned	RANGE(D1_ACTIVITY_ID)	
		D1T321S1	CHAR_TYPE_CD, CHAR_VAL_FK1	Global Partitioned	HASH(CHAR_TYPE_CD, CHAR_VAL_FK1)	
		D1T321S2	CHAR_TYPE_CD, CHAR_VAL	Global Partitioned	HASH(CHAR_TYPE_CD, CHAR_VAL)	
D1_ACTIVITY_LOG_PARM	REFERENCE (D1_ACTIVITY_LOG_PARM_FK)					
		D1T322P0	D1_ACTIVITY_ID, SEQNO PARM_SEQ	Global Partitioned	RANGE(D1_ACTIVITY_ID)	
D1_ACTIVITY_REL	REFERENCE (D1_ACTIVITY_REL_FK)					
		D1T323P0	D1_ACTIVITY_ID, ACTIVITY_REL_TYPE_FLG	Global Partitioned	RANGE(D1_ACTIVITY_ID)	
		D1T323S0	REL_ACTIVITY_ID	Global Partitioned	HASH(REL_ACTIVITY_ID)	

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
D1_ACTIVITY_REL_OBJ	REFERENCE (D1_ACTIVITY_REL_OBJ_FK)					
		D1T324P0	D1_ACTIVITY_ID, MAINT_OBJ_CD, ACTIVITY_REL_OBJ_TYPE_FLG	Global Partitioned	RANGE(D1_ACTIVITY_ID)	
		D1T324S0	PK_VALUE1, PK_VALUE2, PK_VALUE3, PK_VALUE4, PK_VALUE5, MAINT_OBJ_CD	Global Partitioned	HASH(PK_VALUE1, PK_VALUE2, PK_VALUE3, PK_VALUE4)	

Query for Setting the Retention Period

The following query should be used to create a temporary table to create a mapping table that will identify the retention period for each measuring component type. This table will then be used during in the CTAS operation for Activity to identify the retention period for each record.

Please refer to Appendix C: Sample SQL for Enabling ILM with Sub Retention in MSM (Existing Installation) for detailed information using Initial Measurement Data as an example.

> **Note**: A pre-requisite to executing this query is configuring the appropriate retention periods in the ILM master configuration in the Oracle Utilities Meter Data Management application.

```
   /*****ACTIVITY*****/
   CREATE TABLE ILM_ACTIVITY_RETENTION_TMP
   AS
   select acty.activity_type_cd
   /*retrieve the retention period for Activity Types in this order of
precedence:
   1. The category based retention period from the MDM master
configuration
   2. The MO level retention period from the MO options
   3. The installation level retention period from the FW master
configuration
   */
   , CAST(coalesce(catMap.retPeriod --Category level
   , (select maint_obj_opt_val
   from ci_md_mo_opt mmo
   where maint_obj_cd = 'D1-ACTIVITY'
   and maint_obj_opt_flg ='FLRP'
   and seq_num =
   (select max(seq_num)
   from ci_md_mo_opt mmo
   where maint_obj_cd = 'D1-ACTIVITY'
   and maint_obj_opt_flg ='FLRP')) --MO level
```

```
    , extractvalue( xmlparse(content fw_mcfg.mst_config_data)
    ,'generalMasterConfiguration/defaultRetentionPeriod') --Install
level
    ) as NUMBER(5)) retPeriod
    from d1_activity_type acty
    , (select extractvalue(value(p),
    'activityTypeCategoryRetentionPeriodList/activityTypeCategory'
    )ACTIVITY_TYPE_CAT_FLG
    , extractvalue(value(p),
    'activityTypeCategoryRetentionPeriodList/retentionPeriod'
    )retPeriod
    from f1_mst_config mdm_mcfg ,
    table(xmlsequence(extract(xmlparse(content
mdm_mcfg.mst_config_data),
    'activityRetentionPeriod/activityTypeCategoryRetentionPeriods/
activityTypeCategoryRetentionPeriodList'
    ))) p
    where mdm_mcfg.bus_obj_cd = 'D1-ILMMSConfig')catMap
    , f1_mst_config fw_mcfg
    where fw_mcfg.bus_obj_cd = 'F1-ILMMSConfig'
    and acty.ACTIVITY_TYPE_CAT_FLG = catMap.ACTIVITY_TYPE_CAT_FLG (+)
    order by 1;
```

Device Event

Note: If sub retention periods will not be defined for this MO, then please follow the guidelines set forth in section Module Specific ILM Implementation Details.

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
D1_DVC_EVT (Parent)	RANGE(ILM_DT, RETENTION_ PERIOD)					D1_DVC_EVT. CRE_DTTM
		D1T400P0	DVC_EVT_ID	Global Partitioned	RANGE (DVC_EVT_ID)	
		D1T400S1	BUS_OBJ_CD, BO_STATUS_CD, DVC_EVT_ID	Global Partitioned	HASH(BUS_OBJ_C D,BO_STATUS_CD, DVC_EVT_ID)	
		D1T400S2	D1_DEVICE_ID, DVC_EVT_DTTM	Global Partitioned	HASH(D1_DEVICE _ID, DVC_EVT_DTTM)	
		D1T400S3	BUS_OBJ_CD, BO_STATUS_CD, D1_DEVICE_ID, DVC_EVT_ID	Global Partitioned	HASH(BUS_OBJ_C D,BO_STATUS_CD, D1_DEVICE_ID, DVC_EVT_ID)	
		CM_ILM_ D1T400S4	ILM_DT, RETENTION_PERIOD, ILM_ARCH_SW, DVC_EVT_ID	Local		

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
D1_DVC_EVT_CHAR	REFERENCE (D1_DVC_EVT_CHAR_FK)					
		D1T401P0	DVC_EVT_ID, CHAR_TYPE_CD, SEQ_NUM	Global Partitioned	RANGE(DVC_EVT_ID)	
		D1T401S0	SRCH_CHAR_VAL	Global Partitioned	HASH(SRCH_CHAR_VAL)	
D1_DVC_EVT_IDENTIFIER	REFERENCE (D1_DVC_EVT_IDENTIFIER_FK)					
		D1T405P0	DVC_EVT_ID, DVC_EVT_ID_TYPE_FLG	Global Partitioned	RANGE(DVC_EVT_ID)	
		D1T405S0	DVC_EVT_ID_TYPE_FLG, ID_VALUE	Global Partitioned	HASH(DVC_EVT_ID_TYPE_FLG, ID_VALUE)	
		D1T405S1	DVC_EVT_ID_TYPE_FLG, UPPER(ID_VALUE)			
D1_DVC_EVT_LOG	REFERENCE (D1_DVC_EVT_LOG_FK)					
		D1T402P0	DVC_EVT_ID, SEQNO	Global Partitioned	RANGE(DVC_EVT_ID)	
		D1T402S1	CHAR_TYPE_CD, CHAR_VAL_FK1	Global Partitioned	HASH(CHAR_TYPE_CD, CHAR_VAL_FK1)	
		D1T402S2	CHAR_TYPE_CD, CHAR_VAL	Global Partitioned	HASH(CHAR_TYPE_CD, CHAR_VAL)	
D1_DVC_EVT_LOG_PARM	REFERENCE (D1_DVC_EVT_LOG_PARM_FK)					
		D1T403P0	DVC_EVT_ID, SEQNO PARM_SEQ	Global Partitioned	RANGE(DVC_EVT_ID)	
D1_DVC_EVT_REL_OBJ	REFERENCE (D1_DVC_EVT_REL_OBJ_FK)					
		D1T404P0	DVC_EVT_ID, MAINT_OBJ_CD, DVC_EVT_REL_OBJ_TYPE_FLG	Global Partitioned	RANGE(DVC_EVT_ID)	

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
		D1T404S0	PK_VALUE1, PK_VALUE2, PK_VALUE3, PK_VALUE4, PK_VALUE5, MAINT_OBJ_CD	Global Partitioned	HASH(PK_VALUE1, PK_VALUE2, PK_VALUE3, PK_VALUE4)	

Query for Setting the Retention Period

The following query should be used to create a temporary table to create a mapping table that will identify the retention period for each measuring component type. This table will then be used during in the CTAS operation for Device Event to identify the retention period for each record.

Please refer to Appendix C: Sample SQL for Enabling ILM with Sub Retention in MSM (Existing Installation) for detailed information using Initial Measurement Data as an example.

> **Note**: A pre-requisite to executing this query is configuring the appropriate retention periods in the ILM master configuration in the Oracle Utilities Meter Data Management application.

```
   CREATE TABLE ILM_DVC_EVT_RETENTION_TMP
   AS
   select det.dvc_evt_type_cd
   /*retrieve the retention period for Device Event Types in this
order of precedence:
   1. The category based retention period from the MDM master
configuration
   2. The MO level retention period from the MO options
   3. The installation level retention period from the FW master
configuration
   */
   , CAST(coalesce(catMap.retPeriod --Category level
   , (select maint_obj_opt_val
   from ci_md_mo_opt mmo
   where maint_obj_cd = 'D1-DVCEVENT'
   and maint_obj_opt_flg ='FLRP'
   and seq_num = (select max(seq_num)
   from ci_md_mo_opt mmo
   where maint_obj_cd = 'D1-DVCEVENT'
   and maint_obj_opt_flg ='FLRP')) --MO level
   , extractvalue( xmlparse(content
   fw_mcfg.mst_config_data),
   'generalMasterConfiguration/defaultRetentionPeriod') --Install
level
   ) as NUMBER(5)) retPeriod
   from d1_dvc_evt_type det
   , (select extractvalue(value(p),
   'deviceEventCategoryRetentionPeriodList/deviceEventCategory')
dvc_evt_cat_flg
   , extractvalue(value(p),
```

```
    'deviceEventCategoryRetentionPeriodList/retentionPeriod')
retPeriod
    from f1_mst_config mdm_mcfg ,
    table(xmlsequence(extract(xmlparse(content
    mdm_mcfg.mst_config_data),
    'deviceEventRetentionPeriod/deviceEventCategoryRetentionPeriods/
deviceEventCategoryRetentionPeriodList'
    ))) p
    where mdm_mcfg.bus_obj_cd = 'D1-ILMMSConfig')catMap
    , f1_mst_config fw_mcfg
    where fw_mcfg.bus_obj_cd = 'F1-ILMMSConfig'
    and det.dvc_evt_cat_flg = catMap.dvc_evt_cat_flg (+)
    order by 1;
```

Initial Measurement Data

If sub retention periods will not be defined for this MO, then please follow the guidelines set forth in section Module Specific ILM Implementation Details.

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
D1_INIT_MSRMT_DATA (Parent)	RANGE (ILM_DT, RETENTION_PERIOD)					D1_INIT_MSRMT_DATA. CRE_DTTM
		D1T304P0	INIT_MSRMT_DATA_ID	Global Partitioned	RANGE (INIT_MSRMT_DATA_ID)	
		D1T304S1	MEASR_COMP_ID, D1_TO_DTTM	Global Partitioned	RANGE (MEASR_COMP_ID)	
		CM_ILM_D1T304S4	ILM_DT, RETENTION_PERIOD, ILM_ARCH_SW, INIT_MSRMT_DATA_ID	Local		
D1_INIT_MSRMT_DATA_CHAR	REFERENCE (D1_INIT_MSRMT_DATA_CHAR_FK)					
		D1T305P0	INIT_MSRMT_DATA_ID, CHAR_TYPE_CD, SEQ_NUM	Global Partitioned	RANGE(INIT_MSRMT_DATA_ID)	
		D1T305S1	SRCH_CHAR_VAL	Global Partitioned	HASH(SRCH_CHAR_VAL)	
D1_INIT_MSRMT_DATA_LOG	REFERENCE (D1_INIT_MSRMT_DATA_LOG_FK)					
		D1T306P0	INIT_MSRMT_DATA_ID, SEQNO	Global Partitioned	RANGE (INIT_MSRMT_DATA_ID)	

Table Name	Table Partitioning Type (Partitioning, Sub-Partitioning Key)	Index Name	Index Columns	Index Type Global or Local	Index Partitioning Sub-Partitioning Key	ILM_DT Initial Load
D1_INIT_MSRMT_DATA_LOG_PARM	REFERENCE (D1_INIT_MSRMT_DATA_LOG_PARM_FK)					
		D1T307P0	INIT_MSRMT_DATA_ID, SEQNO PARM_SEQ	Global Partitioned	RANGE (INIT_MSRMT_DATA_ID)	

Query for Setting the Retention Period

The following query should be used to create a temporary table to create a mapping table that will identify the retention period for each measuring component type. This table will then be used during in the CTAS operation for Initial Measurement Data to identify the retention period for each record.

Please refer to Appendix B: Sample SQL for Enabling ILM in MSM (Existing Installation) for detailed information using Initial Measurement Data as an example.

> **Note**: A pre-requisite to executing this query is configuring the appropriate retention periods in the ILM master configuration in the Oracle Utilities Meter Data Management application.

```
CREATE TABLE ILM_IMD_RETENTION_TMP
AS
select mct.measr_comp_type_cd
/*retrieve the retention period for MC Types in this order of
precedence:
1. The UOM based retention period from the MDM master configuration
2. The interval IMD retention period from the MDM master configuration
3. The MO level retention period from the MO options
4. The installation level retention period from the FW master
configuration
*/
, CAST(coalesce( (select retPeriod
from (select 'D1IN' interval_scalar_flg
, extractvalue(value(p),'uomRetentionPeriodList/uom') D1_UOM_CD
, extractvalue(value(p),'uomRetentionPeriodList/retentionPeriod')
retPeriod
from f1_mst_config mdm_mcfg
, table(xmlsequence(extract(xmlparse(content
mdm_mcfg.mst_config_data),
'imdRetentionPeriod/intervalImdRetentionPeriods/uomRetentionPeriods/
uomRetentionPeriodList'))) p
where mdm_mcfg.bus_obj_cd = 'D1-ILMMSConfig'
union
select 'D1SC' INTERVAL_SCALAR_FLG
, extractvalue(value(p),'uomRetentionPeriodList/uom') D1_UOM_CD
, extractvalue(value(p),'uomRetentionPeriodList/retentionPeriod')
retPeriod
from f1_mst_config mdm_mcfg
, table(xmlsequence(extract(xmlparse(content
mdm_mcfg.mst_config_data),
```

```
'imdRetentionPeriod/scalarImdRetentionPeriods/uomRetentionPeriods/
uomRetentionPeriodList'))) p
where mdm_mcfg.bus_obj_cd = 'D1-ILMMSConfig') uomMap
where uomMap.interval_scalar_flg = mct.interval_scalar_flg
and trim(mctvi.d1_uom_cd) = trim(uomMap.d1_uom_cd))--UOM
, DECODE(mct.interval_scalar_flg
,'D1IN'
,extractvalue( xmlparse(content mdm_mcfg.mst_config_data),
'imdRetentionPeriod/intervalImdRetentionPeriods/
intervalRetentionPeriod') --interval IMD
,extractvalue( xmlparse(content mdm_mcfg.mst_config_data),
'imdRetentionPeriod/scalarImdRetentionPeriods/scalarRetentionPeriod')
--scalar IMD
)
, (select maint_obj_opt_val
from ci_md_mo_opt mmo
where maint_obj_cd = 'D1-IMD'
and maint_obj_opt_flg ='FLRP'
and seq_num = (select max(seq_num)
from ci_md_mo_opt mmo
where maint_obj_cd = 'D1-IMD'
and maint_obj_opt_flg ='FLRP')) --IMD
, extractvalue( xmlparse(content fw_mcfg.mst_config_data),
'generalMasterConfiguration/defaultRetentionPeriod') --Install
) as NUMBER(5)) retPeriod
from d1_measr_comp_type mct
, d1_mc_type_value_identifier mctvi
, f1_mst_config fw_mcfg
, f1_mst_config mdm_mcfg
where mct.measr_comp_type_cd = mctvi.measr_comp_type_cd
and mctvi.value_id_type_flg = 'D1MS'
and fw_mcfg.bus_obj_cd = 'F1-ILMMSConfig'
and mdm_mcfg.bus_obj_cd = 'D1-ILMMSConfig'
order by 1;
```

On-going Maintenance Phase

The following steps provide a high level overview of what needs to be done for on-going maintenance for ILM on enabled MOs.

Please refer to the Appendix D: Sample SQL for Periodic Maintenance for detailed information using To Do Entry(Without LOB), F1_SYNC_REC_IN(With LOB-Tablespace per Partition), Initial Measurement Data (With LOB-Tablespace per Subpartition), and the D1_MSRMT table (Partition Compression) as examples.

1. Add the partition:
    a. Create Tablespace to be used for the new parent table partition.
    b. Since, we define MAXVALUE Partition; new partition can only be created using "SPLIT" operation. Identify and use next HIGH_VALUE Partition for the split operation.
    c. All the child table(s) partition(s)\LOB(s) must be altered to use the same tablespace as that of the parent table's partition.
    d. Enable advanced compression on all child table(s).
    e. Copy partition level statistics from the previous partition.
2. Archive the partition/subpartition:

a. Make the tablespace that will be archived READ ONLY.

b. Check that no records have ILM_ARCH_SW = 'N'.

- If record count is zero, then proceed for further steps.
- If record count is not zero, then change the tablespace back to READ WRITE MODE as Archive is not Feasible at the time.

c. Create an archive tablespace for the partition/subpartition that needs to be archived.

d. Create staging tables using the new archive tablespace. Load data for all child tables first.

e. Create staging table using the new archive tablespace and load data for the parent table.

f. Export tablespace using TRANSPORT_TABLESPACES method.

Make Sure Tablespace datafile required for further import is preserved.

g. Drop the partition, partition the tablespace and archive the tablespace (as it is already exported).

3. Restore the partition:

a. Create a new tablespace to restore the partition/subpartition.

b. Add partition using split operation on next greater high value partition.

If the table contains LOBS, there will an additional statement in split partition DDL indicating tablespace where the LOBs will be stored.

c. Enable advanced compression on all child table(s).

d. Import Tablespace using TRANSPORT_TABLESPACES method.

e. Load data into the parent table first from the staging table.

f. Load data into the child table from the staging table.

g. Drop the archive tablespace after import and data loading is successful.

4. Compress D1_MSRMT table Partition:

a. Create new compressed tablespace.

b. Create a table using CTAS for each subpartition of the partition being compressed in the new compressed tablespace.

c. Create a unique primary index for each subpartition of the partition being compressed in the new compressed tablespace. Then alter table to create the primary key.

d. Exchange the subpartition of the D1_MSRMT table with the newly created table for each subpartition.

e. Drop the original uncompressed tablespace.

f. Alter the partition level metadata to reflect the new compressed tablespace.

g. Rename the new compressed tablespace to the original tablespace name.

5. Move Data between different storage tiers:

The ILM facilities can be used within the database to implement storage savings, as follows:

- Use ILM Assistant to define the data groups to be used for the individual objects. Assign those data groups to partitions and storage devices to implement the storage savings. Remember to assign transportable tablespaces for the archive/dormant data stage to allow for safe removal of the data.
- Use ILM assistant to generate the necessary commands to implement the data changes manually or use Automatic Storage Management (ASM) to automate the data storage policies.
- Optionally, use Automatic Data Optimization to provide further optimizations.

For more information about ILM Assistant and ILM refer to the following:

- ILM Assistant Users Guide
- Oracle Database VLDB and Partitioning Guide (11.2) available at:

  http://docs.oracle.com/cd/E11882_01/server.112/e25523/part_lifecycle.htm#CACECAFB
- Oracle Database VLDB and Partitioning Guide (12.1) available at:

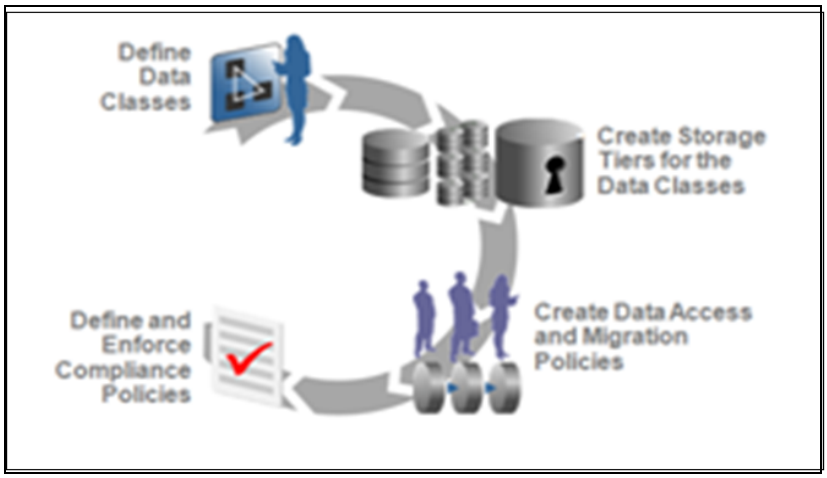
  https://docs.oracle.com/database/121/VLDBG/title.htm

ILM Assistant

The ILM Assistant can provide the following:

- Setup ILM Lifecycle definition - Here you can define different lifecycle definitions for different MOs and configure when the data is ready to be moved to a slower disk.
- Setup ILM Lifecycle tables - Here you define the tables you want to manage and assign it to a Lifecycle definition defined above. You can setup policies so that when data is moved from one partition to another it will be automatically compressed to a desired degree.
- Lifecycle Management - There is a tab called Lifecycle Management where the system admin will be alerted when partitions are eligible for archiving.

ILM Assistant can then be used to ensure the records that have ILM_ARCH_SW = 'Y' can be archived or purged, as deemed appropriate by the business.



Note: For further guidelines on ILM Assistant refer to Implementing Information Lifecycle Management Using the ILM Assistant.

Naming Convention

The naming convention for tablespace, partitions & subpartition is standardized as follows:

- Each name consists of some or all of the following parts.
- The parts of the name are organized hierarchically.
- Each part of the Name is separated with an underscore.
- The maximum name length must not exceed 30 Characters.
- For an MO, the parent table and child table share the same tablespace for the corresponding partition (or sub partition as appropriate).
- Square brackets [ ] indicate that this part of the name should be omitted if not required.

OWNERFLAG_TABLEIDENTIFIER_PARTITIONNAME[_SUBPARTITIONNAME][_ARCHIVEFLAG][_COMPRESSFLAG]

For details on the convention, please refer to the table below:

Convention	Description
OWNERFLAG	Owner flag for the relevant application for example “D1” for MDM
TABLE IDENTIFIER	The Index Name of the Primary Key index without the “P0” suffix. For example, if the PK index name is XT039P0, the table identifier would be “XT039”.

Convention	Description
PARTITION NAME	The Partition name should be prefixed with a P followed by a name which conforms to one of the following standards: • 4 digit year and 3 letter month abbreviation PYYYYMON corresponding to the ILM date e.g. P2011JAN • PMAX if it is the Max Value partition
SUBPARTITION NAME	If subpartitions are used, name should be prefixed with S followed by a name of not more than 5 characters which conforms to the following requirements: • SMAX if this is the Max Value sub partition • If the sub partition holds data for a sub retention period use a number equal to that period e.g S91 if the sub retention period < 91 days. • For a range based SubPartition on Primary Key, use an integral number increasing by +1. For example, if there are 8 sub partitions use S01 through S08
ARCHIVEFLAG	This flag is used as a suffix to the table and tablespace name for the staging tables created for the archiving operation. • ARC

Convention	Description
COMPRESS FLAG	This flag is used as a suffix to the tablespace name for the staging tables created when compressing a partition. • C For compression related tasks, this is used as suffix to the tablespace name. • Partition Tablespace Name: It is formed by OWNERFLAG_TABLEIDENTIFIER_PARTITIONNAME For example: CM_D1T304_PMAX CM_D1T304_P2011JAN • SubPartition Tablespace Name: It is formed by OWNERFLAG_TABLEIDENTIFIER_PARTITIONNAME _SUBPARTITIONNAME For example: CM_D1T304_PMAX_SMAX CM_D1T304_P2011JAN_SMAX CM_D1T304_PMAX_S001 CM_D1T304_P2011JAN_S181 • Archive Staging Table And Its Tablespace Name (When archiving partition): It is formed by OWNERFLAG_TABLEIDENTIFIER_PARTITIONNAME _ ARCHIVEFLAG. For example: CM_D1T304_P2011JAN_ARC • Archive Staging Table And Its Tablespace Name (When archiving subpartition): It is formed by OWNERFLAG_TABLEIDENTIFIER_PARTITIONNAME _SUBPARTITIONNAME_ ARCHIVEFLAG. For example: CM_D1T304_P2011JAN_S181_ARC • Compressed Tablespace name (When compressing partition): For example: CM_D1T304_P2011JAN_ C

Appendix A

Sample SQL for Enabling ILM in MSM (Initial Installation)

This section provides more detail about steps needed to fully support ILM on tables for maintenance objects that support the functionality.

Three maintenance objects are shown:

- To Do Entry - does not include a LOB field.
- Sync Request - does include a LOB field and has one tablespace per partition.
- Initial Measurement Data - includes LOB fields and has one tablespace per subpartition (shown using subretention). Other maintenance object's implementations can follow the appropriate pattern based on whether there is a LOB field or not.

The following DDL(s):

- Follows Naming convention recommendations for partitions\subpartitions\tablespaces.
- Ensures all the ILM Storage requirements are incorporated, failing which, ILM functionality will not be achieved.
    - Partitions/subpartitions are defined with respective Tablespace.
    - Child Tables are referenced partitioned.
- Ensures all Compression recommendations are incorporated.

Maintenance Object: TO DO ENTRY

Parent Table: CI_TD_ENTRY

```
CREATE BIGFILE TABLESPACE CM_XT039_P2011JAN DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_XT039_P2011FEB DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_XT039_P2011MAR DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_XT039_P2011APR DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_XT039_P2011MAY DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_XT039_P2011JUN DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
```

```
CREATE BIGFILE TABLESPACE CM_XT039_P2011JUL DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_XT039_P2011AUG DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_XT039_P2011SEP DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_XT039_P2011OCT DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_XT039_P2011NOV DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_XT039_P2011DEC DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_XT039_PMAX DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON MAXSIZE
UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;

CREATE TABLE CI_TD_ENTRY (
TD_ENTRY_ID     CHAR(14) NOT NULL ENABLE,
BATCH_CD        CHAR(8) DEFAULT ' ' NOT NULL ENABLE,
BATCH_NBR       NUMBER(10,0) DEFAULT 0 NOT NULL ENABLE,
MESSAGE_CAT_NBR NUMBER(5,0) DEFAULT 0 NOT NULL ENABLE,
MESSAGE_NBR     NUMBER(5,0) DEFAULT 0 NOT NULL ENABLE,
ASSIGNED_TO     CHAR(8) DEFAULT ' ' NOT NULL ENABLE,
TD_TYPE_CD      CHAR(8) DEFAULT ' ' NOT NULL ENABLE,
ROLE_ID         CHAR(10) DEFAULT ' ' NOT NULL ENABLE,
ENTRY_STATUS_FLG CHAR(2) DEFAULT ' ' NOT NULL ENABLE,
VERSION         NUMBER(5,0) DEFAULT 1 NOT NULL ENABLE,
CRE_DTTM DATE,
ASSIGNED_DTTM DATE,
COMPLETE_DTTM DATE,
COMPLETE_USER_ID CHAR(8) DEFAULT ' ' NOT NULL ENABLE,
COMMENTS        VARCHAR2(254) DEFAULT ' ' NOT NULL ENABLE,
ASSIGNED_USER_ID CHAR(8) DEFAULT ' ' NOT NULL ENABLE,
TD_PRIORITY_FLG CHAR(4) DEFAULT ' ' NOT NULL ENABLE,
ILM_DT DATE,
ILM_ARCH_SW CHAR(1)
)
ENABLE ROW MOVEMENT
PARTITION BY RANGE (ILM_DT)
SUBPARTITION BY RANGE (TD_ENTRY_ID) SUBPARTITION TEMPLATE
(
SUBPARTITION S01 VALUES LESS THAN ( '12499999999999' ),
SUBPARTITION S02 VALUES LESS THAN ( '24999999999999' ),
SUBPARTITION S03 VALUES LESS THAN ( '37499999999999' ),
SUBPARTITION S04 VALUES LESS THAN ( '49999999999999' ),
SUBPARTITION S05 VALUES LESS THAN ( '62499999999999' ),
SUBPARTITION S06 VALUES LESS THAN ( '74999999999999' ),
SUBPARTITION S07 VALUES LESS THAN ( '87499999999999' ),
SUBPARTITION SMAX VALUES LESS THAN ( MAXVALUE )
)
(
PARTITION "P2011JAN" VALUES LESS THAN (TO_DATE('2011-02-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_XT039_P2011JAN,
PARTITION "P2011FEB" VALUES LESS THAN (TO_DATE('2011-03-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_XT039_P2011FEB,
PARTITION "P2011MAR" VALUES LESS THAN (TO_DATE('2011-04-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_XT039_P2011MAR,
PARTITION "P2011APR" VALUES LESS THAN (TO_DATE('2011-05-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_XT039_P2011APR,
PARTITION "P2011MAY" VALUES LESS THAN (TO_DATE('2011-06-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_XT039_P2011MAY,
PARTITION "P2011JUN" VALUES LESS THAN (TO_DATE('2011-07-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_XT039_P2011JUN,
PARTITION "P2011JUL" VALUES LESS THAN (TO_DATE('2011-08-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_XT039_P2011JUL,
PARTITION "P2011AUG" VALUES LESS THAN (TO_DATE('2011-09-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_XT039_P2011AUG,
PARTITION "P2011SEP" VALUES LESS THAN (TO_DATE('2011-10-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_XT039_P2011SEP,
PARTITION "P2011OCT" VALUES LESS THAN (TO_DATE('2011-11-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_XT039_P2011OCT,
PARTITION "P2011NOV" VALUES LESS THAN (TO_DATE('2011-12-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_XT039_P2011NOV,
PARTITION "PMAX" VALUES LESS THAN (MAXVALUE)
TABLESPACE CM_XT039_PMAX
```

```
);
```

INDEX

```
CREATE BIGFILE TABLESPACE CM_XT039_IND DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON MAXSIZE
UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;

CREATE UNIQUE INDEX XT039P0 ON CI_TD_ENTRY ( TD_ENTRY_ID ) TABLESPACE CM_XT039_IND
GLOBAL PARTITION BY RANGE (TD_ENTRY_ID)
(
PARTITION P1 VALUES LESS THAN ( '12499999999999' ),
PARTITION P2 VALUES LESS THAN ( '24999999999999' ),
PARTITION P3 VALUES LESS THAN ( '37499999999999' ),
PARTITION P4 VALUES LESS THAN ( '49999999999999' ),
PARTITION P5 VALUES LESS THAN ( '62499999999999' ),
PARTITION P6 VALUES LESS THAN ( '74999999999999' ),
PARTITION P7 VALUES LESS THAN ( '87499999999999' ),
PARTITION P8 VALUES LESS THAN ( MAXVALUE )
);

ALTER TABLE CI_TD_ENTRY ADD CONSTRAINT XT039P0 PRIMARY KEY(TD_ENTRY_ID) USING INDEX;

CREATE UNIQUE INDEX XT039S2 ON CI_TD_ENTRY ( ASSIGNED_TO, TD_ENTRY_ID ) TABLESPACE
CM_XT039_IND COMPRESS ADVANCED LOW;

CREATE INDEX XT039S3 ON CI_TD_ENTRY ( ENTRY_STATUS_FLG, ASSIGNED_TO ) TABLESPACE
CM_XT039_IND COMPRESS ADVANCED LOW;

CREATE INDEX XT039S4 ON CI_TD_ENTRY ( ROLE_ID, TD_TYPE_CD, ENTRY_STATUS_FLG,
TD_PRIORITY_FLG, ASSIGNED_TO, CRE_DTTM ) TABLESPACE CM_XT039_IND COMPRESS ADVANCED LOW;

CREATE INDEX XT039S5 ON CI_TD_ENTRY ( BATCH_CD, BATCH_NBR, ENTRY_STATUS_FLG ) TABLESPACE
CM_XT039_IND COMPRESS ADVANCED LOW;

CREATE UNIQUE INDEX XT039S6 ON CI_TD_ENTRY ( TD_ENTRY_ID, ASSIGNED_TO, ENTRY_STATUS_FLG )
TABLESPACE CM_XT039_IND COMPRESS ADVANCED LOW;

CREATE UNIQUE INDEX XT039S7 ON CI_TD_ENTRY ( COMPLETE_USER_ID, COMPLETE_DTTM, TD_ENTRY_ID )
TABLESPACE CM_XT039_IND COMPRESS ADVANCED LOW;

CREATE INDEX XT039S8 ON CI_TD_ENTRY ( ENTRY_STATUS_FLG, TD_TYPE_CD, MESSAGE_CAT_NBR,
MESSAGE_NBR) TABLESPACE CM_XT039_IND COMPRESS ADVANCED LOW;

CREATE UNIQUE INDEX CM_ILM_XT039S8 ON CI_TD_ENTRY ( ILM_DT, ILM_ARCH_SW, TD_ENTRY_ID )
LOCAL COMPRESS ADVANCED LOW;
```

Child Table: CI_TD_DRLKEY

```
CREATE TABLE CI_TD_DRLKEY
(
TD_ENTRY_ID CHAR(14) NOT NULL ENABLE,
SEQ_NUM    NUMBER(3,0) NOT NULL ENABLE,
KEY_VALUE  VARCHAR2(50 BYTE) DEFAULT ' ' NOT NULL ENABLE,
VERSION    NUMBER(5,0) DEFAULT 1 NOT NULL ENABLE,
CONSTRAINT CI_TD_DRLKEY_FK FOREIGN KEY(TD_ENTRY_ID) REFERENCES CI_TD_ENTRY
ON DELETE CASCADE)
PARTITION BY REFERENCE (CI_TD_DRLKEY_FK)
ENABLE ROW MOVEMENT;
```

INDEX

```
CREATE UNIQUE INDEX XT037P0 ON CI_TD_DRLKEY ( TD_ENTRY_ID, SEQ_NUM ) TABLESPACE
CM_XT039_IND
GLOBAL PARTITION BY RANGE (TD_ENTRY_ID)
(
PARTITION P1 VALUES LESS THAN ( '12499999999999' ),
PARTITION P2 VALUES LESS THAN ( '24999999999999' ),
PARTITION P3 VALUES LESS THAN ( '37499999999999' ),
PARTITION P4 VALUES LESS THAN ( '49999999999999' ),
PARTITION P5 VALUES LESS THAN ( '62499999999999' ),
PARTITION P6 VALUES LESS THAN ( '74999999999999' ),
PARTITION P7 VALUES LESS THAN ( '87499999999999' ),
PARTITION P8 VALUES LESS THAN ( MAXVALUE )
)
COMPRESS ADVANCED LOW;

ALTER TABLE CI_TD_DRLKEY ADD CONSTRAINT XT037P0 PRIMARY KEY(TD_ENTRY_ID, SEQ_NUM) USING
INDEX;
```

```
CREATE INDEX XT037S1 ON CI_TD_DRLKEY ( KEY_VALUE, TD_ENTRY_ID ) TABLESPACE CM_XT039_IND
COMPRESS ADVANCED LOW;
```

Child Table: CI_TD_ENTRY_CHA

```
CREATE TABLE CI_TD_ENTRY_CHA
(
TD_ENTRY_ID   CHAR(14) NOT NULL ENABLE,
CHAR_TYPE_CD   CHAR(8) NOT NULL ENABLE,
SEQ_NUM       NUMBER(3,0) DEFAULT 0 NOT NULL ENABLE,
CHAR_VAL       CHAR(16) DEFAULT ' ' NOT NULL ENABLE,
VERSION        NUMBER(5,0) DEFAULT 1 NOT NULL ENABLE,
ADHOC_CHAR_VAL VARCHAR2(254) DEFAULT ' ' NOT NULL ENABLE,
CHAR_VAL_FK1   VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE,
CHAR_VAL_FK2   VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE,
CHAR_VAL_FK3   VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE,
CHAR_VAL_FK4   VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE,
CHAR_VAL_FK5   VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE,
SRCH_CHAR_VAL  VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE,
CONSTRAINT CI_TD_ENTRY_CHA_FK FOREIGN KEY(TD_ENTRY_ID) REFERENCES CI_TD_ENTRY
ON DELETE CASCADE)
PARTITION BY REFERENCE (CI_TD_ENTRY_CHA_FK)
ENABLE ROW MOVEMENT;
```

INDEX

```
CREATE UNIQUE INDEX XT701P0 ON CI_TD_ENTRY_CHA ( TD_ENTRY_ID, CHAR_TYPE_CD, SEQ_NUM )
TABLESPACE CM_XT039_IND
GLOBAL PARTITION BY RANGE (TD_ENTRY_ID)
(
PARTITION P1 VALUES LESS THAN ( '12499999999999' ),
PARTITION P2 VALUES LESS THAN ( '24999999999999' ),
PARTITION P3 VALUES LESS THAN ( '37499999999999' ),
PARTITION P4 VALUES LESS THAN ( '49999999999999' ),
PARTITION P5 VALUES LESS THAN ( '62499999999999' ),
PARTITION P6 VALUES LESS THAN ( '74999999999999' ),
PARTITION P7 VALUES LESS THAN ( '87499999999999' ),
PARTITION P8 VALUES LESS THAN ( MAXVALUE )
)
COMPRESS ADVANCED LOW;

ALTER TABLE CI_TD_ENTRY_CHA ADD CONSTRAINT XT701P0 PRIMARY KEY(TD_ENTRY_ID, CHAR_TYPE_CD,
SEQ_NUM) USING INDEX;

CREATE INDEX XT701S1 ON CI_TD_ENTRY_CHA ( SRCH_CHAR_VAL, CHAR_TYPE_CD, TD_ENTRY_ID )
TABLESPACE CM_XT039_IND COMPRESS ADVANCED LOW;

CREATE INDEX XT701S2 ON CI_TD_ENTRY_CHA ( CHAR_VAL_FK1 ) TABLESPACE CM_XT039_IND
COMPRESS ADVANCED LOW;
```

Child Table: CI_TD_LOG

```
CREATE TABLE CI_TD_LOG
(
TD_ENTRY_ID CHAR(14) NOT NULL ENABLE,
SEQ_NUM    NUMBER(3,0) NOT NULL ENABLE,
LOG_DTTM DATE NOT NULL ENABLE,
LOG_TYPE_FLG CHAR(4) DEFAULT ' ' NOT NULL ENABLE,
USER_ID     CHAR(8) DEFAULT ' ' NOT NULL ENABLE,
ASSIGNED_TO CHAR(8) DEFAULT ' ' NOT NULL ENABLE,
VERSION     NUMBER(5,0) DEFAULT 1 NOT NULL ENABLE,
DESCRLONG   VARCHAR2(4000) DEFAULT ' ' NOT NULL ENABLE,
CONSTRAINT CI_TD_LOG_FK FOREIGN KEY(TD_ENTRY_ID) REFERENCES CI_TD_ENTRY ON DELETE CASCADE)
PARTITION BY REFERENCE (CI_TD_LOG_FK)
ENABLE ROW MOVEMENT;
```

INDEX

```
CREATE UNIQUE INDEX XT721P0 ON CI_TD_LOG ( TD_ENTRY_ID, SEQ_NUM ) TABLESPACE CM_XT039_IND
GLOBAL PARTITION BY RANGE (TD_ENTRY_ID)
(
PARTITION P1 VALUES LESS THAN ( '12499999999999' ),
PARTITION P2 VALUES LESS THAN ( '24999999999999' ),
PARTITION P3 VALUES LESS THAN ( '37499999999999' ),
PARTITION P4 VALUES LESS THAN ( '49999999999999' ),
```

```
PARTITION P5 VALUES LESS THAN ( '62499999999999' ),
PARTITION P6 VALUES LESS THAN ( '74999999999999' ),
PARTITION P7 VALUES LESS THAN ( '87499999999999' ),
PARTITION P8 VALUES LESS THAN ( MAXVALUE )
)
COMPRESS ADVANCED LOW;

ALTER TABLE CI_TD_LOG ADD CONSTRAINT XT721P0 PRIMARY KEY(TD_ENTRY_ID, SEQ_NUM) USING INDEX;

CREATE INDEX XT721S1 ON CI_TD_LOG ( LOG_DTTM,  USER_ID, LOG_TYPE_FLG, TD_ENTRY_ID )
TABLESPACE CM_XT039_IND COMPRESS ADVANCED LOW;
```

Child Table: CI_TD_MSG_PARM

```
CREATE TABLE CI_TD_MSG_PARM
(
TD_ENTRY_ID CHAR(14) NOT NULL ENABLE,
SEQ_NUM     NUMBER(3,0) NOT NULL ENABLE,
MSG_PARM_VAL VARCHAR2(2000) DEFAULT ' ' NOT NULL ENABLE,
VERSION     NUMBER(5,0) DEFAULT 1 NOT NULL ENABLE,
CONSTRAINT CI_TD_MSG_PARM_FK FOREIGN KEY(TD_ENTRY_ID) REFERENCES CI_TD_ENTRY ON DELETE
CASCADE)
PARTITION BY REFERENCE (CI_TD_MSG_PARM_FK)
ENABLE ROW MOVEMENT;
```

INDEX

```
CREATE UNIQUE INDEX XT040P0 ON CI_TD_MSG_PARM ( TD_ENTRY_ID, SEQ_NUM ) TABLESPACE
CM_XT039_IND
GLOBAL PARTITION BY RANGE (TD_ENTRY_ID)
 (
    PARTITION P1 VALUES LESS THAN ( '12499999999999' ),
    PARTITION P2 VALUES LESS THAN ( '24999999999999' ),
    PARTITION P3 VALUES LESS THAN ( '37499999999999' ),
    PARTITION P4 VALUES LESS THAN ( '49999999999999' ),
    PARTITION P5 VALUES LESS THAN ( '62499999999999' ),
    PARTITION P6 VALUES LESS THAN ( '74999999999999' ),
    PARTITION P7 VALUES LESS THAN ( '87499999999999' ),
    PARTITION P8 VALUES LESS THAN ( MAXVALUE )
 )
COMPRESS ADVANCED LOW;

ALTER TABLE CI_TD_MSG_PARM ADD CONSTRAINT XT040P0 PRIMARY KEY(TD_ENTRY_ID, SEQ_NUM) USING
INDEX;
```

Child Table: CI_TD_SRTKEY

```
CREATE TABLE CI_TD_SRTKEY
(
TD_ENTRY_ID CHAR(14) NOT NULL ENABLE,
SEQ_NUM    NUMBER(3,0) NOT NULL ENABLE,
KEY_VALUE VARCHAR2(50 BYTE) DEFAULT ' ' NOT NULL ENABLE,
VERSION    NUMBER(5,0) DEFAULT 1 NOT NULL ENABLE,
CONSTRAINT CI_TD_SRTKEY_FK FOREIGN KEY(TD_ENTRY_ID) REFERENCES CI_TD_ENTRY ON DELETE
CASCADE)
PARTITION BY REFERENCE (CI_TD_SRTKEY_FK)
ENABLE ROW MOVEMENT;
```

INDEX

```
CREATE UNIQUE INDEX XT041P0 ON CI_TD_SRTKEY ( TD_ENTRY_ID, SEQ_NUM ) TABLESPACE
CM_XT039_IND
GLOBAL PARTITION BY RANGE (TD_ENTRY_ID)
(
PARTITION P1 VALUES LESS THAN ( '12499999999999' ),
PARTITION P2 VALUES LESS THAN ( '24999999999999' ),
PARTITION P3 VALUES LESS THAN ( '37499999999999' ),
PARTITION P4 VALUES LESS THAN ( '49999999999999' ),
PARTITION P5 VALUES LESS THAN ( '62499999999999' ),
PARTITION P6 VALUES LESS THAN ( '74999999999999' ),
PARTITION P7 VALUES LESS THAN ( '87499999999999' ),
PARTITION P8 VALUES LESS THAN ( MAXVALUE )
)
COMPRESS ADVANCED LOW;
```

```
ALTER TABLE CI_TD_SRTKEY ADD CONSTRAINT XT041P0 PRIMARY KEY(TD_ENTRY_ID, SEQ_NUM) USING
INDEX;

CREATE INDEX XT041S1 ON CI_TD_SRTKEY ( KEY_VALUE, TD_ENTRY_ID ) TABLESPACE CM_XT039_IND
COMPRESS ADVANCED LOW;
```

Maintenance Object:F1-SYNCREQIN

Parent Table: F1_SYNC_REQ_IN

```
CREATE BIGFILE TABLESPACE CM_F1T191_P2011JAN DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_F1T191_P2011FEB DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_F1T191_P2011MAR DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_F1T191_P2011APR DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_F1T191_P2011MAY DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_F1T191_P2011JUN DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_F1T191_P2011JUL DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_F1T191_P2011AUG DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_F1T191_P2011SEP DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_F1T191_P2011OCT DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_F1T191_P2011NOV DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_F1T191_P2011DEC DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_F1T191_PMAX DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON MAXSIZE
UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;

CREATE TABLE F1_SYNC_REQ_IN
  (
    F1_SYNC_REQ_IN_ID CHAR(14) NOT NULL ENABLE,
    BUS_OBJ_CD        CHAR(30) DEFAULT ' ' NOT NULL ENABLE,
    CRE_DTTM DATE NOT NULL ENABLE,
    BO_STATUS_CD CHAR(12) DEFAULT ' ' NOT NULL ENABLE,
    STATUS_UPD_DTTM DATE,
    MAINT_OBJ_CD  CHAR(12 BYTE) DEFAULT ' ' NOT NULL ENABLE,
    NT_XID_CD     CHAR(30 BYTE) DEFAULT ' ' NOT NULL ENABLE,
    EXT_PK_VALUE1 VARCHAR2(254) DEFAULT ' ' NOT NULL ENABLE,
    EXT_PK_VALUE2 VARCHAR2(254) DEFAULT ' ' NOT NULL ENABLE,
    EXT_PK_VALUE3 VARCHAR2(254) DEFAULT ' ' NOT NULL ENABLE,
    EXT_PK_VALUE4 VARCHAR2(254) DEFAULT ' ' NOT NULL ENABLE,
    EXT_PK_VALUE5 VARCHAR2(254) DEFAULT ' ' NOT NULL ENABLE,
    PK_VALUE1     VARCHAR2(254) DEFAULT ' ' NOT NULL ENABLE,
    BO_DATA_AREA CLOB,
    PRE_TRN_INIT_BO_DATA_AREA CLOB,
    PRE_TRN_FIN_BO_DATA_AREA CLOB,
    POST_TRN_BO_DATA_AREA CLOB,
    VERSION                 NUMBER(5,0) DEFAULT 1 NOT NULL ENABLE,
    EXT_REFERENCE_ID        CHAR(36) DEFAULT ' ' NOT NULL ENABLE,
    F1_INITIAL_LOAD_SYNC_FLG CHAR(4) DEFAULT ' ' NOT NULL ENABLE,
    F1_COMPOSITE_SYNC_FLG    CHAR(4) DEFAULT ' ' NOT NULL ENABLE,
    ILM_DT DATE,
    ILM_ARCH_SW CHAR(1)
    )
ENABLE ROW MOVEMENT
LOB   (BO_DATA_AREA)   STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE)
LOB   (PRE_TRN_INIT_BO_DATA_AREA)   STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS
MEDIUM CACHE)
LOB   (PRE_TRN_FIN_BO_DATA_AREA)   STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS
MEDIUM CACHE)
LOB   (POST_TRN_BO_DATA_AREA)   STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM
CACHE)
PARTITION BY RANGE(ILM_DT)
SUBPARTITION BY RANGE(F1_SYNC_REQ_IN_ID)
SUBPARTITION TEMPLATE
(
    SUBPARTITION S01 VALUES LESS THAN ( '12499999999999' ),
    SUBPARTITION S02 VALUES LESS THAN ( '24999999999999' ),
```

```
    SUBPARTITION S03 VALUES LESS THAN ( '37499999999999' ),
    SUBPARTITION S04 VALUES LESS THAN ( '49999999999999' ),
    SUBPARTITION S05 VALUES LESS THAN ( '62499999999999' ),
    SUBPARTITION S06 VALUES LESS THAN ( '74999999999999' ),
    SUBPARTITION S07 VALUES LESS THAN ( '87499999999999' ),
    SUBPARTITION SMAX VALUES LESS THAN ( MAXVALUE )
 )
(
PARTITION "P2011JAN" VALUES LESS THAN (TO_DATE('2011-02-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
LOB(BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE
TABLESPACE CM_F1T191_P2011JAN )
LOB(PRE_TRN_INIT_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM
CACHE TABLESPACE CM_F1T191_P2011JAN )
LOB(PRE_TRN_FIN_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM
CACHE TABLESPACE CM_F1T191_P2011JAN )
LOB(POST_TRN_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE
TABLESPACE CM_F1T191_P2011JAN )
TABLESPACE CM_F1T191_P2011JAN,
PARTITION "P2011FEB" VALUES LESS THAN (TO_DATE('2011-03-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
LOB(BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE
TABLESPACE CM_F1T191_P2011FEB )
LOB(PRE_TRN_INIT_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM
CACHE TABLESPACE CM_F1T191_P2011FEB )
LOB(PRE_TRN_FIN_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM
CACHE TABLESPACE CM_F1T191_P2011FEB )
LOB(POST_TRN_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE
TABLESPACE CM_F1T191_P2011FEB )
TABLESPACE CM_F1T191_P2011FEB,
PARTITION "P2011MAR" VALUES LESS THAN (TO_DATE('2011-04-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
LOB(BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE
TABLESPACE CM_F1T191_P2011MAR )
LOB(PRE_TRN_INIT_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM
CACHE TABLESPACE CM_F1T191_P2011MAR )
LOB(PRE_TRN_FIN_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM
CACHE TABLESPACE CM_F1T191_P2011MAR )
LOB(POST_TRN_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE
TABLESPACE CM_F1T191_P2011MAR )
TABLESPACE CM_F1T191_P2011MAR,
PARTITION "P2011APR" VALUES LESS THAN (TO_DATE('2011-05-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
LOB(BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE
TABLESPACE CM_F1T191_P2011APR )
LOB(PRE_TRN_INIT_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM
CACHE TABLESPACE CM_F1T191_P2011APR )
LOB(PRE_TRN_FIN_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM
CACHE TABLESPACE CM_F1T191_P2011APR )
LOB(POST_TRN_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE
TABLESPACE CM_F1T191_P2011APR )
TABLESPACE CM_F1T191_P2011APR,
PARTITION "P2011MAY" VALUES LESS THAN (TO_DATE('2011-06-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
LOB(BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE
TABLESPACE CM_F1T191_P2011MAY )
LOB(PRE_TRN_INIT_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM
CACHE TABLESPACE CM_F1T191_P2011MAY )
LOB(PRE_TRN_FIN_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM
CACHE TABLESPACE CM_F1T191_P2011MAY )
LOB(POST_TRN_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE
TABLESPACE CM_F1T191_P2011MAY )
TABLESPACE CM_F1T191_P2011MAY,
PARTITION "P2011JUN" VALUES LESS THAN (TO_DATE('2011-07-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
LOB(BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE
TABLESPACE CM_F1T191_P2011JUN )
LOB(PRE_TRN_INIT_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM
CACHE TABLESPACE CM_F1T191_P2011JUN )
LOB(PRE_TRN_FIN_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM
CACHE TABLESPACE CM_F1T191_P2011JUN )
LOB(POST_TRN_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE
TABLESPACE CM_F1T191_P2011JUN )
TABLESPACE CM_F1T191_P2011JUN,
PARTITION "P2011JUL" VALUES LESS THAN (TO_DATE('2011-08-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
LOB(BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE
TABLESPACE CM_F1T191_P2011JUL )
LOB(PRE_TRN_INIT_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM
CACHE TABLESPACE CM_F1T191_P2011JUL )
LOB(PRE_TRN_FIN_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM
CACHE TABLESPACE CM_F1T191_P2011JUL )
LOB(POST_TRN_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE
TABLESPACE CM_F1T191_P2011JUL )
TABLESPACE CM_F1T191_P2011JUL,
```

```
PARTITION "P2011AUG" VALUES LESS THAN (TO_DATE('2011-09-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
LOB(BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE
TABLESPACE CM_F1T191_P2011AUG )
LOB(PRE_TRN_INIT_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM
CACHE TABLESPACE CM_F1T191_P2011AUG )
LOB(PRE_TRN_FIN_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM
CACHE TABLESPACE CM_F1T191_P2011AUG )
LOB(POST_TRN_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE
TABLESPACE CM_F1T191_P2011AUG )
TABLESPACE CM_F1T191_P2011AUG,
PARTITION "P2011SEP" VALUES LESS THAN (TO_DATE('2011-10-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
LOB(BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE
TABLESPACE CM_F1T191_P2011SEP )
LOB(PRE_TRN_INIT_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM
CACHE TABLESPACE CM_F1T191_P2011SEP )
LOB(PRE_TRN_FIN_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM
CACHE TABLESPACE CM_F1T191_P2011SEP )
LOB(POST_TRN_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE
TABLESPACE CM_F1T191_P2011SEP )
TABLESPACE CM_F1T191_P2011SEP,
PARTITION "P2011OCT" VALUES LESS THAN (TO_DATE('2011-11-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
LOB(BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE
TABLESPACE CM_F1T191_P2011OCT )
LOB(PRE_TRN_INIT_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM
CACHE TABLESPACE CM_F1T191_P2011OCT )
LOB(PRE_TRN_FIN_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM
CACHE TABLESPACE CM_F1T191_P2011OCT )
LOB(POST_TRN_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE
TABLESPACE CM_F1T191_P2011OCT )
TABLESPACE CM_F1T191_P2011OCT,
PARTITION "P2011NOV" VALUES LESS THAN (TO_DATE('2011-12-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
LOB(BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE
TABLESPACE CM_F1T191_P2011NOV )
LOB(PRE_TRN_INIT_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM
CACHE TABLESPACE CM_F1T191_P2011NOV )
LOB(PRE_TRN_FIN_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM
CACHE TABLESPACE CM_F1T191_P2011NOV )
LOB(POST_TRN_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE
TABLESPACE CM_F1T191_P2011NOV )
TABLESPACE CM_F1T191_P2011NOV,
PARTITION "P2011DEC" VALUES LESS THAN (TO_DATE('2012-01-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
LOB(BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE
TABLESPACE CM_F1T191_P2011DEC )
LOB(PRE_TRN_INIT_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM
CACHE TABLESPACE CM_F1T191_P2011DEC )
LOB(PRE_TRN_FIN_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM
CACHE TABLESPACE CM_F1T191_P2011DEC )
LOB(POST_TRN_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE
TABLESPACE CM_F1T191_P2011DEC )
TABLESPACE CM_F1T191_P2011DEC,
PARTITION "PMAX" VALUES LESS THAN (MAXVALUE)
LOB(BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE
TABLESPACE CM_F1T191_PMAX )
LOB(PRE_TRN_INIT_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM
CACHE TABLESPACE CM_F1T191_PMAX )
LOB(PRE_TRN_FIN_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM
CACHE TABLESPACE CM_F1T191_PMAX )
LOB(POST_TRN_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE
TABLESPACE CM_F1T191_PMAX )
TABLESPACE CM_F1T191_PMAX
);
```

INDEX

```
CREATE BIGFILE TABLESPACE CM_F1T191_IND DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON MAXSIZE
UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;

CREATE UNIQUE INDEX F1T191P0 ON F1_SYNC_REQ_IN(F1_SYNC_REQ_IN_ID) TABLESPACE CM_F1T191_IND
GLOBAL PARTITION BY RANGE (F1_SYNC_REQ_IN_ID)
(
PARTITION P1 VALUES LESS THAN ( '12499999999999' ),
PARTITION P2 VALUES LESS THAN ( '24999999999999' ),
PARTITION P3 VALUES LESS THAN ( '37499999999999' ),
PARTITION P4 VALUES LESS THAN ( '49999999999999' ),
PARTITION P5 VALUES LESS THAN ( '62499999999999' ),
PARTITION P6 VALUES LESS THAN ( '74999999999999' ),
PARTITION P7 VALUES LESS THAN ( '87499999999999' ),
PARTITION P8 VALUES LESS THAN ( MAXVALUE )
```

```
);

ALTER TABLE F1_SYNC_REQ_IN ADD CONSTRAINT F1T191P0 PRIMARY KEY (F1_SYNC_REQ_IN_ID) USING
INDEX;

CREATE UNIQUE INDEX F1T191S1 ON F1_SYNC_REQ_IN (BO_STATUS_CD, BUS_OBJ_CD,
F1_SYNC_REQ_IN_ID) TABLESPACE CM_F1T191_IND COMPRESS ADVANCED LOW;

CREATE INDEX F1T191S2 ON F1_SYNC_REQ_IN(MAINT_OBJ_CD,EXT_PK_VALUE1,NT_XID_CD,PK_VALUE1)
TABLESPACE CM_F1T191_IND COMPRESS ADVANCED LOW;

CREATE INDEX F1T191S3 ON F1_SYNC_REQ_IN(EXT_REFERENCE_ID) TABLESPACE CM_F1T191_IND;
CREATE UNIQUE INDEX CM_ILM_F1T191S3 ON F1_SYNC_REQ_IN(ILM_DT, ILM_ARCH_SW,
F1_SYNC_REQ_IN_ID) LOCAL COMPRESS ADVANCED LOW;
```

Child Table: F1_SYNC_REQ_IN_CHAR

```
CREATE TABLE F1_SYNC_REQ_IN_CHAR
  (
    F1_SYNC_REQ_IN_ID CHAR(14) NOT NULL ENABLE,
    CHAR_TYPE_CD      CHAR(8) NOT NULL ENABLE,
    SEQ_NUM           NUMBER(3,0) NOT NULL ENABLE,
    CHAR_VAL          CHAR(16) DEFAULT ' ' NOT NULL ENABLE,
    ADHOC_CHAR_VAL    VARCHAR2(254) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_VAL_FK1      VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_VAL_FK2      VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_VAL_FK3      VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_VAL_FK4      VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_VAL_FK5      VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE,
    SRCH_CHAR_VAL     VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE,
    VERSION           NUMBER(5,0) DEFAULT 1 NOT NULL ENABLE,
    CONSTRAINT F1_SYNC_REQ_IN_CHAR_FK FOREIGN KEY(F1_SYNC_REQ_IN_ID) REFERENCES
F1_SYNC_REQ_IN ON DELETE CASCADE)
PARTITION BY REFERENCE (F1_SYNC_REQ_IN_CHAR_FK)
ENABLE ROW MOVEMENT;
```

INDEX

```
CREATE UNIQUE INDEX F1T193P0 ON F1_SYNC_REQ_IN_CHAR(F1_SYNC_REQ_IN_ID, CHAR_TYPE_CD,
SEQ_NUM) TABLESPACE CM_F1T191_IND
GLOBAL PARTITION BY RANGE (F1_SYNC_REQ_IN_ID)
(
PARTITION P1 VALUES LESS THAN ( '12499999999999' ),
PARTITION P2 VALUES LESS THAN ( '24999999999999' ),
PARTITION P3 VALUES LESS THAN ( '37499999999999' ),
PARTITION P4 VALUES LESS THAN ( '49999999999999' ),
PARTITION P5 VALUES LESS THAN ( '62499999999999' ),
PARTITION P6 VALUES LESS THAN ( '74999999999999' ),
PARTITION P7 VALUES LESS THAN ( '87499999999999' ),
PARTITION P8 VALUES LESS THAN ( MAXVALUE )
)
COMPRESS ADVANCED LOW;

ALTER TABLE F1_SYNC_REQ_IN_CHAR ADD CONSTRAINT F1T193P0 PRIMARY KEY (F1_SYNC_REQ_IN_ID,
CHAR_TYPE_CD, SEQ_NUM) USING INDEX;

CREATE INDEX F1T193S1 ON F1_SYNC_REQ_IN_CHAR(SRCH_CHAR_VAL) TABLESPACE CM_F1T191_IND ;
```

Child Table: F1_SYNC_REQ_IN_EXCP

```
CREATE TABLE F1_SYNC_REQ_IN_EXCP
(
    F1_SYNC_REQ_IN_ID CHAR(14) NOT NULL ENABLE,
    SEQNO             NUMBER(5,0) NOT NULL ENABLE,
    MESSAGE_CAT_NBR   NUMBER(5,0) DEFAULT 0 NOT NULL ENABLE,
    MESSAGE_NBR       NUMBER(5,0) DEFAULT 0 NOT NULL ENABLE,
    VERSION           NUMBER(5,0) DEFAULT 1 NOT NULL ENABLE,
    CONSTRAINT F1_SYNC_REQ_IN_EXCP_FK FOREIGN KEY(F1_SYNC_REQ_IN_ID) REFERENCES
F1_SYNC_REQ_IN ON DELETE CASCADE)
PARTITION BY REFERENCE (F1_SYNC_REQ_IN_EXCP_FK)
ENABLE ROW MOVEMENT;
```

INDEX

```
CREATE UNIQUE INDEX F1T197P0 ON F1_SYNC_REQ_IN_EXCP(F1_SYNC_REQ_IN_ID,SEQNO) TABLESPACE
CM_F1T191_IND
```

```
GLOBAL PARTITION BY RANGE (F1_SYNC_REQ_IN_ID)
(
PARTITION P1 VALUES LESS THAN ( '12499999999999' ),
PARTITION P2 VALUES LESS THAN ( '24999999999999' ),
PARTITION P3 VALUES LESS THAN ( '37499999999999' ),
PARTITION P4 VALUES LESS THAN ( '49999999999999' ),
PARTITION P5 VALUES LESS THAN ( '62499999999999' ),
PARTITION P6 VALUES LESS THAN ( '74999999999999' ),
PARTITION P7 VALUES LESS THAN ( '87499999999999' ),
PARTITION P8 VALUES LESS THAN ( MAXVALUE )
)
COMPRESS ADVANCED LOW;

ALTER TABLE F1_SYNC_REQ_IN_EXCP ADD CONSTRAINT F1T197P0 PRIMARY KEY
(F1_SYNC_REQ_IN_ID,SEQNO) USING INDEX;
```

Child Table: F1_SYNC_REQ_IN_EXCP_PARM

```
CREATE TABLE F1_SYNC_REQ_IN_EXCP_PARM
  (
    F1_SYNC_REQ_IN_ID CHAR(14) NOT NULL ENABLE,
    SEQNO             NUMBER(5,0) NOT NULL ENABLE,
    PARM_SEQ          NUMBER(3,0) NOT NULL ENABLE,
    MSG_PARM_VAL      VARCHAR2(2000) DEFAULT ' ' NOT NULL ENABLE,
    MSG_PARM_TYP_FLG  CHAR(4) DEFAULT ' ' NOT NULL ENABLE,
    VERSION           NUMBER(5,0) DEFAULT 1 NOT NULL ENABLE,
    CONSTRAINT F1_SYNC_REQ_IN_EXCP_PARM_FK FOREIGN KEY(F1_SYNC_REQ_IN_ID) REFERENCES
F1_SYNC_REQ_IN ON DELETE CASCADE)
PARTITION BY REFERENCE (F1_SYNC_REQ_IN_EXCP_PARM_FK)
ENABLE ROW MOVEMENT;
```

INDEX

```
CREATE UNIQUE INDEX F1T198P0 ON F1_SYNC_REQ_IN_EXCP_PARM(F1_SYNC_REQ_IN_ID,SEQNO,PARM_SEQ)
TABLESPACE CM_F1T191_IND
GLOBAL PARTITION BY RANGE (F1_SYNC_REQ_IN_ID)
(
PARTITION P1 VALUES LESS THAN ( '12499999999999' ),
PARTITION P2 VALUES LESS THAN ( '24999999999999' ),
PARTITION P3 VALUES LESS THAN ( '37499999999999' ),
PARTITION P4 VALUES LESS THAN ( '49999999999999' ),
PARTITION P5 VALUES LESS THAN ( '62499999999999' ),
PARTITION P6 VALUES LESS THAN ( '74999999999999' ),
PARTITION P7 VALUES LESS THAN ( '87499999999999' ),
PARTITION P8 VALUES LESS THAN ( MAXVALUE )
)
COMPRESS ADVANCED LOW;

ALTER TABLE F1_SYNC_REQ_IN_EXCP_PARM ADD CONSTRAINT F1T198P0 PRIMARY KEY
(F1_SYNC_REQ_IN_ID,SEQNO,PARM_SEQ) USING INDEX;
```

Child Table: F1_SYNC_REQ_IN_LOG

```
CREATE TABLE F1_SYNC_REQ_IN_LOG
(
    F1_SYNC_REQ_IN_ID  CHAR(14) NOT NULL ENABLE,
    SEQNO              NUMBER(5,0) NOT NULL ENABLE,
    LOG_ENTRY_TYPE_FLG CHAR(4) DEFAULT ' ' NOT NULL ENABLE,
    LOG_DTTM DATE NOT NULL ENABLE,
    BO_STATUS_CD    CHAR(12) DEFAULT ' ' NOT NULL ENABLE,
    MESSAGE_CAT_NBR NUMBER(5,0) DEFAULT 0 NOT NULL ENABLE,
    MESSAGE_NBR     NUMBER(5,0) DEFAULT 0 NOT NULL ENABLE,
    CHAR_TYPE_CD    CHAR(8) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_VAL        CHAR(16) DEFAULT ' ' NOT NULL ENABLE,
    ADHOC_CHAR_VAL  VARCHAR2(254) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_VAL_FK1    VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_VAL_FK2    VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_VAL_FK3    VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_VAL_FK4    VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_VAL_FK5    VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE,
    DESCRLONG       VARCHAR2(4000) DEFAULT ' ' NOT NULL ENABLE,
    USER_ID         CHAR(8) DEFAULT ' ' NOT NULL ENABLE,
    VERSION         NUMBER(5,0) DEFAULT 1 NOT NULL ENABLE,
    CONSTRAINT F1_SYNC_REQ_IN_LOG_FK FOREIGN KEY(F1_SYNC_REQ_IN_ID) REFERENCES
F1_SYNC_REQ_IN ON DELETE CASCADE)
PARTITION BY REFERENCE (F1_SYNC_REQ_IN_LOG_FK)
ENABLE ROW MOVEMENT;
```

INDEX

```
CREATE UNIQUE INDEX F1T194P0 ON F1_SYNC_REQ_IN_LOG(F1_SYNC_REQ_IN_ID,SEQNO) TABLESPACE
CM_F1T191_IND
GLOBAL PARTITION BY RANGE (F1_SYNC_REQ_IN_ID)
(
PARTITION P1 VALUES LESS THAN ( '12499999999999' ),
PARTITION P2 VALUES LESS THAN ( '24999999999999' ),
PARTITION P3 VALUES LESS THAN ( '37499999999999' ),
PARTITION P4 VALUES LESS THAN ( '49999999999999' ),
PARTITION P5 VALUES LESS THAN ( '62499999999999' ),
PARTITION P6 VALUES LESS THAN ( '74999999999999' ),
PARTITION P7 VALUES LESS THAN ( '87499999999999' ),
PARTITION P8 VALUES LESS THAN ( MAXVALUE )
)
COMPRESS ADVANCED LOW;

ALTER TABLE F1_SYNC_REQ_IN_LOG ADD CONSTRAINT F1T194P0 PRIMARY KEY
(F1_SYNC_REQ_IN_ID,SEQNO) USING INDEX;

CREATE INDEX F1T194S1 ON F1_SYNC_REQ_IN_LOG(CHAR_TYPE_CD,CHAR_VAL_FK1) TABLESPACE
CM_F1T191_IND COMPRESS ADVANCED LOW;

CREATE INDEX F1T194S2 ON F1_SYNC_REQ_IN_LOG(CHAR_TYPE_CD,CHAR_VAL) TABLESPACE
CM_F1T191_IND COMPRESS ADVANCED LOW;
```

Child Table: F1_SYNC_REQ_IN_LOG_PARM

```
CREATE TABLE F1_SYNC_REQ_IN_LOG_PARM
  (
    F1_SYNC_REQ_IN_ID CHAR(14) NOT NULL ENABLE,
    SEQNO             NUMBER(5,0) NOT NULL ENABLE,
    PARM_SEQ          NUMBER(3,0) NOT NULL ENABLE,
    MSG_PARM_VAL      VARCHAR2(2000) DEFAULT ' ' NOT NULL ENABLE,
    MSG_PARM_TYP_FLG  CHAR(4) DEFAULT ' ' NOT NULL ENABLE,
    VERSION           NUMBER(5,0) DEFAULT 1 NOT NULL ENABLE,
    CONSTRAINT F1_SYNC_REQ_IN_LOG_PARM_FK FOREIGN KEY(F1_SYNC_REQ_IN_ID) REFERENCES
F1_SYNC_REQ_IN ON DELETE CASCADE)
PARTITION BY REFERENCE (F1_SYNC_REQ_IN_LOG_PARM_FK)
ENABLE ROW MOVEMENT;
```

INDEX

```
CREATE UNIQUE INDEX F1T195P0 ON F1_SYNC_REQ_IN_LOG_PARM(F1_SYNC_REQ_IN_ID,SEQNO,PARM_SEQ)
TABLESPACE CM_F1T191_IND
GLOBAL PARTITION BY RANGE (F1_SYNC_REQ_IN_ID)
(
PARTITION P1 VALUES LESS THAN ( '12499999999999' ),
PARTITION P2 VALUES LESS THAN ( '24999999999999' ),
PARTITION P3 VALUES LESS THAN ( '37499999999999' ),
PARTITION P4 VALUES LESS THAN ( '49999999999999' ),
PARTITION P5 VALUES LESS THAN ( '62499999999999' ),
PARTITION P6 VALUES LESS THAN ( '74999999999999' ),
PARTITION P7 VALUES LESS THAN ( '87499999999999' ),
PARTITION P8 VALUES LESS THAN ( MAXVALUE )
)
COMPRESS ADVANCED LOW;

ALTER TABLE F1_SYNC_REQ_IN_LOG_PARM ADD CONSTRAINT F1T195P0 PRIMARY KEY
(F1_SYNC_REQ_IN_ID,SEQNO,PARM_SEQ) USING INDEX;
```

Child Table: F1_SYNC_REQ_IN_REL_OBJ

```
CREATE TABLE F1_SYNC_REQ_IN_REL_OBJ
  (
    F1_SYNC_REQ_IN_ID CHAR(14) NOT NULL ENABLE,
    MAINT_OBJ_CD      CHAR(12) DEFAULT ' ' NOT NULL ENABLE,
    REL_OBJ_TYPE_FLG  CHAR(4) DEFAULT ' ' NOT NULL ENABLE,
    PK_VALUE1         VARCHAR2(254) DEFAULT ' ' NOT NULL ENABLE,
    PK_VALUE2         VARCHAR2(254) DEFAULT ' ' NOT NULL ENABLE,
    PK_VALUE3         VARCHAR2(254) DEFAULT ' ' NOT NULL ENABLE,
    PK_VALUE4         VARCHAR2(254) DEFAULT ' ' NOT NULL ENABLE,
    PK_VALUE5         VARCHAR2(254) DEFAULT ' ' NOT NULL ENABLE,
    VERSION           NUMBER(5,0) DEFAULT 1 NOT NULL ENABLE,
    CONSTRAINT F1_SYNC_REQ_IN_REL_OBJ_FK FOREIGN KEY(F1_SYNC_REQ_IN_ID) REFERENCES
F1_SYNC_REQ_IN ON DELETE CASCADE)
PARTITION BY REFERENCE (F1_SYNC_REQ_IN_REL_OBJ_FK)
ENABLE ROW MOVEMENT;
```

INDEX

```
CREATE UNIQUE INDEX F1T192P0 ON F1_SYNC_REQ_IN_REL_OBJ(F1_SYNC_REQ_IN_ID, MAINT_OBJ_CD,
REL_OBJ_TYPE_FLG) TABLESPACE CM_F1T191_IND
GLOBAL PARTITION BY RANGE (F1_SYNC_REQ_IN_ID)
(
PARTITION P1 VALUES LESS THAN ( '12499999999999' ),
PARTITION P2 VALUES LESS THAN ( '24999999999999' ),
PARTITION P3 VALUES LESS THAN ( '37499999999999' ),
PARTITION P4 VALUES LESS THAN ( '49999999999999' ),
PARTITION P5 VALUES LESS THAN ( '62499999999999' ),
PARTITION P6 VALUES LESS THAN ( '74999999999999' ),
PARTITION P7 VALUES LESS THAN ( '87499999999999' ),
PARTITION P8 VALUES LESS THAN ( MAXVALUE )
)
COMPRESS ADVANCED LOW;

ALTER TABLE F1_SYNC_REQ_IN_REL_OBJ ADD CONSTRAINT F1T192P0 PRIMARY KEY (F1_SYNC_REQ_IN_ID,
MAINT_OBJ_CD, REL_OBJ_TYPE_FLG) USING INDEX;

CREATE INDEX F1T192S1 ON F1_SYNC_REQ_IN_REL_OBJ(PK_VALUE1) TABLESPACE CM_F1T191_IND;
```

Maintenance Object: D1-IMD

Parent Table: D1_INIT_MSRMT_DATA

```
CREATE BIGFILE TABLESPACE CM_D1T304_P2011JAN_S181 DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011JAN_SMAX DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011FEB_S181 DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011FEB_SMAX DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011MAR_S181 DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011MAR_SMAX DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011APR_S181 DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011APR_SMAX DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011MAY_S181 DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011MAY_SMAX DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011JUN_S181 DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011JUN_SMAX DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011JUL_S181 DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011JUL_SMAX DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011AUG_S181 DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011AUG_SMAX DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011SEP_S181 DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011SEP_SMAX DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011OCT_S181 DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011OCT_SMAX DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011NOV_S181 DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011NOV_SMAX DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011DEC_S181 DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
```

```
CREATE BIGFILE TABLESPACE CM_D1T304_P2011DEC_SMAX DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_PMAX_S181 DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_PMAX_SMAX DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;

CREATE TABLE D1_INIT_MSRMT_DATA
  (
   INIT_MSRMT_DATA_ID CHAR(14) NOT NULL ENABLE,
    MEASR_COMP_ID      CHAR(12) DEFAULT ' ' NOT NULL ENABLE,
    D1_FROM_DTTM DATE,
    D1_TO_DTTM DATE,
    DATA_SRC_FLG        CHAR(4) DEFAULT ' ' NOT NULL ENABLE,
    TIME_ZONE_CD        CHAR(10) DEFAULT ' ' NOT NULL ENABLE,
    BUS_OBJ_CD          CHAR(30) DEFAULT ' ' NOT NULL ENABLE,
    BO_STATUS_CD        CHAR(12) DEFAULT ' ' NOT NULL ENABLE,
    BO_STATUS_REASON_CD VARCHAR2(30) DEFAULT ' ' NOT NULL ENABLE,
    IMD_BO_DATA_AREA CLOB,
    STATUS_UPD_DTTM DATE NOT NULL ENABLE,
    CRE_DTTM DATE NOT NULL ENABLE,
    VERSION    NUMBER(5,0) DEFAULT 1 NOT NULL ENABLE,
    IMD_EXT_ID VARCHAR2(120),
    PREVEE_BO_DATA_AREA CLOB,
    POSTVEE_BO_DATA_AREA CLOB,
    TRACE_BO_DATA_AREA CLOB,
    RAW_BO_DATA_AREA CLOB,
    LAST_UPDATE_DTTM DATE,
    ILM_DT DATE,
    ILM_ARCH_SW CHAR(1),
    RETENTION_PERIOD NUMBER(5,0) DEFAULT 99999 NOT NULL ENABLE
    )
ENABLE ROW MOVEMENT PCTFREE 50
LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE)
LOB ( POSTVEE_BO_DATA_AREA ) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM
CACHE)
LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE)
LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE)
LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE)
PARTITION BY RANGE (ILM_DT)
SUBPARTITION BY range (RETENTION_PERIOD)
(
PARTITION "P2011JAN" VALUES LESS THAN (TO_DATE('2011-02-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))(
SUBPARTITION P2011JAN_S181 VALUES LESS THAN (181) TABLESPACE CM_D1T304_P2011JAN_S181
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JAN_S181)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JAN_S181)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JAN_S181)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JAN_S181)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JAN_S181)
,
SUBPARTITION P2011JAN_SMAX VALUES LESS THAN (MAXVALUE) TABLESPACE CM_D1T304_P2011JAN_SMAX
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JAN_SMAX)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JAN_SMAX)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JAN_SMAX)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JAN_SMAX)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JAN_SMAX)
),
PARTITION "P2011FEB" VALUES LESS THAN (TO_DATE('2011-03-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))(
SUBPARTITION P2011FEB_S181 VALUES LESS THAN (181) TABLESPACE CM_D1T304_P2011FEB_S181
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011FEB_S181)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011FEB_S181)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011FEB_S181)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011FEB_S181)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011FEB_S181)
,
SUBPARTITION P2011FEB_SMAX VALUES LESS THAN (MAXVALUE) TABLESPACE CM_D1T304_P2011FEB_SMAX
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011FEB_SMAX)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011FEB_SMAX)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011FEB_SMAX)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011FEB_SMAX)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011FEB_SMAX)
),
PARTITION "P2011MAR" VALUES LESS THAN (TO_DATE('2011-04-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))(
SUBPARTITION P2011MAR_S181 VALUES LESS THAN (181) TABLESPACE CM_D1T304_P2011MAR_S181
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAR_S181)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAR_S181)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAR_S181)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAR_S181)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAR_S181)
,
SUBPARTITION P2011MAR_SMAX VALUES LESS THAN (MAXVALUE) TABLESPACE CM_D1T304_P2011MAR_SMAX
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAR_SMAX)
```

```
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAR_SMAX)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAR_SMAX)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAR_SMAX)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAR_SMAX)
),
PARTITION "P2011APR" VALUES LESS THAN (TO_DATE('2011-05-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))(
SUBPARTITION P2011APR_S181 VALUES LESS THAN (181) TABLESPACE CM_D1T304_P2011APR_S181
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011APR_S181)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011APR_S181)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011APR_S181)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011APR_S181)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011APR_S181)
,
SUBPARTITION P2011APR_SMAX VALUES LESS THAN (MAXVALUE) TABLESPACE CM_D1T304_P2011APR_SMAX
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011APR_SMAX)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011APR_SMAX)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011APR_SMAX)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011APR_SMAX)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011APR_SMAX)
),
PARTITION "P2011MAY" VALUES LESS THAN (TO_DATE('2011-06-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))(
SUBPARTITION P2011MAY_S181 VALUES LESS THAN (181) TABLESPACE CM_D1T304_P2011MAY_S181
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAY_S181)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAY_S181)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAY_S181)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAY_S181)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAY_S181)
,
SUBPARTITION P2011MAY_SMAX VALUES LESS THAN (MAXVALUE) TABLESPACE CM_D1T304_P2011MAY_SMAX
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAY_SMAX)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAY_SMAX)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAY_SMAX)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAY_SMAX)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAY_SMAX)
),
PARTITION "P2011JUN" VALUES LESS THAN (TO_DATE('2011-07-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))(
SUBPARTITION P2011JUN_S181 VALUES LESS THAN (181) TABLESPACE CM_D1T304_P2011JUN_S181
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUN_S181)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUN_S181)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUN_S181)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUN_S181)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUN_S181)
,
SUBPARTITION P2011JUN_SMAX VALUES LESS THAN (MAXVALUE) TABLESPACE CM_D1T304_P2011JUN_SMAX
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUN_SMAX)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUN_SMAX)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUN_SMAX)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUN_SMAX)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUN_SMAX)
),
PARTITION "P2011JUL" VALUES LESS THAN (TO_DATE('2011-08-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))(
SUBPARTITION P2011JUL_S181 VALUES LESS THAN (181) TABLESPACE CM_D1T304_P2011JUL_S181
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUL_S181)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUL_S181)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUL_S181)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUL_S181)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUL_S181)
,
SUBPARTITION P2011JUL_SMAX VALUES LESS THAN (MAXVALUE) TABLESPACE CM_D1T304_P2011JUL_SMAX
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUL_SMAX)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUL_SMAX)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUL_SMAX)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUL_SMAX)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUL_SMAX)
),
PARTITION "P2011AUG" VALUES LESS THAN (TO_DATE('2011-09-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))(
SUBPARTITION P2011AUG_S181 VALUES LESS THAN (181) TABLESPACE CM_D1T304_P2011AUG_S181
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011AUG_S181)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011AUG_S181)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011AUG_S181)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011AUG_S181)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011AUG_S181)
,
SUBPARTITION P2011AUG_SMAX VALUES LESS THAN (MAXVALUE) TABLESPACE CM_D1T304_P2011AUG_SMAX
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011AUG_SMAX)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011AUG_SMAX)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011AUG_SMAX)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011AUG_SMAX)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011AUG_SMAX)
),
```

```
PARTITION "P2011SEP" VALUES LESS THAN (TO_DATE('2011-10-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))(
SUBPARTITION P2011SEP_S181 VALUES LESS THAN (181) TABLESPACE CM_D1T304_P2011SEP_S181
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011SEP_S181)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011SEP_S181)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011SEP_S181)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011SEP_S181)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011SEP_S181)
,
SUBPARTITION P2011SEP_SMAX VALUES LESS THAN (MAXVALUE) TABLESPACE CM_D1T304_P2011SEP_SMAX
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011SEP_SMAX)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011SEP_SMAX)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011SEP_SMAX)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011SEP_SMAX)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011SEP_SMAX)
),
PARTITION "P2011OCT" VALUES LESS THAN (TO_DATE('2011-11-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))(
SUBPARTITION P2011OCT_S181 VALUES LESS THAN (181) TABLESPACE CM_D1T304_P2011OCT_S181
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011OCT_S181)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011OCT_S181)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011OCT_S181)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011OCT_S181)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011OCT_S181)
,
SUBPARTITION P2011OCT_SMAX VALUES LESS THAN (MAXVALUE) TABLESPACE CM_D1T304_P2011OCT_SMAX
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011OCT_SMAX)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011OCT_SMAX)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011OCT_SMAX)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011OCT_SMAX)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011OCT_SMAX)
),
PARTITION "P2011NOV" VALUES LESS THAN (TO_DATE('2011-12-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))(
SUBPARTITION P2011NOV_S181 VALUES LESS THAN (181) TABLESPACE CM_D1T304_P2011NOV_S181
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011NOV_S181)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011NOV_S181)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011NOV_S181)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011NOV_S181)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011NOV_S181)
,
SUBPARTITION P2011NOV_SMAX VALUES LESS THAN (MAXVALUE) TABLESPACE CM_D1T304_P2011NOV_SMAX
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011NOV_SMAX)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011NOV_SMAX)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011NOV_SMAX)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011NOV_SMAX)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011NOV_SMAX)
),
PARTITION "P2011DEC" VALUES LESS THAN (TO_DATE('2012-01-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))(
SUBPARTITION P2011DEC_S181 VALUES LESS THAN (181) TABLESPACE CM_D1T304_P2011DEC_S181
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011DEC_S181)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011DEC_S181)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011DEC_S181)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011DEC_S181)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011DEC_S181)
,
SUBPARTITION P2011DEC_SMAX VALUES LESS THAN (MAXVALUE) TABLESPACE CM_D1T304_P2011DEC_SMAX
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011DEC_SMAX)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011DEC_SMAX)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011DEC_SMAX)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011DEC_SMAX)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011DEC_SMAX)
),
PARTITION "PMAX" VALUES LESS THAN (MAXVALUE)(
SUBPARTITION PMAX_S181 VALUES LESS THAN (181) TABLESPACE CM_D1T304_PMAX_S181
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_PMAX_S181)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_PMAX_S181)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_PMAX_S181)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_PMAX_S181)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_PMAX_S181)
,
SUBPARTITION PMAX_SMAX VALUES LESS THAN (MAXVALUE) TABLESPACE CM_D1T304_PMAX_SMAX
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_PMAX_SMAX)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_PMAX_SMAX)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_PMAX_SMAX)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_PMAX_SMAX)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_PMAX_SMAX)
)
);
```

INDEX

```
CREATE BIGFILE TABLESPACE CM_D1T304_IND DATAFILE '+DATA' SIZE 50M AUTOEXTEND ON MAXSIZE
UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;

CREATE UNIQUE INDEX D1T304P0 ON D1_INIT_MSRMT_DATA(INIT_MSRMT_DATA_ID) TABLESPACE
CM_D1T304_IND
GLOBAL PARTITION BY RANGE (INIT_MSRMT_DATA_ID)
(    PARTITION P1 VALUES LESS THAN ( '12499999999999' ),
     PARTITION P2 VALUES LESS THAN ( '24999999999999' ),
     PARTITION P3 VALUES LESS THAN ( '37499999999999' ),
     PARTITION P4 VALUES LESS THAN ( '49999999999999' ),
     PARTITION P5 VALUES LESS THAN ( '62499999999999' ),
     PARTITION P6 VALUES LESS THAN ( '74999999999999' ),
     PARTITION P7 VALUES LESS THAN ( '87499999999999' ),
     PARTITION P8 VALUES LESS THAN ( MAXVALUE )
);

ALTER TABLE D1_INIT_MSRMT_DATA ADD CONSTRAINT D1T304P0 PRIMARY KEY(INIT_MSRMT_DATA_ID)
USING INDEX;

CREATE INDEX D1T304S1 ON D1_INIT_MSRMT_DATA (MEASR_COMP_ID,D1_TO_DTTM) TABLESPACE
CM_D1T304_IND
GLOBAL PARTITION BY RANGE (MEASR_COMP_ID)
(    PARTITION P1 VALUES LESS THAN ( '124999999999' ),
     PARTITION P2 VALUES LESS THAN ( '249999999999' ),
     PARTITION P3 VALUES LESS THAN ( '374999999999' ),
     PARTITION P4 VALUES LESS THAN ( '499999999999' ),
     PARTITION P5 VALUES LESS THAN ( '624999999999' ),
     PARTITION P6 VALUES LESS THAN ( '749999999999' ),
     PARTITION P7 VALUES LESS THAN ( '874999999999' ),
     PARTITION P8 VALUES LESS THAN ( MAXVALUE )
)
COMPRESS ADVANCED LOW;


CREATE UNIQUE INDEX CM_ILM_D1T304S4 ON D1_INIT_MSRMT_DATA (ILM_DT, RETENTION_PERIOD,
ILM_ARCH_SW, INIT_MSRMT_DATA_ID) LOCAL COMPRESS ADVANCED LOW;
```

Child Table: D1_INIT_MSRMT_DATA_CHAR

```
CREATE TABLE D1_INIT_MSRMT_DATA_CHAR
  (
    INIT_MSRMT_DATA_ID CHAR(14) NOT NULL ENABLE,
    CHAR_TYPE_CD       CHAR(8) NOT NULL ENABLE,
    SEQ_NUM            NUMBER(3,0) NOT NULL ENABLE,
    CHAR_VAL           CHAR(16) DEFAULT ' ' NOT NULL ENABLE,
    ADHOC_CHAR_VAL     VARCHAR2(254) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_VAL_FK1       VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_VAL_FK2       VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_VAL_FK3       VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_VAL_FK4       VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_VAL_FK5       VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE,
    SRCH_CHAR_VAL      VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE,
    VERSION            NUMBER(5,0) DEFAULT 1 NOT NULL ENABLE,
    LAST_UPDATE_DTTM DATE,
    CONSTRAINT D1_INIT_MSRMT_DATA_CHAR_FK FOREIGN KEY(INIT_MSRMT_DATA_ID) REFERENCES
D1_INIT_MSRMT_DATA ON DELETE CASCADE)
PARTITION BY REFERENCE (D1_INIT_MSRMT_DATA_CHAR_FK)
ENABLE ROW MOVEMENT;
```

INDEX

```
CREATE UNIQUE INDEX D1T305P0 ON D1_INIT_MSRMT_DATA_CHAR(INIT_MSRMT_DATA_ID, CHAR_TYPE_CD,
SEQ_NUM) TABLESPACE CM_D1T304_IND
GLOBAL PARTITION BY RANGE(INIT_MSRMT_DATA_ID)
 (
 PARTITION P1 VALUES LESS THAN ('12499999999999'),
 PARTITION P2 VALUES LESS THAN ('24999999999999'),
 PARTITION P3 VALUES LESS THAN ('37499999999999'),
 PARTITION P4 VALUES LESS THAN ('49999999999999'),
 PARTITION P5 VALUES LESS THAN ('62499999999999'),
 PARTITION P6 VALUES LESS THAN ('74999999999999'),
 PARTITION P7 VALUES LESS THAN ('87499999999999'),
 PARTITION P8 VALUES LESS THAN (MAXVALUE)
 ) COMPRESS ADVANCED LOW;
```

```
ALTER TABLE D1_INIT_MSRMT_DATA_CHAR ADD CONSTRAINT D1T305P0 PRIMARY KEY
(INIT_MSRMT_DATA_ID, CHAR_TYPE_CD, SEQ_NUM) USING INDEX;


CREATE INDEX D1T305S1 ON D1_INIT_MSRMT_DATA_CHAR(SRCH_CHAR_VAL)
GLOBAL PARTITION BY HASH(SRCH_CHAR_VAL)
 (
 PARTITION P1 TABLESPACE CM_D1T304_IND,
 PARTITION P2 TABLESPACE CM_D1T304_IND,
 PARTITION P3 TABLESPACE CM_D1T304_IND,
 PARTITION P4 TABLESPACE CM_D1T304_IND,
 PARTITION P5 TABLESPACE CM_D1T304_IND,
 PARTITION P6 TABLESPACE CM_D1T304_IND,
 PARTITION P7 TABLESPACE CM_D1T304_IND,
 PARTITION P8 TABLESPACE CM_D1T304_IND
 );
```

Child Table: D1_INIT_MSRMT_DATA_LOG

```
CREATE TABLE D1_INIT_MSRMT_DATA_LOG
  (
    INIT_MSRMT_DATA_ID  CHAR(14) NOT NULL ENABLE,
    SEQNO               NUMBER(5,0) NOT NULL ENABLE,
    BO_STATUS_CD        CHAR(12) DEFAULT ' ' NOT NULL ENABLE,
    BO_STATUS_REASON_CD VARCHAR2(30) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_TYPE_CD        CHAR(8) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_VAL            CHAR(16) DEFAULT ' ' NOT NULL ENABLE,
    ADHOC_CHAR_VAL      VARCHAR2(254) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_VAL_FK1        VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_VAL_FK2        VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_VAL_FK3        VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_VAL_FK4        VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_VAL_FK5        VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE,
    DESCRLONG           VARCHAR2(4000) DEFAULT ' ' NOT NULL ENABLE,
    LOG_DTTM            DATE NOT NULL ENABLE,
    LOG_ENTRY_TYPE_FLG  CHAR(4) DEFAULT ' ' NOT NULL ENABLE,
    MESSAGE_CAT_NBR     NUMBER(5,0) DEFAULT 0 NOT NULL ENABLE,
    MESSAGE_NBR         NUMBER(5,0) DEFAULT 0 NOT NULL ENABLE,
    USER_ID             CHAR(8) DEFAULT ' ' NOT NULL ENABLE,
    VERSION             NUMBER(5,0) DEFAULT 1 NOT NULL ENABLE,
    LAST_UPDATE_DTTM DATE,
     CONSTRAINT D1_INIT_MSRMT_DATA_LOG_FK FOREIGN KEY(INIT_MSRMT_DATA_ID) REFERENCES
D1_INIT_MSRMT_DATA ON DELETE CASCADE)
PARTITION BY REFERENCE (D1_INIT_MSRMT_DATA_LOG_FK)
ENABLE ROW MOVEMENT;
```

INDEX

```
CREATE UNIQUE INDEX D1T306P0 ON D1_INIT_MSRMT_DATA_LOG (INIT_MSRMT_DATA_ID, SEQNO)
TABLESPACE CM_D1T304_IND
GLOBAL PARTITION BY RANGE(INIT_MSRMT_DATA_ID)
 (
 PARTITION P1 VALUES LESS THAN ('12499999999999'),
 PARTITION P2 VALUES LESS THAN ('24999999999999'),
 PARTITION P3 VALUES LESS THAN ('37499999999999'),
 PARTITION P4 VALUES LESS THAN ('49999999999999'),
 PARTITION P5 VALUES LESS THAN ('62499999999999'),
 PARTITION P6 VALUES LESS THAN ('74999999999999'),
 PARTITION P7 VALUES LESS THAN ('87499999999999'),
 PARTITION P8 VALUES LESS THAN (MAXVALUE)
 )COMPRESS ADVANCED LOW;


ALTER TABLE D1_INIT_MSRMT_DATA_LOG ADD CONSTRAINT D1T306P0 PRIMARY KEY
(INIT_MSRMT_DATA_ID, SEQNO) USING INDEX;
```

Child Table: D1_INIT_MSRMT_DATA_LOG_PARM

```
CREATE TABLE D1_INIT_MSRMT_DATA_LOG_PARM
  (
    INIT_MSRMT_DATA_ID CHAR(14) NOT NULL ENABLE,
    SEQNO              NUMBER(5,0) NOT NULL ENABLE,
    PARM_SEQ           NUMBER(3,0) NOT NULL ENABLE,
```

```
    MSG_PARM_VAL       VARCHAR2(2000) DEFAULT ' ' NOT NULL ENABLE,
    MSG_PARM_TYP_FLG   CHAR(4) DEFAULT ' ' NOT NULL ENABLE,
    VERSION            NUMBER(5,0) DEFAULT 1 NOT NULL ENABLE,
    LAST_UPDATE_DTTM DATE,
    CONSTRAINT D1_INIT_MSRMT_DATA_LOG_PARM_FK FOREIGN KEY(INIT_MSRMT_DATA_ID) REFERENCES
D1_INIT_MSRMT_DATA ON DELETE CASCADE)
PARTITION BY REFERENCE (D1_INIT_MSRMT_DATA_LOG_PARM_FK)
ENABLE ROW MOVEMENT;
```

INDEX

```
CREATE UNIQUE INDEX D1T307P0 ON D1_INIT_MSRMT_DATA_LOG_PARM(INIT_MSRMT_DATA_ID, SEQNO,
PARM_SEQ) TABLESPACE CM_D1T304_IND
GLOBAL PARTITION BY RANGE(INIT_MSRMT_DATA_ID)
 (
 PARTITION P1 VALUES LESS THAN ('12499999999999'),
 PARTITION P2 VALUES LESS THAN ('24999999999999'),
 PARTITION P3 VALUES LESS THAN ('37499999999999'),
 PARTITION P4 VALUES LESS THAN ('49999999999999'),
 PARTITION P5 VALUES LESS THAN ('62499999999999'),
 PARTITION P6 VALUES LESS THAN ('74999999999999'),
 PARTITION P7 VALUES LESS THAN ('87499999999999'),
 PARTITION P8 VALUES LESS THAN (MAXVALUE)
 ) COMPRESS ADVANCED LOW;

ALTER TABLE D1_INIT_MSRMT_DATA_LOG_PARM ADD CONSTRAINT D1T307P0 PRIMARY KEY
(INIT_MSRMT_DATA_ID, SEQNO, PARM_SEQ) USING INDEX;
```

Child Table: D1_INIT_MSRMT_DATA_K

```
CREATE BIGFILE TABLESPACE CM_D1T314_IND DATAFILE '+DATA' SIZE 50M AUTOEXTEND ON MAXSIZE
UNLIMITED;


CREATE TABLE D1_INIT_MSRMT_DATA_K
  (
    INIT_MSRMT_DATA_ID CHAR(14) NOT NULL ENABLE,
    ENV_ID             NUMBER(6,0) NOT NULL ENABLE,
    CONSTRAINT D1T314P0 PRIMARY KEY (INIT_MSRMT_DATA_ID, ENV_ID) ENABLE
  )
  ORGANIZATION INDEX
  Partition by range(INIT_MSRMT_DATA_ID)
(
PARTITION P1 VALUES LESS THAN ( '12499999999999' ),
PARTITION P2 VALUES LESS THAN ( '24999999999999' ),
PARTITION P3 VALUES LESS THAN ( '37499999999999' ),
PARTITION P4 VALUES LESS THAN ( '49999999999999' ),
PARTITION P5 VALUES LESS THAN ( '62499999999999' ),
PARTITION P6 VALUES LESS THAN ( '74999999999999' ),
PARTITION P7 VALUES LESS THAN ( '87499999999999' ),
PARTITION P8 VALUES LESS THAN ( MAXVALUE )
)
TABLESPACE CM_D1T314_IND;
```

Appendix B

Sample SQL for Enabling ILM in MSM (Existing Installation)

This section provides additional details related to supporting ILM in an existing installation. It includes the sample syntax for each step using the To Do Entry maintenance object as an example. Other maintenance object's implementations can follow a similar pattern.

1. Rename existing table CI_TD_ENTRY and primary key index as a backup. It is suggested to use an ILM_ prefix. The following are sample statements:

```
ALTER TABLE CI_TD_ENTRY RENAME TO ILM_TD_ENTRY;
ALTER INDEX XT039P0 RENAME TO ILM_XT039P0;
```

2. Generate DDL for the secondary index.

```
set heading off;
set echo off;
Set pages 999;
set long 90000;

spool ddl_list.sql
select dbms_metadata.get_ddl('INDEX','XT039S2','CISADM') from dual;
select dbms_metadata.get_ddl('INDEX','XT039S3','CISADM') from dual;
select dbms_metadata.get_ddl('INDEX','XT039S4','CISADM') from dual;
select dbms_metadata.get_ddl('INDEX','XT039S5','CISADM') from dual;
select dbms_metadata.get_ddl('INDEX','XT039S6','CISADM') from dual;
select dbms_metadata.get_ddl('INDEX','XT039S7','CISADM') from dual;
select dbms_metadata.get_ddl('INDEX','XT039S8','CISADM') from dual;
select dbms_metadata.get_ddl('INDEX','CM_ILM_XT039S8','CISADM') from dual;
spool off;
```

3. Drop secondary indexes.

```
DROP INDEX CISADM.XT039S2;
DROP INDEX CISADM.XT039S3;
DROP INDEX CISADM.XT039S4;
DROP INDEX CISADM.XT039S5;
DROP INDEX CISADM.XT039S6;
DROP INDEX CISADM.XT039S7;
DROP INDEX CISADM.XT039S8;
DROP INDEX CISADM.CM_ILM_XT039S8;
```

4. Create a partitioned table.

   In the following example ILM_DT value is inserted from column CRE_DTTM. The degree setting of 'parallel' in the DDL can be adjusted according to the table's data, its means and its size.

```
CREATE TABLE CI_TD_ENTRY (
TD_ENTRY_ID     CHAR(14) NOT NULL ENABLE,
BATCH_CD        CHAR(8) DEFAULT ' ' NOT NULL ENABLE,
BATCH_NBR       NUMBER(10,0) DEFAULT 0 NOT NULL ENABLE,
MESSAGE_CAT_NBR NUMBER(5,0) DEFAULT 0 NOT NULL ENABLE,
MESSAGE_NBR     NUMBER(5,0) DEFAULT 0 NOT NULL ENABLE,
```

```
ASSIGNED_TO     CHAR(8) DEFAULT ' ' NOT NULL ENABLE,
TD_TYPE_CD      CHAR(8) DEFAULT ' ' NOT NULL ENABLE,
ROLE_ID         CHAR(10) DEFAULT ' ' NOT NULL ENABLE,
ENTRY_STATUS_FLG CHAR(2) DEFAULT ' ' NOT NULL ENABLE,
VERSION         NUMBER(5,0) DEFAULT 1 NOT NULL ENABLE,
CRE_DTTM DATE,
ASSIGNED_DTTM DATE,
COMPLETE_DTTM DATE,
COMPLETE_USER_ID CHAR(8) DEFAULT ' ' NOT NULL ENABLE,
COMMENTS        VARCHAR2(254) DEFAULT ' ' NOT NULL ENABLE,
ASSIGNED_USER_ID CHAR(8) DEFAULT ' ' NOT NULL ENABLE,
TD_PRIORITY_FLG CHAR(4) DEFAULT ' ' NOT NULL ENABLE,
ILM_DT DATE,
ILM_ARCH_SW CHAR(1)
) NOLOGGING PARALLEL
ENABLE ROW MOVEMENT
PARTITION BY RANGE (ILM_DT)
SUBPARTITION BY RANGE (TD_ENTRY_ID) SUBPARTITION TEMPLATE
(
SUBPARTITION S01 VALUES LESS THAN ( '12499999999999' ),
SUBPARTITION S02 VALUES LESS THAN ( '24999999999999' ),
SUBPARTITION S03 VALUES LESS THAN ( '37499999999999' ),
SUBPARTITION S04 VALUES LESS THAN ( '49999999999999' ),
SUBPARTITION S05 VALUES LESS THAN ( '62499999999999' ),
SUBPARTITION S06 VALUES LESS THAN ( '74999999999999' ),
SUBPARTITION S07 VALUES LESS THAN ( '87499999999999' ),
SUBPARTITION SMAX VALUES LESS THAN ( MAXVALUE )
)
(
PARTITION "P2011JAN" VALUES LESS THAN (TO_DATE('2011-02-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_XT039_P2011JAN,
PARTITION "P2011FEB" VALUES LESS THAN (TO_DATE('2011-03-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_XT039_P2011FEB,
PARTITION "P2011MAR" VALUES LESS THAN (TO_DATE('2011-04-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_XT039_P2011MAR,
PARTITION "P2011APR" VALUES LESS THAN (TO_DATE('2011-05-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_XT039_P2011APR,
PARTITION "P2011MAY" VALUES LESS THAN (TO_DATE('2011-06-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_XT039_P2011MAY,
PARTITION "P2011JUN" VALUES LESS THAN (TO_DATE('2011-07-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_XT039_P2011JUN,
PARTITION "P2011JUL" VALUES LESS THAN (TO_DATE('2011-08-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_XT039_P2011JUL,
PARTITION "P2011AUG" VALUES LESS THAN (TO_DATE('2011-09-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_XT039_P2011AUG,
PARTITION "P2011SEP" VALUES LESS THAN (TO_DATE('2011-10-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_XT039_P2011SEP,
PARTITION "P2011OCT" VALUES LESS THAN (TO_DATE('2011-11-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_XT039_P2011OCT,
PARTITION "P2011NOV" VALUES LESS THAN (TO_DATE('2011-12-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_XT039_P2011NOV,
PARTITION "PMAX" VALUES LESS THAN (MAXVALUE)
TABLESPACE CM_XT039_PMAX
)as select /* PARALLEL */
TD_ENTRY_ID,
BATCH_CD,
BATCH_NBR,
MESSAGE_CAT_NBR,
MESSAGE_NBR,
ASSIGNED_TO,
TD_TYPE_CD,
ROLE_ID,
ENTRY_STATUS_FLG,
VERSION,
CRE_DTTM,
ASSIGNED_DTTM,
COMPLETE_DTTM,
COMPLETE_USER_ID,
COMMENTS,
ASSIGNED_USER_ID,
TD_PRIORITY_FLG,
CRE_DTTM as ILM_DT,
ILM_ARCH_SW
from ILM_TD_ENTRY
```

```
/
```

5. Enable logging option for table CI_TD_ENRY.

```
ALTER TABLE CI_TD_ENTRY NOPARALLEL LOGGING;
```

6. Create primary index for parent table CI_TD_ENTRY.

```
CREATE BIGFILE TABLESPACE CM_XT039_IND DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;

CREATE UNIQUE INDEX XT039P0 ON CI_TD_ENTRY NOLOGGING PARALLEL (
TD_ENTRY_ID
)
PARTITION P1 VALUES LESS THAN ( '12499999999999' ),
PARTITION P2 VALUES LESS THAN ( '24999999999999' ),
PARTITION P3 VALUES LESS THAN ( '37499999999999' ),
PARTITION P4 VALUES LESS THAN ( '49999999999999' ),
PARTITION P5 VALUES LESS THAN ( '62499999999999' ),
PARTITION P6 VALUES LESS THAN ( '74999999999999' ),
PARTITION P7 VALUES LESS THAN ( '87499999999999' ),
PARTITION P8 VALUES LESS THAN ( MAXVALUE )
) TABLESPACE CM_XT039_IND
/

ALTER INDEX XT039P0 LOGGING NOPARALLEL;
```

7. Add Primary Key for Parent table CI_TD_ENTRY

```
ALTER TABLE CI_TD_ENTRY ADD CONSTRAINT XT039P0 PRIMARY KEY(TD_ENTRY_ID) USING INDEX
/
```

8. Create Secondary Indexes for Parent table CI_TD_ENTRY.

```
CREATE UNIQUE INDEX CM_ILM_XT039S8 ON CI_TD_ENTRY ( ILM_DT, ILM_ARCH_SW, TD_ENTRY_ID )
LOCAL COMPRESS ADVANCED LOW
/


CREATE UNIQUE INDEX XT039S2 ON CI_TD_ENTRY ( ASSIGNED_TO, TD_ENTRY_ID ) TABLESPACE
CM_XT039_IND COMPRESS ADVANCED LOW
/

CREATE INDEX XT039S3 ON CI_TD_ENTRY ( ENTRY_STATUS_FLG, ASSIGNED_TO ) TABLESPACE
CM_XT039_IND COMPRESS ADVANCED LOW
/

CREATE INDEX XT039S4 ON CI_TD_ENTRY ( ROLE_ID, TD_TYPE_CD, ENTRY_STATUS_FLG,
TD_PRIORITY_FLG, ASSIGNED_TO, CRE_DTTM ) TABLESPACE CM_XT039_IND COMPRESS ADVANCED LOW
/

CREATE INDEX XT039S5 ON CI_TD_ENTRY ( BATCH_CD, BATCH_NBR, ENTRY_STATUS_FLG )
TABLESPACE CM_XT039_IND COMPRESS ADVANCED LOW
/

CREATE UNIQUE INDEX XT039S6 ON CI_TD_ENTRY ( TD_ENTRY_ID, ASSIGNED_TO,
ENTRY_STATUS_FLG )TABLESPACE CM_XT039_IND COMPRESS ADVANCED LOW
/

CREATE UNIQUE INDEX XT039S7 ON CI_TD_ENTRY ( COMPLETE_USER_ID, COMPLETE_DTTM,
TD_ENTRY_ID ) TABLESPACE CM_XT039_IND COMPRESS ADVANCED LOW
/

CREATE INDEX XT039S8 ON CI_TD_ENTRY ( ENTRY_STATUS_FLG, TD_TYPE_CD, MESSAGE_CAT_NBR,
MESSAGE_NBR ) TABLESPACE CM_XT039_IND COMPRESS ADVANCED LOW
/

CREATE UNIQUE INDEX CM_ILM_XT039S8 ON CI_TD_ENTRY ( ILM_DT, ILM_ARCH_SW, TD_ENTRY_ID )
LOCAL COMPRESS ADVANCED LOW;
```

9. After verification of the ILM based tables, user can drop the backup tables "ILM" renamed table.
10. Create all child Tables, Primary Key, Primary Indexes and Secondary Indexes as shown below.

Repeat the following steps for all child tables.

Create Child Table CI_TD_DRLKEY

```
CREATE TABLE CI_TD_DRLKEY
(
TD_ENTRY_ID NOT NULL ENABLE,
SEQ_NUM    NOT NULL ENABLE,
KEY_VALUE  DEFAULT ' ' NOT NULL ENABLE,
VERSION    DEFAULT 1 NOT NULL ENABLE,
CONSTRAINT CI_TD_DRLKEY_FK FOREIGN KEY(TD_ENTRY_ID) REFERENCES CI_TD_ENTRY
ON DELETE CASCADE)
PARTITION BY REFERENCE (CI_TD_DRLKEY_FK)
ENABLE ROW MOVEMENT
AS SELECT /*+ PARALLEL */ * FROM ILM_CI_TD_DRLKEY;
```

Create Index

```
CREATE UNIQUE INDEX XT037P0 ON CI_TD_DRLKEY ( TD_ENTRY_ID, SEQ_NUM ) TABLESPACE
CM_XT039_IND NOLOGGING PARALLEL
GLOBAL PARTITION BY RANGE (TD_ENTRY_ID)
(
PARTITION P1 VALUES LESS THAN ( '124999999999' ),
PARTITION P2 VALUES LESS THAN ( '249999999999' ),
PARTITION P3 VALUES LESS THAN ( '374999999999' ),
PARTITION P4 VALUES LESS THAN ( '499999999999' ),
PARTITION P5 VALUES LESS THAN ( '624999999999' ),
PARTITION P6 VALUES LESS THAN ( '749999999999' ),
PARTITION P7 VALUES LESS THAN ( '874999999999' ),
PARTITION P8 VALUES LESS THAN ( MAXVALUE )
)
COMPRESS ADVANCED LOW;

ALTER INDEX XT037P0 LOGGING NOPARALLEL;

ALTER TABLE CI_TD_DRLKEY ADD CONSTRAINT XT037P0 PRIMARY KEY(TD_ENTRY_ID, SEQ_NUM) USING
INDEX;

CREATE INDEX XT037S1 ON CI_TD_DRLKEY ( KEY_VALUE, TD_ENTRY_ID ) TABLESPACE CM_XT039_IND
COMPRESS ADVANCED LOW;
```

Appendix C

Sample SQL for Enabling ILM with Sub Retention in MSM (Existing Installation)

This section provides additional details including the sample syntax for each step using the Initial Measurement Data maintenance object as an example. Other maintenance object's implementations can follow a similar pattern.

1. Rename existing D1_INIT_MSRMT_DATA tables and primary key indexes and constraints as a backup. It is suggested to use an ILM_ prefix. The following are sample statements:

```
ALTER TABLE D1_INIT_MSRMT_DATA RENAME TO ILM_D1_INIT_MSRMT_DATA;

ALTER TABLE D1_INIT_MSRMT_DATA RENAME CONSTRAINT D1T304P0 TO
ILM_D1T304P0;

ALTER INDEX D1T304P0 RENAME TO ILM_D1T304P0;

ALTER TABLE D1_INIT_MSRMT_DATA_CHAR RENAME TO
ILM_D1_INIT_MSRMT_DATA_CHAR;

ALTER TABLE D1_INIT_MSRMT_DATA_CHAR RENAME CONSTRAINT D1T305P0 TO
ILM_D1T305P0;

ALTER INDEX D1T305P0 RENAME TO ILM_D1T305P0;

ALTER TABLE D1_INIT_MSRMT_DATA_LOG RENAME TO
ILM_D1_INIT_MSRMT_DATA_LOG;

ALTER TABLE D1_INIT_MSRMT_DATA_LOG RENAME CONSTRAINT D1T306P0 TO
ILM_D1T306P0;

ALTER INDEX D1T306P0 RENAME TO ILM_D1T306P0;

ALTER TABLE D1_INIT_MSRMT_DATA_LOG_PARM RENAME TO
ILM_D1_INIT_MSRMT_DATA_LOG_PARM;

ALTER TABLE D1_INIT_MSRMT_DATA_LOG_PARM RENAME CONSTRAINT D1T307P0
TO ILM_D1T307P0;

ALTER INDEX D1T307P0 RENAME TO ILM_D1T307P0;

ALTER TABLE D1_INIT_MSRMT_DATA_K RENAME TO
ILM_D1_INIT_MSRMT_DATA_K;
```

```
ALTER TABLE D1_INIT_MSRMT_DATA_K RENAME CONSTRAINT D1T314P0 TO
ILM_D1T314P0;

ALTER INDEX D1T314P0 RENAME TO ILM_D1T314P0;
```

2. Generate DDL for the secondary index.

```
set heading off;
set echo off;
Set pages 999;
set long 90000;

spool ddl_list.sql
select dbms_metadata.get_ddl('INDEX','D1T304S1','CISADM') from
dual;
spool off;
```

3. Drop secondary indexes.

```
DROP INDEX CISADM.D1T304S1;
```

4. Create Partitioned Table.

   In the following example ILM_DT value is inserted from column CRE_DTTM. The degree setting of 'parallel' in the DDL can be adjusted according to the table's data, its means and its size. Use the CTAS queries listed in Chapter 5 to create temporary tables for ACTIVITY, DEVICE EVENT, and INITIAL MEASUREMENT DATA and use the following statements to create the partitioned tables.

Activity

```
CREATE TABLE D1_ACTIVITY (
D1_ACTIVITY_ID      NOT NULL,
BUS_OBJ_CD          NOT NULL,
BO_STATUS_CD        NOT NULL,
ACTIVITY_TYPE_CD    NOT NULL,
START_DTTM          NOT NULL,
END_DTTM,
CRE_DTTM            NOT NULL,
STATUS_UPD_DTTM     NOT NULL,
BO_STATUS_REASON_CD NOT NULL,
VERSION             NOT NULL,
EFF_DTTM,
BO_DATA_AREA,
FIELD_TASK_TYPE,
CANCEL_REASON,
ILM_DT,
ILM_ARCH_SW,
RETENTION_PERIOD    NOT NULL
)
AS
SELECT
A.D1_ACTIVITY_ID,
A.BUS_OBJ_CD,
A.BO_STATUS_CD,
A.ACTIVITY_TYPE_CD,
A.START_DTTM,
A.END_DTTM,
A.CRE_DTTM,
A.STATUS_UPD_DTTM,
A.BO_STATUS_REASON_CD,
A.VERSION,
A.EFF_DTTM,
A.BO_DATA_AREA,
A.FIELD_TASK_TYPE,
A.CANCEL_REASON,
A.CRE_DTTM as ILM_DT,
'N' as ILM_ARCH_SW,
CAST(COALESCE((SELECT B.RETPERIOD
FROM ILM_ACTIVITY_RETENTION_TMP B
WHERE  B.ACTIVITY_TYPE_CD = A.ACTIVITY_TYPE_CD)
,CAST((select maint_obj_opt_val
from ci_md_mo_opt mmouni
where maint_obj_cd = 'D1-ACTIVITY'
```

```
and maint_obj_opt_flg ='FLRP'
and seq_num =
(select max(seq_num)
from ci_md_mo_opt mmo
where maint_obj_cd = 'D1-ACTIVITY'
and maint_obj_opt_flg ='FLRP')) as NUMBER(5))
,CAST((select extractvalue( xmlparse(content fw_mcfg.mst_config_data)
,'generalMasterConfiguration/defaultRetentionPeriod')
from f1_mst_config fw_mcfg
where fw_mcfg.bus_obj_cd = 'F1-ILMMSConfig') as NUMBER(5))
, 99999) as NUMBER(5)) as RETENTION_PERIOD
FROM ILM_D1_ACTIVITY A
/
```

Device Event

```
CREATE TABLE D1_DVC_EVT(
DVC_EVT_ID          NOT NULL,
DVC_EVT_TYPE_CD,
BUS_OBJ_CD          NOT NULL,
EXT_EVT_NAME_FLG,
D1_SPR_CD,
BO_STATUS_CD        NOT NULL,
STATUS_UPD_DTTM     NOT NULL,
BO_STATUS_REASON_CD NOT NULL,
DVC_EVT_DTTM        NOT NULL,
CRE_DTTM            NOT NULL,
VERSION             NOT NULL,
DVC_EVT_END_DTTM,
BO_DATA_AREA,
D1_DEVICE_ID,
ILM_DT              NOT NULL,
ILM_ARCH_SW,
RETENTION_PERIOD    NOT NULL)
AS
SELECT
A.DVC_EVT_ID,
A.DVC_EVT_TYPE_CD,
A.BUS_OBJ_CD,
A.EXT_EVT_NAME_FLG,
A.D1_SPR_CD,
A.BO_STATUS_CD,
A.STATUS_UPD_DTTM,
A.BO_STATUS_REASON_CD,
A.DVC_EVT_DTTM,
A.CRE_DTTM,
A.VERSION,
A.DVC_EVT_END_DTTM,
A.BO_DATA_AREA,
A.D1_DEVICE_ID,
A.CRE_DTTM as ILM_DT,
'N' as ILM_ARCH_SW,
CAST(COALESCE((SELECT B.RETPERIOD
FROM ILM_DVC_EVT_RETENTION_TMP B
WHERE  B.DVC_EVT_TYPE_CD = A.DVC_EVT_TYPE_CD)
,CAST((select maint_obj_opt_val
from ci_md_mo_opt mmouni
where maint_obj_cd = 'D1-DVCEVENT'
and maint_obj_opt_flg ='FLRP'
and seq_num =
(select max(seq_num)
from ci_md_mo_opt mmo
where maint_obj_cd = 'D1-DVCEVENT'
and maint_obj_opt_flg ='FLRP')) as NUMBER(5))
,CAST((select extractvalue( xmlparse(content fw_mcfg.mst_config_data)
,'generalMasterConfiguration/defaultRetentionPeriod')
from f1_mst_config fw_mcfg
where fw_mcfg.bus_obj_cd = 'F1-ILMMSConfig') as NUMBER(5))
, 99999) as NUMBER(5)) as RETENTION_PERIOD
FROM ILM_D1_DVC_EVT A
/
```

Initial Measurement Data

```
CREATE TABLE ILM_IMD_RETENTION_TMP
AS
select mct.measr_comp_type_cd
/*retrieve the retention period for MC Types in this order of precedence:
1. The UOM based retention period from the MDM master configuration
2. The interval IMD retention period from the MDM master configuration
```

```
3. The MO level retention period from the MO options
4. The installation level retention period from the FW master configuration
*/
, CAST(coalesce( (select retPeriod
from (select 'D1IN' interval_scalar_flg
, extractvalue(value(p),'uomRetentionPeriodList/uom') D1_UOM_CD
, extractvalue(value(p),'uomRetentionPeriodList/retentionPeriod') retPeriod
from f1_mst_config mdm_mcfg
, table(xmlsequence(extract(xmlparse(content
mdm_mcfg.mst_config_data),
'imdRetentionPeriod/intervalImdRetentionPeriods/uomRetentionPeriods/
uomRetentionPeriodList'))) p
where mdm_mcfg.bus_obj_cd = 'D1-ILMMSConfig'
union
select 'D1SC' INTERVAL_SCALAR_FLG
, extractvalue(value(p),'uomRetentionPeriodList/uom') D1_UOM_CD
, extractvalue(value(p),'uomRetentionPeriodList/retentionPeriod') retPeriod
from f1_mst_config mdm_mcfg
, table(xmlsequence(extract(xmlparse(content
mdm_mcfg.mst_config_data),
'imdRetentionPeriod/scalarImdRetentionPeriods/uomRetentionPeriods/
uomRetentionPeriodList'))) p
where mdm_mcfg.bus_obj_cd = 'D1-ILMMSConfig') uomMap
where uomMap.interval_scalar_flg = mct.interval_scalar_flg
and trim(mctvi.d1_uom_cd) = trim(uomMap.d1_uom_cd))--UOM
, DECODE(mct.interval_scalar_flg
,'D1IN'
,extractvalue( xmlparse(content mdm_mcfg.mst_config_data),
'imdRetentionPeriod/intervalImdRetentionPeriods/intervalRetentionPeriod') --interval IMD
,extractvalue( xmlparse(content mdm_mcfg.mst_config_data),
'imdRetentionPeriod/scalarImdRetentionPeriods/scalarRetentionPeriod') --scalar IMD
)
, (select maint_obj_opt_val
from ci_md_mo_opt mmo
where maint_obj_cd = 'D1-IMD'
and maint_obj_opt_flg ='FLRP'
and seq_num = (select max(seq_num)
from ci_md_mo_opt mmo
where maint_obj_cd = 'D1-IMD'
and maint_obj_opt_flg ='FLRP')) --IMD
, extractvalue( xmlparse(content fw_mcfg.mst_config_data),
'generalMasterConfiguration/defaultRetentionPeriod') --Install
) as NUMBER(5)) retPeriod
from d1_measr_comp_type mct
, d1_mc_type_value_identifier mctvi
, f1_mst_config fw_mcfg
, f1_mst_config mdm_mcfg
where mct.measr_comp_type_cd = mctvi.measr_comp_type_cd
and mctvi.value_id_type_flg = 'D1MS'
and fw_mcfg.bus_obj_cd = 'F1-ILMMSConfig'
and mdm_mcfg.bus_obj_cd = 'D1-ILMMSConfig'
order by 1;


CREATE BIGFILE TABLESPACE CM_D1T304_P2011JAN_S181 DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011JAN_SMAX DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011FEB_S181 DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011FEB_SMAX DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011MAR_S181 DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011MAR_SMAX DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011APR_S181 DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011APR_SMAX DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011MAY_S181 DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011MAY_SMAX DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011JUN_S181 DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011JUN_SMAX DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011JUL_S181 DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011JUL_SMAX DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011AUG_S181 DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
```

```
CREATE BIGFILE TABLESPACE CM_D1T304_P2011AUG_SMAX DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011SEP_S181 DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011SEP_SMAX DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011OCT_S181 DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011OCT_SMAX DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011NOV_S181 DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011NOV_SMAX DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011DEC_S181 DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011DEC_SMAX DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_PMAX_S181 DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
CREATE BIGFILE TABLESPACE CM_D1T304_PMAX_SMAX DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;


CREATE TABLE D1_INIT_MSRMT_DATA
(
INIT_MSRMT_DATA_ID   NOT NULL,
MEASR_COMP_ID        NOT NULL,
D1_FROM_DTTM,
D1_TO_DTTM,
DATA_SRC_FLG         NOT NULL,
TIME_ZONE_CD         NOT NULL,
BUS_OBJ_CD           NOT NULL,
BO_STATUS_CD         NOT NULL,
BO_STATUS_REASON_CD  NOT NULL,
IMD_BO_DATA_AREA,
STATUS_UPD_DTTM      NOT NULL,
CRE_DTTM             NOT NULL,
VERSION              NOT NULL,
IMD_EXT_ID,
PREVEE_BO_DATA_AREA,
POSTVEE_BO_DATA_AREA,
TRACE_BO_DATA_AREA,
RAW_BO_DATA_AREA,
LAST_UPDATE_DTTM,
ILM_DT,
ILM_ARCH_SW,
RETENTION_PERIOD     NOT NULL
)
nologging  parallel (degree 10)
LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE)
LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM
CACHE)
LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE)
LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE)
LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE)
PARTITION BY RANGE (ILM_DT) SUBPARTITION BY RANGE (RETENTION_PERIOD)
(
PARTITION "P2011JAN" VALUES LESS THAN (TO_DATE('2011-02-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))(
SUBPARTITION P2011JAN_S181 VALUES LESS THAN (181) TABLESPACE CM_D1T304_P2011JAN_S181
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JAN_S181)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JAN_S181)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JAN_S181)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JAN_S181)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JAN_S181)
,
SUBPARTITION P2011JAN_SMAX VALUES LESS THAN (MAXVALUE) TABLESPACE CM_D1T304_P2011JAN_SMAX
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JAN_SMAX)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JAN_SMAX)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JAN_SMAX)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JAN_SMAX)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JAN_SMAX)
),
PARTITION "P2011FEB" VALUES LESS THAN (TO_DATE('2011-03-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))(
SUBPARTITION P2011FEB_S181 VALUES LESS THAN (181) TABLESPACE CM_D1T304_P2011FEB_S181
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011FEB_S181)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011FEB_S181)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011FEB_S181)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011FEB_S181)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011FEB_S181)
,
SUBPARTITION P2011FEB_SMAX VALUES LESS THAN (MAXVALUE) TABLESPACE CM_D1T304_P2011FEB_SMAX
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011FEB_SMAX)
```

```
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011FEB_SMAX)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011FEB_SMAX)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011FEB_SMAX)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011FEB_SMAX)
),
PARTITION "P2011MAR" VALUES LESS THAN (TO_DATE('2011-04-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))(
SUBPARTITION P2011MAR_S181 VALUES LESS THAN (181) TABLESPACE CM_D1T304_P2011MAR_S181
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAR_S181)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAR_S181)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAR_S181)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAR_S181)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAR_S181)
,
SUBPARTITION P2011MAR_SMAX VALUES LESS THAN (MAXVALUE) TABLESPACE CM_D1T304_P2011MAR_SMAX
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAR_SMAX)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAR_SMAX)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAR_SMAX)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAR_SMAX)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAR_SMAX)
),
PARTITION "P2011APR" VALUES LESS THAN (TO_DATE('2011-05-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))(
SUBPARTITION P2011APR_S181 VALUES LESS THAN (181) TABLESPACE CM_D1T304_P2011APR_S181
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011APR_S181)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011APR_S181)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011APR_S181)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011APR_S181)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011APR_S181)
,
SUBPARTITION P2011APR_SMAX VALUES LESS THAN (MAXVALUE) TABLESPACE CM_D1T304_P2011APR_SMAX
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011APR_SMAX)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011APR_SMAX)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011APR_SMAX)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011APR_SMAX)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011APR_SMAX)
),
PARTITION "P2011MAY" VALUES LESS THAN (TO_DATE('2011-06-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))(
SUBPARTITION P2011MAY_S181 VALUES LESS THAN (181) TABLESPACE CM_D1T304_P2011MAY_S181
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAY_S181)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAY_S181)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAY_S181)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAY_S181)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAY_S181)
,
SUBPARTITION P2011MAY_SMAX VALUES LESS THAN (MAXVALUE) TABLESPACE CM_D1T304_P2011MAY_SMAX
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAY_SMAX)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAY_SMAX)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAY_SMAX)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAY_SMAX)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAY_SMAX)
),
PARTITION "P2011JUN" VALUES LESS THAN (TO_DATE('2011-07-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))(
SUBPARTITION P2011JUN_S181 VALUES LESS THAN (181) TABLESPACE CM_D1T304_P2011JUN_S181
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUN_S181)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUN_S181)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUN_S181)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUN_S181)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUN_S181)
,
SUBPARTITION P2011JUN_SMAX VALUES LESS THAN (MAXVALUE) TABLESPACE CM_D1T304_P2011JUN_SMAX
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUN_SMAX)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUN_SMAX)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUN_SMAX)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUN_SMAX)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUN_SMAX)
),
PARTITION "P2011JUL" VALUES LESS THAN (TO_DATE('2011-08-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))(
SUBPARTITION P2011JUL_S181 VALUES LESS THAN (181) TABLESPACE CM_D1T304_P2011JUL_S181
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUL_S181)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUL_S181)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUL_S181)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUL_S181)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUL_S181)
,
SUBPARTITION P2011JUL_SMAX VALUES LESS THAN (MAXVALUE) TABLESPACE CM_D1T304_P2011JUL_SMAX
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUL_SMAX)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUL_SMAX)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUL_SMAX)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUL_SMAX)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUL_SMAX)
),
```

```
PARTITION "P2011AUG" VALUES LESS THAN (TO_DATE('2011-09-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))(
SUBPARTITION P2011AUG_S181 VALUES LESS THAN (181) TABLESPACE CM_D1T304_P2011AUG_S181
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011AUG_S181)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011AUG_S181)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011AUG_S181)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011AUG_S181)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011AUG_S181)
,
SUBPARTITION P2011AUG_SMAX VALUES LESS THAN (MAXVALUE) TABLESPACE CM_D1T304_P2011AUG_SMAX
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011AUG_SMAX)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011AUG_SMAX)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011AUG_SMAX)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011AUG_SMAX)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011AUG_SMAX)
),
PARTITION "P2011SEP" VALUES LESS THAN (TO_DATE('2011-10-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))(
SUBPARTITION P2011SEP_S181 VALUES LESS THAN (181) TABLESPACE CM_D1T304_P2011SEP_S181
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011SEP_S181)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011SEP_S181)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011SEP_S181)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011SEP_S181)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011SEP_S181)
,
SUBPARTITION P2011SEP_SMAX VALUES LESS THAN (MAXVALUE) TABLESPACE CM_D1T304_P2011SEP_SMAX
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011SEP_SMAX)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011SEP_SMAX)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011SEP_SMAX)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011SEP_SMAX)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011SEP_SMAX)
),
PARTITION "P2011OCT" VALUES LESS THAN (TO_DATE('2011-11-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))(
SUBPARTITION P2011OCT_S181 VALUES LESS THAN (181) TABLESPACE CM_D1T304_P2011OCT_S181
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011OCT_S181)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011OCT_S181)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011OCT_S181)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011OCT_S181)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011OCT_S181)
,
SUBPARTITION P2011OCT_SMAX VALUES LESS THAN (MAXVALUE) TABLESPACE CM_D1T304_P2011OCT_SMAX
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011OCT_SMAX)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011OCT_SMAX)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011OCT_SMAX)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011OCT_SMAX)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011OCT_SMAX)
),
PARTITION "P2011NOV" VALUES LESS THAN (TO_DATE('2011-12-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))(
SUBPARTITION P2011NOV_S181 VALUES LESS THAN (181) TABLESPACE CM_D1T304_P2011NOV_S181
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011NOV_S181)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011NOV_S181)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011NOV_S181)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011NOV_S181)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011NOV_S181)
,
SUBPARTITION P2011NOV_SMAX VALUES LESS THAN (MAXVALUE) TABLESPACE CM_D1T304_P2011NOV_SMAX
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011NOV_SMAX)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011NOV_SMAX)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011NOV_SMAX)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011NOV_SMAX)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011NOV_SMAX)
),
PARTITION "P2011DEC" VALUES LESS THAN (TO_DATE('2012-01-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))(
SUBPARTITION P2011DEC_S181 VALUES LESS THAN (181) TABLESPACE CM_D1T304_P2011DEC_S181
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011DEC_S181)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011DEC_S181)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011DEC_S181)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011DEC_S181)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011DEC_S181)
,
SUBPARTITION P2011DEC_SMAX VALUES LESS THAN (MAXVALUE) TABLESPACE CM_D1T304_P2011DEC_SMAX
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011DEC_SMAX)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011DEC_SMAX)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011DEC_SMAX)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011DEC_SMAX)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011DEC_SMAX)
),
PARTITION "PMAX" VALUES LESS THAN (MAXVALUE)(
SUBPARTITION PMAX_S181 VALUES LESS THAN (181) TABLESPACE CM_D1T304_PMAX_S181
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_PMAX_S181)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_PMAX_S181)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_PMAX_S181)
```

```
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_PMAX_S181)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_PMAX_S181)
,
SUBPARTITION PMAX_SMAX VALUES LESS THAN (MAXVALUE) TABLESPACE CM_D1T304_PMAX_SMAX
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_PMAX_SMAX)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_PMAX_SMAX)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_PMAX_SMAX)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_PMAX_SMAX)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_PMAX_SMAX)
)) ENABLE ROW MOVEMENT AS
SELECT
A.INIT_MSRMT_DATA_ID,
A.MEASR_COMP_ID,
A.D1_FROM_DTTM,
A.D1_TO_DTTM,
A.DATA_SRC_FLG,
A.TIME_ZONE_CD,
A.BUS_OBJ_CD,
A.BO_STATUS_CD,
A.BO_STATUS_REASON_CD,
A.IMD_BO_DATA_AREA,
A.STATUS_UPD_DTTM,
A.CRE_DTTM,
A.VERSION,
A.IMD_EXT_ID,
A.PREVEE_BO_DATA_AREA,
A.POSTVEE_BO_DATA_AREA,
A.TRACE_BO_DATA_AREA,
A.RAW_BO_DATA_AREA,
A.LAST_UPDATE_DTTM,
A.CRE_DTTM as ILM_DT,
'N' as ILM_ARCH_SW,
CAST(COALESCE((SELECT C.RETPERIOD
FROM D1_MEASR_COMP B, ILM_IMD_RETENTION_TMP C
WHERE B.MEASR_COMP_ID = A.MEASR_COMP_ID
AND C.MEASR_COMP_TYPE_CD = B.MEASR_COMP_TYPE_CD)
,CAST((select maint_obj_opt_val
from ci_md_mo_opt mmo
where maint_obj_cd = 'D1-IMD'
and maint_obj_opt_flg ='FLRP'
and seq_num =
(select max(seq_num)
from ci_md_mo_opt mmo
where maint_obj_cd = 'D1-IMD'
and maint_obj_opt_flg ='FLRP')) as NUMBER(5))
,CAST((select extractvalue( xmlparse(content fw_mcfg.mst_config_data)
,'generalMasterConfiguration/defaultRetentionPeriod')
from f1_mst_config fw_mcfg
where fw_mcfg.bus_obj_cd = 'F1-ILMMSConfig') as NUMBER(5))
, 99999) as NUMBER(5)) as RETENTION_PERIOD
FROM ILM_D1_INIT_MSRMT_DATA A
/
```

5. Enable logging option for table D1_INIT_MSRMT_DATA.

```
ALTER TABLE D1_INIT_MSRMT_DATA NOPARALLEL LOGGING;
```

6. Create Primary Index for Parent table D1_INIT_MSRMT_DATA.

```
CREATE BIGFILE TABLESPACE CM_D1T304_IND DATAFILE '+DATA' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;

CREATE UNIQUE INDEX D1T304P0 ON D1_INIT_MSRMT_DATA NOLOGGING PARALLEL
(INIT_MSRMT_DATA_ID)
GLOBAL PARTITION BY RANGE (INIT_MSRMT_DATA_ID) (
PARTITION P1 VALUES LESS THAN ('12499999999999'),
 PARTITION P2 VALUES LESS THAN ('24999999999999'),
 PARTITION P3 VALUES LESS THAN ('37499999999999'),
 PARTITION P4 VALUES LESS THAN ('49999999999999'),
 PARTITION P5 VALUES LESS THAN ('62499999999999'),
 PARTITION P6 VALUES LESS THAN ('74999999999999'),
 PARTITION P7 VALUES LESS THAN ('87499999999999'),
 PARTITION P8 VALUES LESS THAN (MAXVALUE)
) COMPRESS ADVANCED LOW
/

ALTER INDEX D1T304P0 LOGGING NOPARALLEL;
```

7. Add Primary Key for Parent table D1_INIT_MSRMT_DATA

```
ALTER TABLE D1_INIT_MSRMT_DATA ADD CONSTRAINT D1T304P0 PRIMARY KEY(INIT_MSRMT_DATA_ID)
USING INDEX
/
```

8. Create Secondary Indexes for Parent table D1_INIT_MSRMT_DATA

```
CREATE INDEX D1T304S1 ON D1_INIT_MSRMT_DATA (MEASR_COMP_ID, D1_TO_DTTM)
GLOBAL PARTITION BY RANGE (MEASR_COMP_ID) (
PARTITION P1 VALUES LESS THAN ( '124999999999' ),
PARTITION P2 VALUES LESS THAN ( '249999999999' ),
PARTITION P3 VALUES LESS THAN ( '374999999999' ),
PARTITION P4 VALUES LESS THAN ( '499999999999' ),
PARTITION P5 VALUES LESS THAN ( '624999999999' ),
PARTITION P6 VALUES LESS THAN ( '749999999999' ),
PARTITION P7 VALUES LESS THAN ( '874999999999' ),
PARTITION P8 VALUES LESS THAN ( MAXVALUE )
) COMPRESS ADVANCED LOW
/

CREATE UNIQUE INDEX CM_ILM_D1T304S4 ON D1_INIT_MSRMT_DATA (ILM_DT, RETENTION_PERIOD,
ILM_ARCH_SW, INIT_MSRMT_DATA_ID) LOCAL COMPRESS ADVANCED LOW
/
```

9. Create Child Tables, Primary Key, Primary Indexes and Secondary Indexes as shown below.

Create Child Table D1_INIT_MSRMT_DATA_CHAR

```
CREATE TABLE D1_INIT_MSRMT_DATA_CHAR
(
INIT_MSRMT_DATA_ID  NOT NULL ENABLE,
CHAR_TYPE_CD  NOT NULL ENABLE,
SEQ_NUM  NOT NULL ENABLE,
CHAR_VAL  DEFAULT ' ' NOT NULL ENABLE,
ADHOC_CHAR_VAL  DEFAULT ' ' NOT NULL ENABLE,
CHAR_VAL_FK1  DEFAULT ' ' NOT NULL ENABLE,
CHAR_VAL_FK2  DEFAULT ' ' NOT NULL ENABLE,
CHAR_VAL_FK3  DEFAULT ' ' NOT NULL ENABLE,
CHAR_VAL_FK4  DEFAULT ' ' NOT NULL ENABLE,
CHAR_VAL_FK5  DEFAULT ' ' NOT NULL ENABLE,
SRCH_CHAR_VAL DEFAULT ' ' NOT NULL ENABLE,
VERSION  DEFAULT 1 NOT NULL ENABLE,
LAST_UPDATE_DTTM ,
CONSTRAINT D1_INIT_MSRMT_DATA_CHAR_FK FOREIGN KEY(INIT_MSRMT_DATA_ID) REFERENCES
D1_INIT_MSRMT_DATA ON DELETE CASCADE)
PARTITION BY REFERENCE (D1_INIT_MSRMT_DATA_CHAR_FK) ENABLE ROW MOVEMENT NOLOGGING
PARALLEL
AS SELECT /*+ PARALLEL */ * FROM ILM_D1_INIT_MSRMT_DATA_CHAR
/

ALTER TABLE D1_INIT_MSRMT_DATA_CHAR LOGGING NOPARALLEL
/
```

Create Primary Index for Child Table D1_INIT_MSRMT_DATA_CHAR

```
CREATE UNIQUE INDEX D1T305P0 ON D1_INIT_MSRMT_DATA_CHAR(INIT_MSRMT_DATA_ID,
CHAR_TYPE_CD, SEQ_NUM)
TABLESPACE CM_D1T304_IND NOLOGGING PARALLEL
GLOBAL PARTITION BY RANGE(INIT_MSRMT_DATA_ID) (
PARTITION P1 VALUES LESS THAN ('12499999999999'),
PARTITION P2 VALUES LESS THAN ('24999999999999'),
PARTITION P3 VALUES LESS THAN ('37499999999999'),
PARTITION P4 VALUES LESS THAN ('49999999999999'),
PARTITION P5 VALUES LESS THAN ('62499999999999'),
PARTITION P6 VALUES LESS THAN ('74999999999999'),
PARTITION P7 VALUES LESS THAN ('87499999999999'),
PARTITION P8 VALUES LESS THAN (MAXVALUE)
) COMPRESS ADVANCED LOW
/

ALTER INDEX D1T305P0 LOGGING NOPARALLEL
/
```

Create Primary Key for Child Table D1_INIT_MSRMT_DATA_CHAR

```
ALTER TABLE D1_INIT_MSRMT_DATA_CHAR ADD CONSTRAINT D1T305P0 PRIMARY KEY
(INIT_MSRMT_DATA_ID, CHAR_TYPE_CD, SEQ_NUM) USING INDEX
/
```

Create Secondary Indexes for Child Table D1_INIT_MSRMT_DATA_CHAR

```
    CREATE INDEX D1T305S1 ON D1_INIT_MSRMT_DATA_CHAR(SRCH_CHAR_VAL) GLOBAL PARTITION BY
HASH(SRCH_CHAR_VAL)
    (
    PARTITION P1 TABLESPACE CM_D1T304_IND,
     PARTITION P2 TABLESPACE CM_D1T304_IND,
     PARTITION P3 TABLESPACE CM_D1T304_IND,
     PARTITION P4 TABLESPACE CM_D1T304_IND,
     PARTITION P5 TABLESPACE CM_D1T304_IND,
     PARTITION P6 TABLESPACE CM_D1T304_IND,
     PARTITION P7 TABLESPACE CM_D1T304_IND,
     PARTITION P8 TABLESPACE CM_D1T304_IND
    )
    /
```

Create Child Table D1_INIT_MSRMT_DATA_LOG

```
    CREATE TABLE D1_INIT_MSRMT_DATA_LOG (

    INIT_MSRMT_DATA_ID   NOT NULL ENABLE,
        SEQNO                NOT NULL ENABLE,
        BO_STATUS_CD         DEFAULT ' ' NOT NULL ENABLE,
        BO_STATUS_REASON_CD  DEFAULT ' ' NOT NULL ENABLE,
        CHAR_TYPE_CD         DEFAULT ' ' NOT NULL ENABLE,
        CHAR_VAL             DEFAULT ' ' NOT NULL ENABLE,
        ADHOC_CHAR_VAL       DEFAULT ' ' NOT NULL ENABLE,
        CHAR_VAL_FK1         DEFAULT ' ' NOT NULL ENABLE,
        CHAR_VAL_FK2         DEFAULT ' ' NOT NULL ENABLE,
        CHAR_VAL_FK3         DEFAULT ' ' NOT NULL ENABLE,
        CHAR_VAL_FK4         DEFAULT ' ' NOT NULL ENABLE,
        CHAR_VAL_FK5         DEFAULT ' ' NOT NULL ENABLE,
        DESCRLONG            DEFAULT ' ' NOT NULL ENABLE,
        LOG_DTTM             NOT NULL ENABLE,
        LOG_ENTRY_TYPE_FLG   DEFAULT ' ' NOT NULL ENABLE,
        MESSAGE_CAT_NBR      DEFAULT 0 NOT NULL ENABLE,
        MESSAGE_NBR          DEFAULT 0 NOT NULL ENABLE,
        USER_ID              DEFAULT ' ' NOT NULL ENABLE,
        VERSION              DEFAULT 1 NOT NULL ENABLE,
        LAST_UPDATE_DTTM,
    CONSTRAINT D1_INIT_MSRMT_DATA_LOG_FK FOREIGN KEY(INIT_MSRMT_DATA_ID) REFERENCES
D1_INIT_MSRMT_DATA ON DELETE CASCADE)
    PARTITION BY REFERENCE (D1_INIT_MSRMT_DATA_LOG_FK) ENABLE ROW MOVEMENT NOLOGGING
PARALLEL
    AS SELECT /*+ PARALLEL */ * FROM ILM_D1_INIT_MSRMT_DATA_LOG
    /

    ALTER TABLE D1_INIT_MSRMT_DATA_LOG LOGGING NOPARALLEL
    /
```

Create Primary Index for Child Table D1_INIT_MSRMT_DATA_LOG

```
    CREATE UNIQUE INDEX D1T306P0 ON D1_INIT_MSRMT_DATA_LOG(INIT_MSRMT_DATA_ID, SEQNO)
    TABLESPACE CM_D1T304_IND NOLOGGING PARALLEL
    GLOBAL PARTITION BY RANGE(INIT_MSRMT_DATA_ID) (
    PARTITION P1 VALUES LESS THAN ('124999999999999'),
    PARTITION P2 VALUES LESS THAN ('249999999999999'),
    PARTITION P3 VALUES LESS THAN ('374999999999999'),
    PARTITION P4 VALUES LESS THAN ('499999999999999'),
    PARTITION P5 VALUES LESS THAN ('624999999999999'),
    PARTITION P6 VALUES LESS THAN ('749999999999999'),
    PARTITION P7 VALUES LESS THAN ('874999999999999'),
    PARTITION P8 VALUES LESS THAN (MAXVALUE)
    ) COMPRESS ADVANCED LOW
    /

    ALTER INDEX D1T306P0 LOGGING NOPARALLEL
    /
```

Create Primary Key for Child Table D1_INIT_MSRMT_DATA_LOG

```
    ALTER TABLE D1_INIT_MSRMT_DATA_LOG ADD CONSTRAINT D1T306P0 PRIMARY KEY
(INIT_MSRMT_DATA_ID, SEQNO) USING INDEX
    /
```

Create Child Table D1_INIT_MSRMT_DATA_LOG_PARM

```
    CREATE TABLE D1_INIT_MSRMT_DATA_LOG_PARM (
```

```
    INIT_MSRMT_DATA_ID  NOT NULL ENABLE,
    SEQNO  NOT NULL ENABLE,
    PARM_SEQ  NOT NULL ENABLE,
    MSG_PARM_VAL DEFAULT ' ' NOT NULL ENABLE,
    MSG_PARM_TYP_FLG  DEFAULT ' ' NOT NULL ENABLE,
    VERSION  DEFAULT 1 NOT NULL ENABLE,
    LAST_UPDATE_DTTM ,
    CONSTRAINT D1_INIT_MSRMT_DATA_LOG_PARM_FK FOREIGN KEY(INIT_MSRMT_DATA_ID) REFERENCE
D1_INIT_MSRMT_DATA ON DELETE CASCADE)
    PARTITION BY REFERENCE (D1_INIT_MSRMT_DATA_LOG_PARM_FK) ENABLE ROW MOVEMENT NOLOGGING
PARALLEL
    AS SELECT /*+ PARALLEL */ * FROM ILM_D1_INIT_MSRMT_DATA_LOG_PARM
    /

    ALTER TABLE D1_INIT_MSRMT_DATA_LOG_PARM LOGGING NOPARALLEL
    /
```

Create Primary Index for Child Table D1_INIT_MSRMT_DATA_LOG_PARM

```
    CREATE UNIQUE INDEX D1T307P0 ON D1_INIT_MSRMT_DATA_LOG_PARM(INIT_MSRMT_DATA_ID, SEQNO,
PARM_SEQ)
    TABLESPACE CM_D1T304_IND NOLOGGING PARALLEL GLOBAL PARTITION BY
RANGE(INIT_MSRMT_DATA_ID) (

    PARTITION P1 VALUES LESS THAN ( '12499999999999' ),
    PARTITION P2 VALUES LESS THAN ( '24999999999999' ),
    PARTITION P3 VALUES LESS THAN ( '37499999999999' ),
    PARTITION P4 VALUES LESS THAN ( '49999999999999' ),
    PARTITION P5 VALUES LESS THAN ( '62499999999999' ),
    PARTITION P6 VALUES LESS THAN ( '74999999999999' ),
    PARTITION P7 VALUES LESS THAN ( '87499999999999' ),
    PARTITION P8 VALUES LESS THAN ( MAXVALUE )
    ) COMPRESS ADVANCED LOW
    /

    ALTER INDEX D1T306P0 LOGGING NOPARALLEL
    /
```

Create Primary Key for Child Table D1_INIT_MSRMT_DATA_LOG_PARM

```
    ALTER TABLE D1_INIT_MSRMT_DATA_LOG ADD CONSTRAINT D1T307P0 PRIMARY KEY
(INIT_MSRMT_DATA_ID, SEQNO, PARM_SEQ) USING INDEX
    /
```

Create Child Table D1_INIT_MSRMT_DATA_K

```
    CREATE BIGFILE TABLESPACE CM_D1T314_IND DATAFILE '+DATA' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED;

    CREATE TABLE D1_INIT_MSRMT_DATA_K (
    INIT_MSRMT_DATA_ID NOT NULL ENABLE,
    ENV_ID             NOT NULL ENABLE,
    CONSTRAINT D1T314P0 PRIMARY KEY (INIT_MSRMT_DATA_ID, ENV_ID) ENABLE
    )
    ORGANIZATION INDEX
    Partition by range(INIT_MSRMT_DATA_ID) (
    PARTITION P1 VALUES LESS THAN ( '12499999999999' ),
    PARTITION P2 VALUES LESS THAN ( '24999999999999' ),
    PARTITION P3 VALUES LESS THAN ( '37499999999999' ),
    PARTITION P4 VALUES LESS THAN ( '49999999999999' ),
    PARTITION P5 VALUES LESS THAN ( '62499999999999' ),
    PARTITION P6 VALUES LESS THAN ( '74999999999999' ),
    PARTITION P7 VALUES LESS THAN ( '87499999999999' ),
    PARTITION P8 VALUES LESS THAN ( MAXVALUE )
    )
    TABLESPACE CM_D1T314_IND
    AS SELECT /*+ PARALLEL */ * FROM ILM_D1_INIT_MSRMT_DATA_K
    /

    ALTER TABLE D1_INIT_MSRMT_DATA_K LOGGING NOPARALLEL
    /
```

10. After verification of the ILM based tables, the user can drop the backup "ILM" renamed tables.

Appendix D

Sample SQL for Periodic Maintenance

This section provides additional details related to creating new partitions over time as well as archiving and restoring partitions. The To Do Entry, Inbound Sync Request and Initial Measurement Data maintenance objects are used as examples.

The section includes the following:

- Adding Partition
- Archiving Partition
- Archiving Subpartition
- Restoring Partition
- Restoring Subpartition
- Compressing Partition (D1_MSRMT table only)

Adding Partition

To add a partition, follow these steps:

1. Create separate tablespace for new partition.

```
CREATE BIGFILE TABLESPACE CM_XT039_P2016JAN DATAFILE '+DATA' SIZE
50M AUTOEXTEND ON MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS
ADVANCED;
```

2. Add partition using split operation on MAXVALUE Partition.

```
ALTER TABLE CISADM.CI_TD_ENTRY SPLIT PARTITION PMAX AT
(TO_DATE('2016-02-01 00:00:01','SYYYY-MM-DD HH24:MI:SS'))
INTO
(
PARTITION P2016JAN TABLESPACE CM_XT039_P2016JAN, PARTITION PMAX
)
UPDATE INDEXES;
```

   - If the contains LOBS like F1_SYNC_REQ_IN, there will be additional statement in split partition DDL indicating tablespace on which LOB should go.

```
ALTER TABLE CISADM.F1_SYNC_REQ_IN SPLIT PARTITION PMAX AT
(TO_DATE('2016-02-01 00:00:01','SYYYY-MM-DD HH24:MI:SS'))
INTO
(
PARTITION P2016JAN TABLESPACE CM_F1T191_P2016JAN
LOB(BO_DATA_AREA, POST_TRN_BO_DATA_AREA,
PRE_TRN_FIN_BO_DATA_AREA, PRE_TRN_INIT_BO_DATA_AREA) STORE AS
SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE
TABLESPACE  CM_F1T191_P2016JAN )
,
PARTITION PMAX
)
UPDATE INDEXES;
```

3. Enable advanced compression after SPLIT partition as it will disable the compression.

```
ALTER TABLE CISADM.CI_TD_SRTKEY ROW STORE COMPRESS ADVANCED;
ALTER TABLE CISADM.CI_TD_MSG_PARM ROW STORE COMPRESS ADVANCED;
ALTER TABLE CISADM.CI_TD_DRLKEY ROW STORE COMPRESS ADVANCED;
ALTER TABLE CISADM.CI_TD_ENTRY_CHA ROW STORE COMPRESS ADVANCED;
ALTER TABLE CISADM.CI_TD_LOG ROW STORE COMPRESS ADVANCED;
```

Archiving Partition

To archive a partition, follow these steps:

1. Make the tablespace to be archived READ ONLY.

```
ALTER TABLESPACE CM_XT039_P2011JAN READ ONLY;
```

2. Check the feasibility of archive using ILM_ARCH_SW = 'N'.

```
Select count(1) from CISADM.CI_TD_ENTRY PARTITION P2011JAN where ILM_ARCH_SW = 'N';
```

   - IF the above query has a count of greater than ZERO records - Change the tablespace back to read and write mode. Archive cannot be done. Do not execute further steps. Stop archiving partition.

```
ALTER TABLESPACE CM_XT039_P2011JAN READ WRITE;
```

- IF above query has ZERO records - Archive can be performed. Continue executing the remainder of the procedure.

3. Create separate archive tablespace for the partition that needs to be archived.

```
CREATE BIGFILE TABLESPACE CM_XT039_P2011JAN_ARC DATAFILE  '+DATA' SIZE 50M AUTOEXTEND
ON MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
```

4. Create staging tables and load data for all child tables for the MO first.

   a. CI_TD_ENTRY_CHA

```
CREATE TABLE CM_XT701_P2011JAN_ARC PARALLEL NOLOGGING
TABLESPACE CM_XT039_P2011JAN_ARC
AS
(
SELECT /*+ PARALLEL */ * FROM CISADM.CI_TD_ENTRY_CHA PARTITION
(P2011JAN_S01)
UNION ALL
SELECT /*+ PARALLEL */ * FROM CI_TD_ENTRY_CHA PARTITION
(P2011JAN_S02)
UNION ALL
.
.
.
.
UNION ALL
SELECT /*+ PARALLEL */ * FROM CI_TD_ENTRY_CHA PARTITION
(P2011JAN_S08)
);
ALTER TABLE CM_XT701_P2011JAN_ARC NOPARALLEL LOGGING;
```

   b. CI_TD_MSG_PARM

```
CREATE TABLE CM_XT04_P2011JAN_ARC PARALLEL NOLOGGING TABLESPACE
CM_XT039_P2011JAN_ARC
AS
(
SELECT /*+ PARALLEL */ * FROM CISADM.CI_TD_MSG_PARM PARTITION
(P2011JAN_S01)
UNION ALL
SELECT /*+ PARALLEL */ * FROM CI_TD_MSG_PARM  PARTITION
(P2011JAN_S02)
UNION ALL
.
.
.
.
UNION ALL
SELECT /*+ PARALLEL */ * FROM CI_TD_MSG_PARM  PARTITION
(P2011JAN_S08)
);
ALTER TABLE CM_XT04_P2011JAN_ARC NOPARALLEL LOGGING;
```

   c. CI_TD_LOG

```
CREATE TABLE CM_XT721_P2011JAN_ARC PARALLEL NOLOGGING
TABLESPACE CM_XT039_P2011JAN_ARC
AS
(
SELECT /*+ PARALLEL */ * FROM CISADM.CI_TD_LOG PARTITION
(P2011JAN_S01)
```

```
UNION ALL
SELECT /*+ PARALLEL */ * FROM CI_TD_LOG PARTITION (P2011JAN_S02)
UNION ALL
.
.
.
.
UNION ALL
SELECT /*+ PARALLEL */ * FROM CI_TD_LOG PARTITION (P2011JAN_S08)
);
ALTER TABLE CM_XT721_P2011JAN_ARC NOPARALLEL LOGGING;
```

d. CI_TD_SRTKEY

```
CREATE TABLE CM_XT041_P2011JAN_ARC PARALLEL NOLOGGING
TABLESPACE CM_XT039_P2011JAN_ARC
AS
(
SELECT /*+ PARALLEL */ * FROM CISADM.CI_TD_SRTKEY PARTITION
(P2011JAN_S01)
UNION ALL
SELECT /*+ PARALLEL */ * FROM CI_TD_SRTKEY PARTITION
(P2011JAN_S02)
UNION ALL
.
.
.
.
UNION ALL
SELECT /*+ PARALLEL */ * FROM CI_TD_SRTKEY PARTITION
(P2011JAN_S08)
);
ALTER TABLE CM_XT041_P2011JAN_ARC NOPARALLEL LOGGING;
```

e. CI_TD_DRLKEY

```
CREATE TABLE CM_XT037_P2011JAN_ARC PARALLEL NOLOGGING
TABLESPACE CM_XT039_P2011JAN_ARC
AS
(
SELECT /*+ PARALLEL */ * FROM CISADM.CI_TD_DRLKEY PARTITION
(P2011JAN_S01)
UNION ALL
SELECT /*+ PARALLEL */ * FROM CISADM.CI_TD_DRLKEY PARTITION
(P2011JAN_S02)
UNION ALL
.
.
.
.
UNION ALL
SELECT /*+ PARALLEL */ * FROM CISADM.CI_TD_DRLKEY PARTITION
(P2011JAN_S08)
);
ALTER TABLE CM_XT037_P2011JAN_ARC NOPARALLEL LOGGING;
```

5. Create staging table and load data for parent table.

```
CREATE TABLE CM_XT039_P2011JAN_ARC NOLOGGING PARALLEL TABLESPACE
CM_XT039_P2011JAN_ARC AS
SELECT /*+ PARALLEL */ * FROM CISADM.CI_TD_ENTRY PARTITION
(P2011JAN);
```

```
ALTER TABLE CM_XT039_P2011JAN_ARC NOPARALLEL LOGGING;
```

6. Export tablespace using TRANSPORT_TABLESPACES method.

```
ALTER TABLESPACE CM_XT039_P2011JAN_ARC READ ONLY;

expdp system/manager DIRECTORY=DUMP_DIR DUMPFILE=
CM_XT039_P2011JAN_ARC.DMP TRANSPORT_TABLESPACES =
CM_XT039_P2011JAN_ARC LOGFILE=EXP_ CM_XT039_P2011JAN_ARC.LOG
TRANSPORT_FULL_CHECK=Y
```

Make sure tablespace datafile required for further import should be preserved.

```
<<Transport THE FILE to LOCAL DB DIRECTORY DUMP_DIR like connected
to asmcmd and copied the file from cp
cm_xt039_p201101_tbs_ar.553.913864937  /tugbu_perf_02/BACKUPS/
test_verification/ >>
```

7. Drop the partition, partition tablespace and archive tablespace(as it is already exported).

```
ALTER TABLE CISADM.CI_TD_ENTRY  DROP PARTITION P2011JAN UPDATE
INDEXES;
DROP TABLESPACE CM_XT039_P2011JAN INCLUDING CONTENTS AND DATAFILES;
DROP TABLESPACE CM_XT039_P2011JAN_ARC INCLUDING CONTENTS AND
DATAFILES;
```

Archiving Subpartition

To archive a subpartition, follow these steps:

1. Make the tablespace to be archived READ ONLY.

```
ALTER TABLESPACE CM_D1T304_P2011JAN_S181 READ ONLY;
```

2. Check the feasibility of archive using ILM_ARCH_SW = 'N'.

```
Select count(1) from cisadm.D1_INIT_MSRMT_DATA SUBPARTITION
P2011JAN_S181 where ILM_ARCH_SW = 'N';
```

IF the above query has a count of greater than ZERO records - Change the tablespace back to read and write mode. Archive cannot be done. Do not execute further steps. Stop archiving partition.

```
ALTER TABLESPACE CM_D1T304_P2011JAN_S181 READ WRITE;
```

IF the above query has ZERO records - Archive can be performed. Continue executing the remainder of the procedure.

3. Create separate archive tablespace for partition that needs to be archived.

```
CREATE BIGFILE TABLESPACE CM_D1T304_P2011JAN_S181_ARC DATAFILE
'+DATA' SIZE 50M AUTOEXTEND ON MAXSIZE UNLIMITED DEFAULT ROW STORE
COMPRESS ADVANCED;
```

4. Create staging tables and load data for all child tables for the MO first.

```
CREATE TABLE CM_D1T305_P2011JAN_S181_ARC PARALLEL NOLOGGING
TABLESPACE CM_D1T304_P2011JAN_S181_ARC
AS
(
```

```
SELECT /*+ PARALLEL */ * FROM CISADM.D1_INIT_MSRMT_DATA_CHAR
PARTITION (P2011JAN_S181)
);

CREATE TABLE CM_D1T306_P2011JAN_S181_ARC PARALLEL NOLOGGING
TABLESPACE CM_D1T304_P2011JAN_S181_ARC
AS
(
SELECT /*+ PARALLEL */ * FROM CISADM.D1_INIT_MSRMT_DATA_LOG
PARTITION (P2011JAN_S181)
);

CREATE TABLE CM_D1T307_P2011JAN_S181_ARC PARALLEL NOLOGGING
TABLESPACE CM_D1T304_P2011JAN_S181_ARC
AS
(
SELECT /*+ PARALLEL */ * FROM CISADM.D1_INIT_MSRMT_DATA_LOG_PARM
PARTITION (P2011JAN_S181)
);

ALTER TABLE CM_D1T305_P2011JAN_S181_ARC NOPARALLEL LOGGING;

ALTER TABLE CM_D1T306_P2011JAN_S181_ARC NOPARALLEL LOGGING;

ALTER TABLE CM_D1T307_P2011JAN_S181_ARC NOPARALLEL LOGGING;
```

5. Create staging table and load data for parent table

```
CREATE TABLE ALTER TABLE CM_D1T304_P2011JAN_S181_ARC NOPARALLEL
LOGGING; NOLOGGING PARALLEL TABLESPACE CM_D1T304_P2011JAN_S181_ARC
AS
SELECT /*+ PARALLEL */ * FROM D1_INIT_MSRMT_DATA SUBPARTITION
(P2011JAN_S181);

ALTER TABLE CM_D1T304_P2011JAN_S181_ARC NOPARALLEL LOGGING;
```

6. Export tablespace using TRANSPORT_TABLESPACES method.

```
ALTER TABLESPACE CM_D1T304_P2011JAN_S181_ARC READ ONLY;
expdp system/manager DIRECTORY=DUMP_DIR
DUMPFILE=CM_D1T304_P2011JAN_S181_ARC.DMP
TRANSPORT_TABLESPACES=CM_D1T304_P2011JAN_S181_ARC
LOGFILE=EXP_CM_D1T304_P2011JAN_S181_ARC.LOG TRANSPORT_FULL_CHECK=Y
```

Make sure the tablespace datafile required for future import should be preserved.

```
<<Transport THE DATAFILE to the LOCAL DB DIRECTORY DUMP_DIR.  For
example if connected to asmcmd copy the file
cp cm_d1t304_p2011jan_tbs_ar.553.913864937  /tugbu_perf_02/BACKUPS/
test_verification/ >>
```

7. Drop the partition, partition tablespace and archive tablespace (since they have been exported).

```
ALTER TABLE D1_INIT_MSRMT_DATA DROP SUBPARTITION P2011JAN_S181
UPDATE INDEXES;
DROP TABLESPACE CM_D1T304_P2011JAN_S181 INCLUDING CONTENTS AND
DATAFILES;
DROP TABLESPACE CM_D1T304_P2011JAN_S181_ARC INCLUDING CONTENTS AND
DATAFILES;
```

Restoring Partition

To restore the partition, perform the follow steps:

1. Create separate tablespace to restore the partition.

```
CREATE BIGFILE TABLESPACE CM_XT039_P2011JAN DATAFILE '+DATA' SIZE
50M AUTOEXTEND ON MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS
ADVANCED;
```

2. Add partition using split operation on next greater value partition.

```
ALTER TABLE CISADM.CI_TD_ENTRY SPLIT PARTITION P2011FEB AT
(TO_DATE('2011-02-01 00:00:01','SYYYY-MM-DD HH24:MI:SS'))
 INTO
 (
 PARTITION P2011JAN TABLESPACE CM_XT039_P2011JAN , PARTITION
P2011FEB
 )
UPDATE INDEXES;
```

   In case table contains LOBS like F1_SYNC_REQ_IN, there will be additional statement in split partition DDL indicating tablespace on which LOB should go.

```
ALTER TABLE CISADM.F1_SYNC_REQ_IN SPLIT PARTITION P2011FEB AT
(TO_DATE('2011-02-01 00:00:01','SYYYY-MM-DD HH24:MI:SS'))
 INTO
 (
 PARTITION P2011JAN TABLESPACE CM_F1T191_P2011JAN
LOB(BO_DATA_AREA,PRE_TRN_INIT_BO_DATA_AREA,PRE_TRN_FIN_BO_DATA_ARE
A,POST_TRN_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW
COMPRESS MEDIUM CACHE TABLESPACE        CM_F1T191_P2011JAN )
, PARTITION P2011FEB
 )
 UPDATE INDEXES;
```

3. Enable advanced compression after SPLIT partition as it will disable the compression.

```
ALTER TABLE CISADM.CI_TD_SRTKEY ROW STORE COMPRESS ADVANCED;
ALTER TABLE CISADM.CI_TD_MSG_PARM ROW STORE COMPRESS ADVANCED;
ALTER TABLE CISADM.CI_TD_DRLKEY ROW STORE COMPRESS ADVANCED;
ALTER TABLE CISADM.CI_TD_ENTRY_CHA ROW STORE COMPRESS ADVANCED;
ALTER TABLE CISADM.CI_TD_LOG ROW STORE COMPRESS ADVANCED;
```

4. Import tablespace using TRANSPORT_TABLESPACES method.

```
impdp system/manager DIRECTORY=DUMP_DIR
DUMPFILE=CM_D1T304_P2011JAN_S181_ARC.DMP
PARTITION_OPTIONS=DEPARTITION
LOGFILE=IMP_CM_D1T304_P2011JAN_S181_ARC.LOG TRANSPORT_DATAFILES=/
tugbu_perf_02/BACKUPS/test_verification/
cm_d1t304_p2011jan_tbs_ar.553.913864937
```

5. Load data into parent table first from the staging table.

```
ALTER SESSION ENABLE PARALLEL DML;

INSERT /*+ APPEND PARALLEL */   INTO CISADM.CI_TD_ENTRY SELECT /*+
PARALLEL */  * FROM CM_XT039_P2011JAN_ARC;
COMMIT;
```

6. Load data into child table from the staging table.

   For each Child IN LIST OF CHILD TABLES, perform the following:

```
INSERT /*+ APPEND PARALLEL */   INTO CISADM.CI_TD_ENTRY_CHA SELECT
/*+ PARALLEL */ * FROM CM_XT701_P2011JAN_ARC;
COMMIT;
INSERT /*+ APPEND PARALLEL */   INTO CISADM.CI_TD_MSG_PARM SELECT /
*+ PARALLEL */ * FROM CM_XT04_P2011JAN_ARC;
COMMIT;

INSERT /*+ APPEND PARALLEL */   INTO CISADM.CI_TD_LOG SELECT /*+
PARALLEL */ * FROM CM_XT721_P2011JAN_ARC;
COMMIT;

INSERT /*+ APPEND PARALLEL */   INTO CISADM.CI_TD_SRTKEY SELECT /*+
PARALLEL */ * FROM CM_XT041_P2011JAN_ARC;
COMMIT;

INSERT /*+ APPEND PARALLEL */   INTO CISADM.CI_TD_DRLKEY SELECT /*+
PARALLEL */ * FROM CM_XT037_P2011JAN_ARC;
COMMIT;
```

7. Drop the archive tablespace after import is import and data loading is successful.

```
DROP TABLESPACE CM_XT039_P2011JAN_ARC INCLUDING CONTENTS AND
DATAFILES;
```

Restoring Subpartition

To restore the subpartition, follow these steps:

1. Create separate tablespace to restore the partition.

```
CREATE BIGFILE TABLESPACE CM_D1T304_P2011JAN_S181 DATAFILE 'DATADG'
SIZE 50M AUTOEXTEND ON MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS
ADVANCED;
```

2. Add partition using split operation on next greater value partition.

```
ALTER TABLE CISADM.D1_INIT_MSRMT_DATA SPLIT SUBPARTITION
P2011JAN_SMAX AT (181)
 INTO
 (
SUBPARTITION P2011JAN_S181 TABLESPACE CM_D1T304_P2011JAN_S181
LOB(IMD_BO_DATA_AREA, PREVEE_BO_DATA_AREA, POSTVEE_BO_DATA_AREA,
TRACE_BO_DATA_AREA, RAW_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE
STORAGE IN ROW COMPRESS MEDIUM CACHE TABLESPACE
CM_D1T304_P2011JAN_S181)
, SUBPARTITION P2011JAN_SMAX) UPDATE INDEXES;
```

3. Enable advanced compression after SPLIT partition as it will disable the compression.

```
ALTER TABLE D1_INIT_MSRMT_DATA_CHAR ROW STORE COMPRESS ADVANCED;
ALTER TABLE D1_INIT_MSRMT_DATA_LOG ROW STORE COMPRESS ADVANCED;
ALTER TABLE D1_INIT_MSRMT_DATA_LOG_PARM ROW STORE COMPRESS
ADVANCED;
```

4. Import tablespace using TRANSPORT_TABLESPACES method.

```
impdp system/manager DIRECTORY=DUMP_DIR
DUMPFILE=CM_D1T304_P2011JAN_S181_ARC.DMP
PARTITION_OPTIONS=DEPARTITION
LOGFILE=IMP_CM_D1T304_P2011JAN_S181_ARC.LOG TRANSPORT_DATAFILES=/
tugbu_perf_02/BACKUPS/test_verification/
cm_d1t304_p2011jan_tbs_ar.553.913864937
```

5. Load data into parent table first from the staging table.

```
ALTER SESSION ENABLE PARALLEL DML;

INSERT /*+ APPEND PARALLEL */   INTO CISADM.D1_INIT_MSRMT_DATA SELECT /*+ PARALLEL */
* FROM CM_D1T304_P2011JAN_S181_ARC;

COMMIT;
```

6. Load data into child table from the staging table.

   For each Child IN LIST OF CHILD TABLES, perform the following:

```
INSERT /*+ APPEND PARALLEL */   INTO D1_INIT_MSRMT_DATA_CHAR SELECT /*+ PARALLEL */  *
FROM CM_D1T305_P2011JAN_S181_ARC;

COMMIT;
INSERT /*+ APPEND PARALLEL */   INTO D1_INIT_MSRMT_DATA_LOG SELECT /*+ PARALLEL */  *
FROM CM_D1T306_P2011JAN_S181_ARC;

COMMIT;

INSERT /*+ APPEND PARALLEL */   INTO D1_INIT_MSRMT_DATA_LOG_PARM SELECT /*+ PARALLEL */
* FROM CM_D1T307_P2011JAN_S181_ARC;

COMMIT;
```

7. Drop the archive tablespace after import is import and data loading is successful.

```
DROP TABLESPACE CM_D1T304_P2011JAN_S181_ARC INCLUDING CONTENTS AND DATAFILES;
```

Compressing Partition (D1_MSRMT table only)

To compress a partition, perform the steps below:

1. Create Compressed Partition Tablespace.

```
CREATE BIGFILE TABLESPACE CM_D1T298_P2011JAN_C DATAFILE '+DATADG' SIZE 50M
AUTOEXTEND ON MAXSIZE UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;
```

   Note: Perform Steps 2 - 9 for each subpartition (S01 – SMAX)

2. Create and Load Data Into Staging Table.

```
CREATE TABLE D1_MSRMT_P2011JAN_S01 PARALLEL NOLOGGING TABLESPACE CM_D1T298_P2011JAN_C
AS
SELECT /*+ PARALLEL */ * FROM D1_MSRMT SUBPARTITION(P2011JAN_S01)
ORDER BY MEASR_COMP_ID, MSRMT_DTTM;
```

3. Enable Logging on Newly Created Staging Table.

```
ALTER TABLE D1_MSRMT_P2011JAN_S01 NOPARALLEL LOGGING;
```

4. Create Primary Unique Index on Staging Table.

```
CREATE UNIQUE INDEX D1T298P0_P2011JAN_S01
ON D1_MSRMT_P2011JAN_S01(MEASR_COMP_ID, MSRMT_DTTM)
PARALLEL NOLOGGING COMPRESS ADVANCED LOW TABLESPACE CM_D1T298_P2011JAN_C;
```

5. Create Primary Key Constraint on Staging Table.

```
ALTER TABLE D1_MSRMT_P2011JAN_S01 ADD CONSTRAINT D1T298P0_P2011JAN_S01 PRIMARY
KEY(MEASR_COMP_ID, MSRMT_DTTM) USING INDEX;
```

6. Enable Logging on Primary Key Index.

```
ALTER INDEX D1T298P0_P2011JAN_S01 NOPARALLEL LOGGING;
```

7. Exchange D1_MSRMT Table Subpartition With Newly Created Staging Table.

```
ALTER TABLE D1_MSRMT EXCHANGE SUBPARTITION(P2011JAN_S01) WITH TABLE
D1_MSRMT_P2011JAN_S01 INCLUDING INDEXES;
```

Note: Ensure that steps 2-9 have been executed for each subpartition (S01 – SMAX) before continuing:

8. Drop Original Uncompressed Tablespace.

```
DROP TABLESPACE CM_D1T298_P2011JAN INCLUDING CONTENTS AND DATAFILES;
```

9. Change Partition Metadata to Reflect Compression Tablespace.

```
ALTER TABLE D1_MSRMT MODIFY DEFAULT ATTRIBUTES FOR PARTITION P2011JAN TABLESPACE
CM_D1T298_P2011JAN_C;
```

10. Rename Tablespace to Original Tablespace Name.

```
ALTER TABLESPACE CM_D1T298_P2011JAN_C RENAME TO CM_D1T298_P2011JAN;
```

Appendix E

Partitioning and Compression Recommendations

This section specifies the partitioning and compression strategies recommended for an initial Oracle Utilities Market Settlements Management database configuration. It includes the following topics:

- Partitioning Recommendations
- Compression Recommendations

Note: If Information Lifecycle Management is part of your implementation, refer to **Appendix 6: Information Lifecycle Management and Data Archiving in MSM** in this guide for instructions on partitioning objects when using ILM.

Partitioning Recommendations

In general, the recommendation is for a minimum of 'n' partitions for selective database objects, where 'n' is number of RAC nodes. The specific table level partitioning recommendations are as follows:

- The Table Partitioning scheme for Transaction tables is focused primarily on tables associated with Measurement MO, Measurement Log MO and Initial-Measurement-Data MO.
- D1_MSRMT, D1_MSRMT_CHAR, D1_MSRMT_LOG, D1_MSRMT_LOG_PARM tables can be partitioned by MSRMT_DTTM. Bi-monthly partitions is a good start. Subpartition these tables by MEASR_COMP_ID (8 subpartitions should be a good number to start with).
- D1_INIT_MSRMT_DATA table can be partitioned by D1_TO_DTTM. Bi-monthly partitions is a good start. Subpartition D1_INIT_MSRMT_DATA table by MEASR_COMP_ID (8 subpartitions should be a good number to start with).
- D1_INIT_MSRMT_DATA_CHAR, D1_INIT_MSRMT_DATA_LOG, D1_INIT_MSRMT_DATA_LOG_PARM tables are reference partitioned to the parent table.
- D1_INIT_MSRMT_DATA_K table can be partitioned by INIT_MSRMT_DATA_ID (8 sub partitions should be a good number to start with).

The following sections gives partition recommendation and can be used as reference. Create one tablespace per partition as needed. It includes the following:

D1_MSRMT

```
CREATE BIGFILE TABLESPACE CM_D1T298_P2011JAN DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED ;
CREATE BIGFILE TABLESPACE CM_D1T298_P2011MAR DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED ;
CREATE BIGFILE TABLESPACE CM_D1T298_P2011MAY DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED ;
CREATE BIGFILE TABLESPACE CM_D1T298_P2011JUL DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED ;
CREATE BIGFILE TABLESPACE CM_D1T298_P2011SEP DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED ;
CREATE BIGFILE TABLESPACE CM_D1T298_P2011NOV DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED ;
CREATE BIGFILE TABLESPACE CM_D1T298_PMAX DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON MAXSIZE
UNLIMITED ;
```

```
CREATE TABLE D1_MSRMT (

MEASR_COMP_ID CHAR(12) NOT NULL ENABLE, MSRMT_DTTM DATE NOT NULL ENABLE,
BO_STATUS_CD   CHAR(12) DEFAULT ' ' NOT NULL ENABLE, MSRMT_COND_FLG CHAR(6 BYTE) DEFAULT '
' NOT NULL ENABLE, MSRMT_USE_FLG  CHAR(4) DEFAULT ' ' NOT NULL ENABLE, MSRMT_LOCAL_DTTM
DATE NOT NULL ENABLE,
MSRMT_VAL          NUMBER(16,6) DEFAULT 0 NOT NULL ENABLE, ORIG_INIT_MSRMT_ID CHAR(14)
DEFAULT ' ' NOT NULL ENABLE, PREV_MSRMT_DTTM DATE,
MSRMT_VAL1  NUMBER(16,6) DEFAULT 0 NOT NULL ENABLE, MSRMT_VAL2  NUMBER(16,6) DEFAULT 0 NOT
NULL ENABLE, MSRMT_VAL3  NUMBER(16,6) DEFAULT 0 NOT NULL ENABLE, MSRMT_VAL4  NUMBER(16,6)
DEFAULT 0 NOT NULL ENABLE, MSRMT_VAL5  NUMBER(16,6) DEFAULT 0 NOT NULL ENABLE, MSRMT_VAL6
NUMBER(16,6) DEFAULT 0 NOT NULL ENABLE, MSRMT_VAL7  NUMBER(16,6) DEFAULT 0 NOT NULL ENABLE,
MSRMT_VAL8  NUMBER(16,6) DEFAULT 0 NOT NULL ENABLE, MSRMT_VAL9  NUMBER(16,6) DEFAULT 0 NOT
NULL ENABLE, MSRMT_VAL10 NUMBER(16,6) DEFAULT 0 NOT NULL ENABLE, BUS_OBJ_CD  CHAR(30)
DEFAULT ' ' NOT NULL ENABLE, CRE_DTTM DATE NOT NULL ENABLE,
STATUS_UPD_DTTM DATE NOT NULL ENABLE,
USER_EDITED_FLG CHAR(4) DEFAULT ' ' NOT NULL ENABLE, VERSION        NUMBER(5,0) DEFAULT 1
NOT NULL ENABLE,
LAST_UPDATE_DTTM DATE, READING_VAL NUMBER(16,6), COMBINED_MULTIPLIER NUMBER(18,6),
READING_COND_FLG CHAR(6)
) ENABLE ROW MOVEMENT
PARTITION BY RANGE (MSRMT_DTTM) SUBPARTITION BY range (MEASR_COMP_ID) SUBPARTITION
TEMPLATE(
subpartition S01 values less than (124999999999),
subpartition S02 values less than (249999999999),
subpartition S03 values less than (374999999999),
subpartition S04 values less than (499999999999),
subpartition S05 values less than (624999999999),
subpartition S06 values less than (744999999999),
subpartition S07 values less than (874999999999),
subpartition SMAX values less than (maxvalue)
)
(
PARTITION "P2011JAN" VALUES LESS THAN (TO_DATE('2011-02-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_D1T298_P2011JAN,
PARTITION "P2011MAR" VALUES LESS THAN (TO_DATE('2011-04-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_D1T298_P2011MAR,
PARTITION "P2011MAY" VALUES LESS THAN (TO_DATE('2011-06-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_D1T298_P2011MAY,
PARTITION "P2011JUL" VALUES LESS THAN (TO_DATE('2011-08-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_D1T298_P2011JUL,
PARTITION "P2011SEP" VALUES LESS THAN (TO_DATE('2011-10-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_D1T298_P2011SEP,
PARTITION "P2011NOV" VALUES LESS THAN (TO_DATE('2011-12-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_D1T298_P2011NOV,
PARTITION "PMAX" VALUES LESS THAN (MAXVALUE)
TABLESPACE CM_D1T298_PMAX
);

CREATE UNIQUE INDEX D1T298P0 ON D1_MSRMT(MEASR_COMP_ID, MSRMT_DTTM) LOCAL COMPRESS ADVANCED
LOW;

ALTER TABLE D1_MSRMT ADD CONSTRAINT D1T298P0 PRIMARY KEY(MEASR_COMP_ID, MSRMT_DTTM) USING
INDEX;
```

D1_MSRMT_CHAR

```
CREATE BIGFILE TABLESPACE CM_D1T299_P2011JAN DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED ;
CREATE BIGFILE TABLESPACE CM_D1T299_P2011MAR DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED ;
CREATE BIGFILE TABLESPACE CM_D1T299_P2011MAY DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED ;
CREATE BIGFILE TABLESPACE CM_D1T299_P2011JUL DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED ;
CREATE BIGFILE TABLESPACE CM_D1T299_P2011SEP DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED ;
CREATE BIGFILE TABLESPACE CM_D1T299_P2011NOV DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED ;
CREATE BIGFILE TABLESPACE CM_D1T299_PMAX DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON MAXSIZE
UNLIMITED ;

CREATE TABLE D1_MSRMT_CHAR (
```

```
MEASR_COMP_ID CHAR(12) NOT NULL ENABLE, MSRMT_DTTM DATE NOT NULL ENABLE,
CHAR_TYPE_CD   CHAR(8) NOT NULL ENABLE, SEQ_NUM        NUMBER(3,0) NOT NULL ENABLE,
CHAR_VAL      CHAR(16) DEFAULT ' ' NOT NULL ENABLE, ADHOC_CHAR_VAL VARCHAR2(254) DEFAULT '
' NOT NULL ENABLE, CHAR_VAL_FK1   VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE, CHAR_VAL_FK2
VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE, CHAR_VAL_FK3   VARCHAR2(50) DEFAULT ' ' NOT NULL
ENABLE, CHAR_VAL_FK4   VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE, CHAR_VAL_FK5
VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE, SRCH_CHAR_VAL  VARCHAR2(50) DEFAULT ' ' NOT NULL
ENABLE, VERSION        NUMBER(5,0) DEFAULT 1 NOT NULL ENABLE,
LAST_UPDATE_DTTM DATE, READING_VAL NUMBER(16,6), COMBINED_MULTIPLIER NUMBER(18,6),
READING_COND_FLG CHAR(6)
) ENABLE ROW MOVEMENT
PARTITION BY RANGE (MSRMT_DTTM) SUBPARTITION BY range (MEASR_COMP_ID) SUBPARTITION
TEMPLATE(
subpartition S01 values less than (124999999999),
subpartition S02 values less than (249999999999),
subpartition S03 values less than (374999999999),
subpartition S04 values less than (499999999999),
subpartition S05 values less than (624999999999),
subpartition S06 values less than (744999999999),
subpartition S07 values less than (874999999999),
subpartition SMAX values less than (maxvalue)
)
(
PARTITION "P2011JAN" VALUES LESS THAN (TO_DATE('2011-02-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_D1T299_P2011JAN,
PARTITION "P2011MAR" VALUES LESS THAN (TO_DATE('2011-04-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_D1T299_P2011MAR,
PARTITION "P2011MAY" VALUES LESS THAN (TO_DATE('2011-06-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_D1T299_P2011MAY,
PARTITION "P2011JUL" VALUES LESS THAN (TO_DATE('2011-08-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_D1T299_P2011JUL,
PARTITION "P2011SEP" VALUES LESS THAN (TO_DATE('2011-10-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_D1T299_P2011SEP,
PARTITION "P2011NOV" VALUES LESS THAN (TO_DATE('2011-12-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_D1T299_P2011NOV,
PARTITION "PMAX" VALUES LESS THAN (MAXVALUE)
TABLESPACE CM_D1T299_PMAX
);

CREATE BIGFILE TABLESPACE CM_D1T299_IND DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON MAXSIZE
UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;

CREATE UNIQUE INDEX  D1T299P0 ON D1_MSRMT_CHAR (
MEASR_COMP_ID, MSRMT_DTTM, CHAR_TYPE_CD, SEQ_NUM
)  LOCAL COMPRESS ADVANCED LOW;

ALTER TABLE D1_MSRMT_CHAR  ADD CONSTRAINT D1T299P0 PRIMARY KEY (MEASR_COMP_ID, MSRMT_DTTM,
CHAR_TYPE_CD, SEQ_NUM) USING INDEX ;

CREATE INDEX D1T299S1 ON D1_MSRMT_CHAR(SRCH_CHAR_VAL)
GLOBAL PARTITION BY HASH(SRCH_CHAR_VAL)
 (
 PARTITION P1 TABLESPACE CM_D1T299_IND,
 PARTITION P2 TABLESPACE CM_D1T299_IND,
 PARTITION P3 TABLESPACE CM_D1T299_IND,
 PARTITION P4 TABLESPACE CM_D1T299_IND,
 PARTITION P5 TABLESPACE CM_D1T299_IND,
 PARTITION P6 TABLESPACE CM_D1T299_IND,
 PARTITION P7 TABLESPACE CM_D1T299_IND,
 PARTITION P8 TABLESPACE CM_D1T299_IND
 )
 TABLESPACE CM_D1T304_IND;
```

D1_MSRMT_LOG

```
CREATE BIGFILE TABLESPACE CM_D1T300_P2011JAN DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED ;
CREATE BIGFILE TABLESPACE CM_D1T300_P2011MAR DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED ;
CREATE BIGFILE TABLESPACE CM_D1T300_P2011MAY DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED ;
CREATE BIGFILE TABLESPACE CM_D1T300_P2011JUL DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED ;
```

```
CREATE BIGFILE TABLESPACE CM_D1T300_P2011SEP DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED ;
CREATE BIGFILE TABLESPACE CM_D1T300_P2011NOV DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED ;
CREATE BIGFILE TABLESPACE CM_D1T300_PMAX DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON MAXSIZE
UNLIMITED ;

CREATE TABLE D1_MSRMT_LOG (
MEASR_COMP_ID CHAR(12), MSRMT_DTTM DATE,
SEQNO              NUMBER(5,0),
ORIG_INIT_MSRMT_ID CHAR(14) DEFAULT ' ' NOT NULL ENABLE, BUS_OBJ_CD         CHAR(30)
DEFAULT ' ' NOT NULL ENABLE,
CHAR_TYPE_CD   CHAR(8) DEFAULT ' ' NOT NULL ENABLE, CHAR_VAL       CHAR(16) DEFAULT ' ' NOT
NULL ENABLE, ADHOC_CHAR_VAL VARCHAR2(254) DEFAULT ' ' NOT NULL ENABLE, CHAR_VAL_FK1
VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE, CHAR_VAL_FK2   VARCHAR2(50) DEFAULT ' ' NOT NULL
ENABLE, CHAR_VAL_FK3   VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE, CHAR_VAL_FK4
VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE, CHAR_VAL_FK5   VARCHAR2(50) DEFAULT ' ' NOT NULL
ENABLE, DESCRLONG      VARCHAR2(4000) DEFAULT ' ' NOT NULL ENABLE, LOG_DTTM DATE NOT NULL
ENABLE,
MESSAGE_CAT_NBR          NUMBER(5,0) DEFAULT 0 NOT NULL ENABLE, MESSAGE_NBR
NUMBER(5,0) DEFAULT 0 NOT NULL ENABLE, USER_ID                              CHAR(8) DEFAULT
' ' NOT
NULL ENABLE,
VERSION                            NUMBER(5,0) DEFAULT 1 NOT NULL ENABLE,
MSRMT_LOG_ENTRY_TYPE_FLG CHAR(4) DEFAULT ' ' NOT NULL ENABLE,
BO_DATA_AREA CLOB
)
  LOB (BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE)
ENABLE ROW MOVEMENT
PARTITION BY RANGE (MSRMT_DTTM) SUBPARTITION BY range (MEASR_COMP_ID) SUBPARTITION
TEMPLATE(
subpartition S01 values less than (124999999999),
subpartition S02 values less than (249999999999),
subpartition S03 values less than (374999999999),
subpartition S04 values less than (499999999999),
subpartition S05 values less than (624999999999),
subpartition S06 values less than (744999999999),
subpartition S07 values less than (874999999999),
subpartition SMAX values less than (maxvalue)
)
(
PARTITION "P2011JAN" VALUES LESS THAN (TO_DATE('2011-02-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
LOB (BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE
TABLESPACE CM_D1T300_P2011JAN )
TABLESPACE CM_D1T300_P2011JAN,
PARTITION "P2011MAR" VALUES LESS THAN (TO_DATE('2011-04-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
LOB (BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE
TABLESPACE CM_D1T300_P2011MAR )
TABLESPACE CM_D1T300_P2011MAR,
PARTITION "P2011MAY" VALUES LESS THAN (TO_DATE('2011-06-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
LOB (BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE
TABLESPACE CM_D1T300_P2011MAY )
TABLESPACE CM_D1T300_P2011MAY,
PARTITION "P2011JUL" VALUES LESS THAN (TO_DATE('2011-08-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
LOB (BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE
TABLESPACE CM_D1T300_P2011JUL )
TABLESPACE CM_D1T300_P2011JUL,
PARTITION "P2011SEP" VALUES LESS THAN (TO_DATE('2011-10-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
LOB (BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE
TABLESPACE CM_D1T300_P2011SEP )
TABLESPACE CM_D1T300_P2011SEP,
PARTITION "P2011NOV" VALUES LESS THAN (TO_DATE('2011-12-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
LOB (BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE
TABLESPACE CM_D1T300_P2011NOV )
TABLESPACE CM_D1T300_P2011NOV,
PARTITION "PMAX" VALUES LESS THAN (MAXVALUE)
LOB (BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE
TABLESPACE CM_D1T300_PMAX )
TABLESPACE CM_D1T300_PMAX
);

CREATE UNIQUE INDEX D1T300P0 ON D1_MSRMT_LOG (
MEASR_COMP_ID, MSRMT_DTTM, SEQNO
)   LOCAL COMPRESS ADVANCED LOW;

ALTER TABLE D1_MSRMT_LOG ADD CONSTRAINT D1T300P0 PRIMARY KEY (MEASR_COMP_ID, MSRMT_DTTM,
SEQNO) USING INDEX ;
```

D1_MSRMT_LOG_PARM

```
CREATE BIGFILE TABLESPACE CM_D1T301_P2011JAN DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED ;
CREATE BIGFILE TABLESPACE CM_D1T301_P2011MAR DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED ;
CREATE BIGFILE TABLESPACE CM_D1T301_P2011MAY DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED ;
CREATE BIGFILE TABLESPACE CM_D1T301_P2011JUL DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED ;
CREATE BIGFILE TABLESPACE CM_D1T301_P2011SEP DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED ;
CREATE BIGFILE TABLESPACE CM_D1T301_P2011NOV DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED ;
CREATE BIGFILE TABLESPACE CM_D1T301_PMAX DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON MAXSIZE
UNLIMITED ;


CREATE TABLE D1_MSRMT_LOG_PARM (
MEASR_COMP_ID CHAR(12), MSRMT_DTTM DATE,
SEQNO                NUMBER(5,0), PARM_SEQ         NUMBER(3,0),
MSG_PARM_VAL    VARCHAR2(30) DEFAULT ' ' NOT NULL ENABLE, MSG_PARM_TYP_FLG CHAR(4) DEFAULT
' ' NOT NULL ENABLE, VERSION                 NUMBER(5,0) DEFAULT 1 NOT NULL ENABLE
)
ENABLE ROW MOVEMENT
PARTITION BY RANGE (MSRMT_DTTM) SUBPARTITION BY range (MEASR_COMP_ID) SUBPARTITION
TEMPLATE(
subpartition S01 values less than (124999999999),
subpartition S02 values less than (249999999999),
subpartition S03 values less than (374999999999),
subpartition S04 values less than (499999999999),
subpartition S05 values less than (624999999999),
subpartition S06 values less than (744999999999),
subpartition S07 values less than (874999999999),
subpartition SMAX values less than (maxvalue)
)
(
PARTITION "P2011JAN" VALUES LESS THAN (TO_DATE('2011-02-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_D1T301_P2011JAN,
PARTITION "P2011MAR" VALUES LESS THAN (TO_DATE('2011-04-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_D1T301_P2011MAR,
PARTITION "P2011MAY" VALUES LESS THAN (TO_DATE('2011-06-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_D1T301_P2011MAY,
PARTITION "P2011JUL" VALUES LESS THAN (TO_DATE('2011-08-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_D1T301_P2011JUL,
PARTITION "P2011SEP" VALUES LESS THAN (TO_DATE('2011-10-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_D1T301_P2011SEP,
PARTITION "P2011NOV" VALUES LESS THAN (TO_DATE('2011-12-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
TABLESPACE CM_D1T301_P2011NOV,
PARTITION "PMAX" VALUES LESS THAN (MAXVALUE)
TABLESPACE CM_D1T301_PMAX
);
CREATE UNIQUE INDEX D1T301P0 ON D1_MSRMT_LOG_PARM (
MEASR_COMP_ID, MSRMT_DTTM, SEQNO, PARM_SEQ
)  INDEX LOCAL COMPRESS ADVANCED LOW;

ALTER TABLE D1_MSRMT_LOG_PARM ADD CONSTRAINT D1T301P0 PRIMARY KEY (MEASR_COMP_ID,
MSRMT_DTTM, SEQNO, PARM_SEQ) USING INDEX;
```

D1_INIT_MSRMT_DATA

```
CREATE BIGFILE TABLESPACE CM_D1T304_P2011JAN DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED ;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011MAR DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED ;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011MAY DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED ;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011JUL DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED ;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011SEP DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED ;
CREATE BIGFILE TABLESPACE CM_D1T304_P2011NOV DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON
MAXSIZE UNLIMITED ;
```

```
CREATE BIGFILE TABLESPACE CM_D1T304_PMAX DATAFILE '+DATADG' SIZE 50M AUTOEXTEND ON MAXSIZE
UNLIMITED ;

CREATE TABLE D1_INIT_MSRMT_DATA
  (
   INIT_MSRMT_DATA_ID CHAR(14) NOT NULL ENABLE,
    MEASR_COMP_ID      CHAR(12) DEFAULT ' ' NOT NULL ENABLE,
    D1_FROM_DTTM DATE,
    D1_TO_DTTM DATE,
    DATA_SRC_FLG        CHAR(4) DEFAULT ' ' NOT NULL ENABLE,
    TIME_ZONE_CD        CHAR(10) DEFAULT ' ' NOT NULL ENABLE,
    BUS_OBJ_CD          CHAR(30) DEFAULT ' ' NOT NULL ENABLE,
    BO_STATUS_CD        CHAR(12) DEFAULT ' ' NOT NULL ENABLE,
    BO_STATUS_REASON_CD VARCHAR2(30) DEFAULT ' ' NOT NULL ENABLE,
    IMD_BO_DATA_AREA CLOB,
    STATUS_UPD_DTTM DATE NOT NULL ENABLE,
    CRE_DTTM DATE NOT NULL ENABLE,
    VERSION    NUMBER(5,0) DEFAULT 1 NOT NULL ENABLE,
    IMD_EXT_ID VARCHAR2(120),
    PREVEE_BO_DATA_AREA CLOB,
    POSTVEE_BO_DATA_AREA CLOB,
    TRACE_BO_DATA_AREA CLOB,
    RAW_BO_DATA_AREA CLOB,
    LAST_UPDATE_DTTM DATE,
    ILM_DT DATE,
    ILM_ARCH_SW CHAR(1),
    RETENTION_PERIOD NUMBER(5,0) DEFAULT 99999 NOT NULL ENABLE
  )
ENABLE ROW MOVEMENT
LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE)
LOB ( POSTVEE_BO_DATA_AREA ) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM
CACHE)
LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE)
LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE)
LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS MEDIUM CACHE)
PARTITION BY RANGE (D1_TO_DTTM)
SUBPARTITION BY range (MEASR_COMP_ID)
SUBPARTITION TEMPLATE(
SUBPARTITION S01 VALUES LESS THAN (124999999999),
SUBPARTITION S02 VALUES LESS THAN (249999999999),
SUBPARTITION S03 VALUES LESS THAN (374999999999),
SUBPARTITION S04 VALUES LESS THAN (499999999999),
SUBPARTITION S05 VALUES LESS THAN (624999999999),
SUBPARTITION S06 VALUES LESS THAN (749999999999),
SUBPARTITION S07 VALUES LESS THAN (874999999999),
SUBPARTITION SMAX VALUES LESS THAN (MAXVALUE)
)
(
PARTITION "P2011JAN" VALUES LESS THAN (TO_DATE('2011-02-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JAN)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JAN)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JAN)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JAN)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JAN)
TABLESPACE CM_D1T304_P2011JAN,
PARTITION "P2011MAR" VALUES LESS THAN (TO_DATE('2011-04-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAR)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAR)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAR)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAR)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAR)
TABLESPACE CM_D1T304_P2011MAR,
PARTITION "P2011MAY" VALUES LESS THAN (TO_DATE('2011-06-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAY)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAY)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAY)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAY)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011MAY)
TABLESPACE CM_D1T304_P2011MAY,
PARTITION "P2011JUL" VALUES LESS THAN (TO_DATE('2011-08-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUL)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUL)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUL)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUL)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011JUL)
TABLESPACE CM_D1T304_P2011JUL,
PARTITION "P2011SEP" VALUES LESS THAN (TO_DATE('2011-10-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011SEP)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011SEP)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011SEP)
```

```
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011SEP)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011SEP)
TABLESPACE CM_D1T304_P2011SEP,
PARTITION "P2011NOV" VALUES LESS THAN (TO_DATE('2011-12-01 00:00:01', 'SYYYY-MM-DD
HH24:MI:SS', 'NLS_CALENDAR=GREGORIAN'))
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011NOV)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011NOV)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011NOV)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011NOV)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_P2011NOV)
TABLESPACE CM_D1T304_P2011NOV,
PARTITION "PMAX" VALUES LESS THAN (MAXVALUE)
    LOB (PREVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_PMAX)
    LOB (POSTVEE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_PMAX)
    LOB (TRACE_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_PMAX)
    LOB (RAW_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_PMAX)
    LOB (IMD_BO_DATA_AREA) STORE AS SECUREFILE (TABLESPACE CM_D1T304_PMAX)
TABLESPACE CM_D1T304_PMAX
);

CREATE BIGFILE TABLESPACE CM_D1T304_IND DATAFILE '+DATA' SIZE 50M AUTOEXTEND ON MAXSIZE
UNLIMITED DEFAULT ROW STORE COMPRESS ADVANCED;

CREATE UNIQUE INDEX D1T304P0 ON D1_INIT_MSRMT_DATA (
INIT_MSRMT_DATA_ID
) TABLESPACE CM_D1T304_IND
GLOBAL PARTITION BY RANGE (INIT_MSRMT_DATA_ID)
(PARTITION P1 values less than (12499999999999),
PARTITION P2 values less than (24999999999999),
PARTITION P3 values less than (37499999999999),
PARTITION P4 values less than (49999999999999),
PARTITION P5 values less than (62499999999999),
PARTITION P6 values less than (74999999999999),
PARTITION P7 values less than (87499999999999),
PARTITION P8 values less than (maxvalue));

ALTER TABLE D1_INIT_MSRMT_DATA ADD CONSTRAINT D1T304P0 PRIMARY KEY (INIT_MSRMT_DATA_ID)
USING INDEX ;

CREATE INDEX D1T304S1 ON D1_INIT_MSRMT_DATA (MEASR_COMP_ID, D1_TO_DTTM) TABLESPACE
CM_D1T304_IND
GLOBAL PARTITION BY RANGE (MEASR_COMP_ID)
(    PARTITION P1 VALUES LESS THAN ( '124999999999' ),
     PARTITION P2 VALUES LESS THAN ( '249999999999' ),
     PARTITION P3 VALUES LESS THAN ( '374999999999' ),
     PARTITION P4 VALUES LESS THAN ( '499999999999' ),
     PARTITION P5 VALUES LESS THAN ( '624999999999' ),
     PARTITION P6 VALUES LESS THAN ( '749999999999' ),
     PARTITION P7 VALUES LESS THAN ( '874999999999' ),
     PARTITION P8 VALUES LESS THAN ( MAXVALUE )
)
COMPRESS ADVANCED LOW;
```

D1_INIT_MSRMT_DATA_CHAR

```
CREATE TABLE D1_INIT_MSRMT_DATA_CHAR
  (
    INIT_MSRMT_DATA_ID CHAR(14) NOT NULL ENABLE,
    CHAR_TYPE_CD       CHAR(8) NOT NULL ENABLE,
    SEQ_NUM            NUMBER(3,0) NOT NULL ENABLE,
    CHAR_VAL           CHAR(16) DEFAULT ' ' NOT NULL ENABLE,
    ADHOC_CHAR_VAL     VARCHAR2(254) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_VAL_FK1       VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_VAL_FK2       VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_VAL_FK3       VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_VAL_FK4       VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_VAL_FK5       VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE,
    SRCH_CHAR_VAL      VARCHAR2(50) DEFAULT ' ' NOT NULL ENABLE,
    VERSION            NUMBER(5,0) DEFAULT 1 NOT NULL ENABLE,
    LAST_UPDATE_DTTM DATE,
     CONSTRAINT D1_INIT_MSRMT_DATA_CHAR_FK FOREIGN KEY(INIT_MSRMT_DATA_ID) REFERENCES
D1_INIT_MSRMT_DATA ON DELETE CASCADE)
PARTITION BY REFERENCE (D1_INIT_MSRMT_DATA_CHAR_FK)
ENABLE ROW MOVEMENT;

CREATE UNIQUE INDEX D1T305P0 ON D1_INIT_MSRMT_DATA_CHAR(INIT_MSRMT_DATA_ID, CHAR_TYPE_CD,
SEQ_NUM) TABLESPACE CM_D1T304_IND
GLOBAL PARTITION BY RANGE(INIT_MSRMT_DATA_ID)
 (
 PARTITION P1 VALUES LESS THAN ('12499999999999'),
 PARTITION P2 VALUES LESS THAN ('24999999999999'),
```

```
 PARTITION P3 VALUES LESS THAN ('37499999999999'),
 PARTITION P4 VALUES LESS THAN ('49999999999999'),
 PARTITION P5 VALUES LESS THAN ('62499999999999'),
 PARTITION P6 VALUES LESS THAN ('74999999999999'),
 PARTITION P7 VALUES LESS THAN ('87499999999999'),
 PARTITION P8 VALUES LESS THAN (MAXVALUE)
 ) COMPRESS ADVANCED LOW;


ALTER TABLE D1_INIT_MSRMT_DATA_CHAR ADD CONSTRAINT D1T305P0 PRIMARY KEY
(INIT_MSRMT_DATA_ID, CHAR_TYPE_CD, SEQ_NUM) USING INDEX ;

CREATE INDEX D1T305S1 ON D1_INIT_MSRMT_DATA_CHAR(SRCH_CHAR_VAL)
GLOBAL PARTITION BY HASH(SRCH_CHAR_VAL)
 (
 PARTITION P1 TABLESPACE CM_D1T304_IND,
 PARTITION P2 TABLESPACE CM_D1T304_IND,
 PARTITION P3 TABLESPACE CM_D1T304_IND,
 PARTITION P4 TABLESPACE CM_D1T304_IND,
 PARTITION P5 TABLESPACE CM_D1T304_IND,
 PARTITION P6 TABLESPACE CM_D1T304_IND,
 PARTITION P7 TABLESPACE CM_D1T304_IND,
 PARTITION P8 TABLESPACE CM_D1T304_IND
 );
```

D1_INIT_MSRMT_DATA_K

```
CREATE TABLE D1_INIT_MSRMT_DATA_K (
INIT_MSRMT_DATA_ID CHAR(14),
ENV_ID             NUMBER(6,0) NOT NULL ENABLE,
CONSTRAINT D1T314P0 PRIMARY KEY (INIT_MSRMT_DATA_ID, ENV_ID) ENABLE
)
ORGANIZATION INDEX  ENABLE ROW MOVEMENT
PARTITION BY RANGE (INIT_MSRMT_DATA_ID)
(PARTITION P1 values less than (12499999999999),
PARTITION P2 values less than (24999999999999),
PARTITION P3 values less than (37499999999999),
PARTITION P4 values less than (49999999999999),
PARTITION P5 values less than (62499999999999),
PARTITION P6 values less than (74499999999999),
PARTITION P7 values less than (87499999999999),
PARTITION P8 values less than (maxvalue))
TABLESPACE CM_D1T314_IND ;
```

D1_INIT_MSRMT_DATA_LOG

```
CREATE TABLE D1_INIT_MSRMT_DATA_LOG
  (
    INIT_MSRMT_DATA_ID  CHAR(14) NOT NULL ENABLE,
    SEQNO               NUMBER(5,0) NOT NULL ENABLE,
    BO_STATUS_CD        CHAR(12) DEFAULT ' ' NOT NULL ENABLE,
    BO_STATUS_REASON_CD VARCHAR2(30 BYTE) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_TYPE_CD        CHAR(8) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_VAL            CHAR(16) DEFAULT ' ' NOT NULL ENABLE,
    ADHOC_CHAR_VAL      VARCHAR2(254 BYTE) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_VAL_FK1        VARCHAR2(50 BYTE) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_VAL_FK2        VARCHAR2(50 BYTE) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_VAL_FK3        VARCHAR2(50 BYTE) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_VAL_FK4        VARCHAR2(50 BYTE) DEFAULT ' ' NOT NULL ENABLE,
    CHAR_VAL_FK5        VARCHAR2(50 BYTE) DEFAULT ' ' NOT NULL ENABLE,
    DESCRLONG           VARCHAR2(4000) DEFAULT ' ' NOT NULL ENABLE,
    LOG_DTTM            DATE NOT NULL ENABLE,
    LOG_ENTRY_TYPE_FLG  CHAR(4) DEFAULT ' ' NOT NULL ENABLE,
    MESSAGE_CAT_NBR     NUMBER(5,0) DEFAULT 0 NOT NULL ENABLE,
    MESSAGE_NBR         NUMBER(5,0) DEFAULT 0 NOT NULL ENABLE,
    USER_ID             CHAR(8) DEFAULT ' ' NOT NULL ENABLE,
    VERSION             NUMBER(5,0) DEFAULT 1 NOT NULL ENABLE,
    LAST_UPDATE_DTTM DATE,
    CONSTRAINT D1_INIT_MSRMT_DATA_LOG_FK FOREIGN KEY(INIT_MSRMT_DATA_ID) REFERENCES
D1_INIT_MSRMT_DATA ON DELETE CASCADE)
PARTITION BY REFERENCE (D1_INIT_MSRMT_DATA_LOG_FK)
ENABLE ROW MOVEMENT;

CREATE UNIQUE INDEX D1T306P0 ON D1_INIT_MSRMT_DATA_LOG (INIT_MSRMT_DATA_ID, SEQNO)
TABLESPACE CM_D1T304_IND
GLOBAL PARTITION BY RANGE(INIT_MSRMT_DATA_ID)
 (
```

```
 PARTITION P1 VALUES LESS THAN ('12499999999999'),
 PARTITION P2 VALUES LESS THAN ('24999999999999'),
 PARTITION P3 VALUES LESS THAN ('37499999999999'),
 PARTITION P4 VALUES LESS THAN ('49999999999999'),
 PARTITION P5 VALUES LESS THAN ('62499999999999'),
 PARTITION P6 VALUES LESS THAN ('74999999999999'),
 PARTITION P7 VALUES LESS THAN ('87499999999999'),
 PARTITION P8 VALUES LESS THAN (MAXVALUE)
 )COMPRESS ADVANCED LOW;

ALTER TABLE D1_INIT_MSRMT_DATA_LOG ADD CONSTRAINT D1T306P0 PRIMARY KEY
(INIT_MSRMT_DATA_ID, SEQNO) USING INDEX  ;
```

D1_INIT_MSRMT_DATA_LOG_PARM

```
CREATE TABLE D1_INIT_MSRMT_DATA_LOG_PARM
  (
    INIT_MSRMT_DATA_ID CHAR(14) NOT NULL ENABLE,
    SEQNO              NUMBER(5,0) NOT NULL ENABLE,
    PARM_SEQ           NUMBER(3,0) NOT NULL ENABLE,
    MSG_PARM_VAL       VARCHAR2(30) DEFAULT ' ' NOT NULL ENABLE,
    MSG_PARM_TYP_FLG   CHAR(4) DEFAULT ' ' NOT NULL ENABLE,
    VERSION            NUMBER(5,0) DEFAULT 1 NOT NULL ENABLE,
    LAST_UPDATE_DTTM DATE,
    CONSTRAINT D1_INIT_MSRMT_DATA_LOG_PARM_FK FOREIGN KEY(INIT_MSRMT_DATA_ID) REFERENCES
D1_INIT_MSRMT_DATA ON DELETE CASCADE)
PARTITION BY REFERENCE (D1_INIT_MSRMT_DATA_LOG_PARM_FK)
ENABLE ROW MOVEMENT;


CREATE UNIQUE INDEX D1T307P0 ON D1_INIT_MSRMT_DATA_LOG_PARM(INIT_MSRMT_DATA_ID, SEQNO,
PARM_SEQ) TABLESPACE CM_D1T304_IND
GLOBAL PARTITION BY RANGE(INIT_MSRMT_DATA_ID)
 (
 PARTITION P1 VALUES LESS THAN ('12499999999999'),
 PARTITION P2 VALUES LESS THAN ('24999999999999'),
 PARTITION P3 VALUES LESS THAN ('37499999999999'),
 PARTITION P4 VALUES LESS THAN ('49999999999999'),
 PARTITION P5 VALUES LESS THAN ('62499999999999'),
 PARTITION P6 VALUES LESS THAN ('74999999999999'),
 PARTITION P7 VALUES LESS THAN ('87499999999999'),
 PARTITION P8 VALUES LESS THAN (MAXVALUE)
 ) COMPRESS ADVANCED LOW;


ALTER TABLE D1_INIT_MSRMT_DATA_LOG_PARM ADD CONSTRAINT D1T307P0
PRIMARY KEY (INIT_MSRMT_DATA_ID, SEQNO, PARM_SEQ) USING INDEX ;
```

Compression Recommendations

It is highly recommended to use the following guidelines with regard to compression.

1. For all transactional data tables including ILM enabled tables (except D1_MSRMT* tables):
    a. For easier operational manageability, it is recommended to enable the compression at tablespace level while creating separate tablespaces for each logical unit of archival (like a parent table partition and the corresponding referenced child table partitions).
    b. Use securefile medium compression for LOBs.
    c. On Oracle database 12c:
        - Use advanced compression for table data compression.
        - Compress indexes using advanced low compression (using 'compress advanced low' clause).

d. On Oracle database 11g:

- Use OLTP compression for table data and compression indexes using default compression.

2. For D1_MSRMT* tables:

a. Keep current table partitions uncompressed for D1_MSRMT. Other D1_MSRMT* tables should use compressed tablespaces for all partitions.

b. For the D1_MSRMT table- Periodically (recommended monthly), compress the data by reloading into a staging table followed by partition exchange. It is highly recommended to use bulk load CTAS operation with parallel clause during the reload.

- Use 'QUERY HIGH' compression for Exadata implementations.
- For non-Exadata implementations, on 12c use 'row store compress advanced' and on 11g use OLTP compression.

c. For indexes

- On Oracle database 12c, Compress indexes using advanced low compression (using 'compress advanced low' clause).
- On Oracle database 11g, use default index compression.

Appendix F

Database Changes in MSM

This section specifies the database changes in specific releases of Oracle Utilities Market Settlements Management.

- Upgrading from Oracle Utilities Market Settlements Management V2.3.0.2.0 to V2.4.0.0.0
- Upgrading from Oracle Utilities Market Settlements Management V2.3.0.2.3 to V2.4.0.0.0

Upgrading from Oracle Utilities Market Settlements Management V2.3.0.2.0 to V2.4.0.0.0

New Tables

Table_Name
D1_ACTIVITY_TYPE_FLD_TASK_TYPE
D1_DVC_EQPMNT
D1_FACILITY_SP
D1_SP_TYPE_FIELD_TASK_TYPE

New Views

View_Name
D1_ACT_DVC_SP_VW
D1_BI_DYN_AGG_VW
D2_MEASR_QTY_AGR_MV
D2_MEASR_QTY_MV
D2_QUALITY_CNT_AGR_MV
D2_QUALITY_CNT_MV
D2_TIMELINESS_CNT_MV
D2_TIMELINESS_QTY_MV
D2_TIMELINES_CNT_AGR_MV
D2_TIMELINES_QTY_AGR_MV

Primary Key Change

Table_Name	Added_Column
D1_MEASR_COMP_SET_PARTICIPANT	MEASR_COMP_ID

Primary Key Change

Table_Name	Deleted_Column
D1_MEASR_COMP_SET_PARTICIPANT	SEQNO

New Primary Keys

Table_Name	Primary Key	Column_Names
D1_US_QTY	D1M576P0	D1_US_QTY_ID

Added Columns (Table)

Table_Name	Column_Name
D1_ACTIVITY_TYPE	SP_DVC_COND_SRC_FLG CHAR(4)
D1_CONS_EXT_TYPE	INTERVAL_SCALAR_FLG CHAR(4)
D1_DVC	ACCESS_GRP_CD CHAR(12)
D1_DVC_TYPE	ATTACHED_TO_FLG CHAR(4)
D1_MEASR_COMP	ACCESS_GRP_CD CHAR(12)
D1_SP_EQPMNT	EQPMNT_CNT NUMBER(11,2)
D1_SP_EQPMNT	BO_DATA_AREA CLOB
D1_MDSI	VERSION NUMBER(5,0) DEFAULT 1 NOT NULL
D1_MDSS	VERSION NUMBER(5,0) DEFAULT 1 NOT NULL

Updated Column Sequences

Table_Name	Old_Column_Sequence	New_Column_Sequence
D1_MEASR_COMP_SET_PARTICIPANT	1. MEASR_COMP_ID 2. MEASR_COMP_SET_CD 3. INITIATED_BY_MC_SET_FLG 4. BO_XML_DATA_AREA 5. VERSION 6. SEQNO 7. MC_ID_TYPE_FLG	1. MEASR_COMP_SET_CD 2. SEQNO 3. BO_XML_DATA_AREA 4. VERSION 5. MEASR_COMP_ID 6. MC_ID_TYPE_FLG 7. ID_VALUE

Updated Columns

Table_Name	Column_Name	From	To
D1_CONTACT_EMAIL	EMAIL_VALUE	VARCHAR2(70)	VARCHAR2(254)
D1_MEASR_COMP_SET_PARTICIPANT	SEQNO	NOT NULL	NULL

Table_Name	Column_Name	From	To
D1_MEASR_COMP_SET_PARTICIPANT	MEASR_COMP_ID	NULL	NOT NULL

Added Columns (View)

Table_Name	Column_Name
D1_DVC_SP_VW	DIVISION_CD
D1_INBOUND_COMM_VW	DIVISION_CD
D1_OUTBOUND_COMM_VW	DIVISION_CD

Added Indexes

Table_Name	Index_Name
D1_ACTIVITY_TYPE_FLD_TASK_TYPE	D1C631P0
D1_DVC_EQPMNT	D1M629P0
D1_DVC_EQPMNT	D1M629S0
D1_FACILITY_SP	D1T633P0
D1_SP_TYPE_FIELD_TASK_TYPE	D1M630P0
D1_USAGE_EXCP	D1T443S1
D1_US_QTY	D1M576P0

Index Changes (Columns Added)

Table_Name	Index_Name	Added_Column
D1_MEASR_COMP_SET_PARTICIPANT	D1C478P0	MEASR_COMP_ID

Index Changes (Columns Deleted)

Table_Name	Index_Name	Deleted_Column
D1_CONTACT_IDENTIFIER	D1C183S0	CONTACT_ID_TYPE_FLG
CONTACT_ID_TYPE_FLG	D1C183S1	CONTACT_ID_TYPE_FLG
D1_SP_IDENTIFIER	D1M104S0	SP_ID_TYPE_FLG
D1_SP_IDENTIFIER	D1M104S1	SP_ID_TYPE_FLG
D1_US_IDENTIFIER	D1M213S0	US_ID_TYPE_FLG

Table_Name	Index_Name	Deleted_Column
D1_US_IDENTIFIER	D1M213S1	US_ID_TYPE_FLG
D1_DVC_IDENTIFIER	D1M236S0	DVC_ID_TYPE_FLG
D1_DVC_IDENTIFIER	D1M236S1	DVC_ID_TYPE_FLG
D1_MEASR_COMP_IDENTIFIER	D1M253S0	MC_ID_TYPE_FLG
D1_MEASR_COMP_IDENTIFIER	D1M253S1	MC_ID_TYPE_FLG
D1_ACTIVITY_IDENTIFIER	D1T330S0	ACTIVITY_ID_TYPE_FLG
D1_ACTIVITY_IDENTIFIER	D1T330S1	ACTIVITY_ID_TYPE_FLG
D1_COMM_OUT_IDENTIFIER	D1T385S0	COMM_ID_TYPE_FLG
D1_COMM_OUT_IDENTIFIER	D1T385S1	COMM_ID_TYPE_FLG
D1_COMM_IN_IDENTIFIER	D1T391S0	COMM_ID_TYPE_FLG
D1_COMM_IN_IDENTIFIER	D1T391S1	COMM_ID_TYPE_FLG
D1_DVC_EVT_IDENTIFIER	D1T405S0	DVC_EVT_ID_TYPE_FLG
D1_DVC_EVT_IDENTIFIER	D1T405S1	DVC_EVT_ID_TYPE_FLG
D1_MEASR_COMP_SET_PARTICIPANT	D1C478P0	SEQNO
D1_INIT_MSRMT_DATA	D1T304S1	BO_STATUS_CD
D1_INIT_MSRMT_DATA	D1T304S1	BUS_OBJ_CD
D1_INIT_MSRMT_DATA	D1T304S1	D1_FROM_DTTM

Index Organized Tables

The following tables are converted from normal table to Index Organized tables (only on-premises).

D1_ATTR_VAL_K
D1_ADS_K
D1_INIT_MSRMT_SNAP_K
D1_MDSI_K
D1_MDSS_K
D1_MKT_AWARD_K
D1_MKT_CONTRACT_K
D1_MKT_PRODUCT_K
D1_MKT_RP_K

D1_SP_QTY_K
D1_USAGE_EXCP_K
D1_US_MKT_PART_K
D1_US_QTY_K

Upgrading from Oracle Utilities Market Settlements Management V2.3.0.2.3 to V2.4.0.0.0

New Tables

Table_Name
D1_FACILITY_SP

New Columns

Table_Name	Column_Name	Data Type	Data Length
D1_DVC	ACCESS_GRP_CD	CHAR	12
D1_MEASR_COMP	ACCESS_GRP_CD	CHAR	12
D1_FACILITY_SP	FACILITY_ID	CHAR	14
D1_FACILITY_SP	D1_SP_ID	CHAR	12
D1_FACILITY_SP	VERSION	NUMBER	5

Updated Columns

Table_Name	Old_Column_Sequence	New_Column_Sequence
D1_MEASR_COMP_SET_PARTICIPANT	1. MEASR_COMP_ID 2. MEASR_COMP_SET_CD 3. INITIATED_BY_MC_SET_FLG 4. BO_XML_DATA_AREA 5. VERSION 6. SEQNO 7. MC_ID_TYPE_FLG 8. ID_VALUE	1. MEASR_COMP_SET_CD 2. SEQNO 3. BO_XML_DATA_AREA 4. VERSION 5. MEASR_COMP_ID 6. MC_ID_TYPE_FLG 7. ID_VALUE 8. INITIATED_BY_MC_SET_FLG

New Primary Keys

Table_Name	Primary_Key	Columns
D1_FACILITY_SP	D1T633P0	FACILITY_ID, D1_SP_ID

Updated Primary Keys

Table_Name	Old Primary Key Column	New Primary Key Column
D1_MEASR_COMP_SET_PARTICIPANT	MEASR_COMP_SET_CD, SEQNO	MEASR_COMP_ID, MEASR_COMP_SET_CD

New Indexes

Table_Name	Index_Name
D1_FACILITY_SP	D1T633P0
D1_USAGE_EXCP	D1T443S1

Index Changes

Table_Name	Index_Name	Old Column	New Column
D1_CONTACT_IDENTIFIER	D1C183S0	CONTACT_ID_TYPE_FLG, ID_VALUE	ID_VALUE
D1_CONTACT_IDENTIFIER	D1C183S1	CONTACT_ID_TYPE_FLG, UPPER(ID_VALUE)	UPPER (ID_VALUE)
D1_SP_IDENTIFIER	D1M104S0	SP_ID_TYPE_FLG, ID_VALUE	ID_VALUE
D1_SP_IDENTIFIER	D1M104S1	SP_ID_TYPE_FLG, UPPER(ID_VALUE)	UPPER(ID_VALUE)
D1_US_IDENTIFIER	D1M213S0	US_ID_TYPE_FLG,ID_VALUE	ID_VALUE
D1_US_IDENTIFIER	D1M213S1	US_ID_TYPE_FLG, UPPER(ID_VALUE)	UPPER(ID_VALUE)
D1_DVC_IDENTIFIER	D1M236S0	DVC_ID_TYPE_FLG, ID_VAL UE	ID_VALUE
D1_DVC_IDENTIFIER	D1M236S1	DVC_ID_TYPE_FLG, UPPER(ID_VALUE)	UPPER(ID_VALUE)
D1_MEASR_COMP_IDENTIFIER	D1M253S0	MC_ID_TYPE_FLG, ID_VALUE	ID_VALUE
D1_MEASR_COMP_IDENTIFIER	D1M253S1	MC_ID_TYPE_FLG, UPPER(ID_VALUE)	UPPER(ID_VALUE)
D1_ACTIVITY_IDENTIFIER	D1T330S0	ACTIVITY_ID_TYPE_FLG, ID_VALUE	ID_VALUE
D1_ACTIVITY_IDENTIFIER	D1T330S1	ACTIVITY_ID_TYPE_FLG, UPPER(ID_VALUE)	UPPER(ID_VALUE)

Table_Name	Index_Name	Old Column	New Column
D1_COMM_OUT_ IDENTIFIER	D1T385S0	COMM_ID_TYPE_FLG, ID_VALUE	ID_VALUE
D1_COMM_OUT_ IDENTIFIER	D1T385S1	COMM_ID_TYPE_FLG, UPPER(ID_VALUE)	UPPER(ID_VAL UE)
D1_COMM_IN_ IDENTIFIER	D1T391S0	COMM_ID_TYPE_FLG, ID_VA LUE	ID_VALUE
D1_COMM_IN_ IDENTIFIER	D1T391S1	COMM_ID_TYPE_FLG, UPPER(ID_VALUE)	UPPER(ID_VAL UE)
D1_DVC_EVT_ IDENTIFIER	D1T405S0	DVC_EVT_ID_TYPE_ FLG, ID_VALUE	ID_VALUE
D1_DVC_EVT_ IDENTIFIER	D1T405S1	DVC_EVT_ID_TYPE_ FLG, UPPER(ID_VALUE)	UPPER(ID_VAL UE)
D1_MEASR_COMP_ SET_PARTICIPANT	D1C478P0	MEASR_COMP_SET_ CD, SEQ NO	MEASR_COMP _ID, MEASR_COMP _SET_CD
D1_INIT_MSRMT_ DATA*	D1T304S1	MEASR_COMP_ID, BO_STATUS_CD, BUS_OBJ_CD, D1_TO_DTTM, D1_FROM_DTTM	MEASR_COMP _ID, D1_TO_DTTM

***Note that** within this upgrade, the Initial Measurement Data secondary index columns have been changed as outlined in the table.

Please be aware that implementing this change can take longer than expected depending on the amount of data present in the Initial Measurement Data table.

To manually create this index outside of the upgrade process, it is recommended to follow these steps:

1. CREATE INDEX ZZ_D1T304S1 ON D1_INIT_MSRMT_DATA (MEASR_COMP_ID,D1_TO_DTTM);

   Include tablespace, compression, partitioning, and parallelism as required.
2. ALTER INDEX D1T304S1 RENAME TO ZZ_D1T304S1_ORIG;
3. ALTER INDEX ZZ_D1T304S1 RENAME TO D1T304S1;
4. ALTER INDEX D1T304S1 NOPARALLEL;

   (Optional: If parallelism was used to create the index)
5. DROP INDEX ZZ_D1T304S1_ORIG;

After the index is created with the new columns, the upgrade process will not recreate it.

Updated Views

View_Name
D1_DVC_SP_VW
D1_INBOUND_COMM_VW
D1_INBOUND_COMM_VW

Appendix G

Upgrades to the Oracle Utilities Application Framework Database

This section describes the database upgrade process for the Oracle Utilities Application Framework database since the last release. It highlights changes made to the administrative tables and how those changes should be applied to the data in order for your current database to work with the Oracle Utilities Application Framework application, and to preserve the business logic implemented in the previous version of the application. The changes that do not require data upgrade are not described in this document. The tasks that need to be performed after running the upgrade scripts are included.

> **Note**: Upgrade scripts do not automatically enable the newly added functionality by default. Please refer to the release notes for more information.

The section provides information on upgrading the Oracle Utilities Application Framework Database including:

- Upgrading from Oracle Utilities Application Framework v4.3.0.1.0 to v4.3.0.4.0
- Upgrading from Oracle Utilities Application Framework v4.3.0.2.0 to v4.3.0.4.0
- Upgrading from Oracle Utilities Application Framework v4.3.0.3.0 to v4.3.0.4.0
- Upgrading from Oracle Utilities Application Framework v4.3.0.4.0 to v4.3.0.5.0
- Upgrading from Oracle Utilities Application Framework v4.3.0.5.0 to v4.3.0.6.0
- Upgrading from Oracle Utilities Application Framework v4.3.0.6.0 to v4.4.0.0.0
- Upgrading from Oracle Utilities Application Framework v4.4.0.0.0 to v4.4.0.2.0
- Upgrading from Oracle Utilities Application Framework v4.4.0.2.0 to v4.4.0.3.0

Upgrading from Oracle Utilities Application Framework v4.3.0.1.0 to v4.3.0.4.0

New Tables

Table	Type of Table
F1_BUS_FLG	Business Flag
F1_BUS_FLG_CHAR	Business Flag Characteristic
F1_BUS_FLG_K	Business Flag Key Table
F1_BUS_FLG_LOG	Business Flag Log
F1_BUS_FLG_LOG_PARM	Business Flag Log Parameter
F1_BUS_FLG_REL	Business Flag Relationship
F1_BUS_FLG_REL_OBJ	Business Flag Related Object
F1_BUS_FLG_TYPE	Business Flag Type
F1_BUS_FLG_TYPE_ALG	Business Flag Type Algorithm
F1_BUS_FLG_TYPE_BUS_PROC	Business Flag Type / Business Process
F1_BUS_FLG_TYPE_CHAR	Business Flag Type Characteristic
F1_BUS_FLG_TYPE_L	Business Flag Type Language
F1_ETL_MP_CTRL	ETL Mapping Control

New Views

None

Dropped Tables

None

Unsupported Tables

None

Added Columns

Table	Column	Required
CI_BATCH_THD	LOG_FILE_NAME	
CI_MD_TBL	CHAR_ENTITY_FLG	N
F1_EXTSYS_OUTMSG_PROF	JSON_CONVRSN_METH_FLG	N
F1_EXTSYS_OUTMSG_PROF	REQ_SCHEMA_NAME	N
F1_EXTSYS_OUTMSG_PROF	RES_SCHEMA_NAME	N
F1_MIGR_OBJ_ALG	ALG_PROC_TYPE_FLG	N

Dropped Columns

Table	Column
CI_MD_TBL	TBL_USAGE_FLG
CI_MD_TBL_FLD	FLD_USAGE_FLG

Unsupported Table Columns

None

Column Format Change

None

Upgrading from Oracle Utilities Application Framework v4.3.0.2.0 to v4.3.0.4.0

New Tables

Table	Type of Table
F1_LGCY_OBJ	Legacy Object
F1_PERF_TGT	Performance Target
F1_PERF_TGT_CHAR	Performance Target Characteristic
F1_PERF_TGT_L	Performance Target Language
F1_PERF_TGT_LOG	Performance Target Log
F1_PERF_TGT_LOG_PARM	Performance Target Log Parameter
F1_PERF_TGT_REL_OBJ	Performance Target Related Object
F1_PERF_TGT_TYPE	Performance Target Type
F1_PERF_TGT_TYPE_CHAR	Performance Target Type Characteristic
F1_PERF_TGT_TYPE_L	Performance Target Type Language
F1_STATS	Statistics Control
F1_STATS_CHAR	Statistics Control Characteristic
F1_STATS_L	Statistics Control Language
F1_STATS_LOG	Statistics Control Log
F1_STATS_LOG_PARM	Statistics Control Log Parameter
F1_STATS_REL_OBJ	Statistics Control Related Object
F1_STATS_SNPSHT	Statistics Snapshot
F1_STATS_SNPSHT_CHAR	Statistics Snapshot Characteristic
F1_STATS_SNPSHT_LOG	Statistics Snapshot Log
F1_STATS_SNPSHT_LOG_PARM	Statistics Snapshot Log Parameter
F1_STATS_SNPSHT_REL_OBJ	Statistics Snapshot Related Object
F1_SVC_CATALOG	Web Service Catalog

New Views
None

Dropped Tables
None

Unsupported Tables
None

Added Columns

Table	Column	Required
F1_EXTSYS_OUTMSG_PROF	NAMESPACE_FLG	N
F1_EXTSYS_OUTMSG_PROF	WSDL_FILE_NAME	N

Dropped Columns

None

Unsupported Table Columns

None

Column Format Change

None

Primary Key Change

None

Upgrading from Oracle Utilities Application Framework v4.3.0.3.0 to v4.3.0.4.0

New Tables

Table	Type of Table
F1_MIGR_REQ_INCL_REQ	Migration request Grouping

New Views

None

Dropped Tables

None

Unsupported Tables

None

Added Columns

Table	Column	Required
CI_BATCH_CTRL	APP_SVC_ID	Y
CI_XAI_RCVR_CTX	SEQNO	Y
CI_XAI_SNDR_CTX	SEQNO	Y
F1_IWS_SVC_ANN	SEQ_NUM	Y
F1_MIGR_REQ	MIGR_REQ_CAT_XFLG	N
F1_MIGR_REQ	MIGR_REQ_CLASS_FLG	Y
F1_MIGR_REQ_INSTR_ENTITY	COMMENT_LONG	N
F1_MIGR_REQ_INSTR_ENTITY	EXT_REFERENCE_ID	N

Dropped Columns

Table	Column
CI_XAI_RCVR_CTX	CTXT_VAL

Unsupported Table Columns

None

Column Format Change

Table Name	Column Name	From	To
F1_EXT_LOOKUP_VAL_CHAR	F1_EXT_LOOKUP_VALUE	VARCHAR2 (30)	VARCHAR2 (254)

Primary Key Change

Table	Primary Key Columns
CI_XAI_RCVR_CTX	XAI_RCVR_ID, SEQNO
CI_XA_SNDR_CTX	XAI_SENDER_ID, SEQNO

Upgrading from Oracle Utilities Application Framework v4.3.0.4.0 to v4.3.0.5.0

New Tables

Table	Description	Type of Table
F1_DEPLOYMENT	Deployment	Transaction
F1_DEPLOYMENT_ITEM	Deployment Item	Transaction
F1_DEPLOYMENT_ITEM_METADATA	Deployment Item Meta Data	Transaction
F1_DEPLOYMENT_PART	Deployment Part	Master
F1_DEPLOYMENT_PART_L	Deployment Part Language	Master
F1_DEPLOYMENT_TYPE	Deployment Type	Master
F1_DEPLOYMENT_TYPE_L	Deployment Type Language	Master
F1_DEPTYP_DEPPART	Deployment Type / Deployment Part	Transaction
F1_DEPTYP_MDT_TYPE	Deployment Type / MDT Type	Transaction
F1_DEPTYP_MSG_CAT	Deployment Type Message Category	Transaction
F1_DEPTYP_USR_GRP	Deployment Type User Group	Transaction
F1_MDT	Mobile Data Terminal	Transaction
F1_MDT_CHAR	Mobile Data Terminal Characteristics	Transaction
F1_MDT_TYPE	Mobile Data Terminal Type	Master
F1_MDT_TYPE_CHAR	Mobile Data Terminal Type Characteristics	Master
F1_MDT_TYPE_L	Mobile Data Terminal Type Language	Master
F1_MOB_COMP_CHAR	Mobile Component Characteristics	Admin - System
F1_MOB_COMP_CNT	Mobile Component Content	Admin - System
F1_MOBILE_COMPONENT	Mobile Component	Admin - System
F1_MOBILE_COMPONENT_L	Mobile Component Language	Admin - System

F1_REMOTE_MSG	Remote Message	Transaction
F1_REMOTE_MSG_CHAR	Remote Message Characteristics	Transaction
F1_REMOTE_MSG_LOG	Remote Message Log	Transaction
F1_REMOTE_MSG_LOG_PARM	Remote Message Log Parameters	Transaction
F1_WEB_CAT_L	Web Service Category Language	Admin - System
F1_WEB_CAT_INCL_SVC	Web Service Category - Included Services	Admin - System
F1_WEB_CAT	Web Service Category	Admin - System

Note that in addition, the following table was added to 4.3.0.4.0 via a hot fix, but was not included in 4.3.0.5.0 until after the final build and is therefore added as a hot fix. Clients upgrading to 4.3.0.5.0 may see that the table is dropped via the blueprint and then reinstated after applying the bug fixes.

Table	Description	Type of Table
F1_MIGR_OBJ_SQL_PK	Migration Object SQL Primary Key	Transaction

New Views

None

Dropped Tables

Table
F1_IWS_ANN_CHAR
F1_IWS_ANN_TYPE_CHAR

Unsupported Tables

None

Added Columns

Table	Column	Required
CI_MD_SVC	APP_SVC_ID	N
F1_OUTMSG	BO_XML_DATA_AREA	N
F1_OUTMSG_TYPE	OUTMSG_PRIOR_FLG	Y
F1_OUTMSG_TYPE	OWNER_FLG	N
F1_OUTMSG_TYPE	TYPE_BUS_OBJ_CD	N

Table	Column	Required
F1_OUTMSG_TYPE_L	OWNER_FLG	N

Dropped Columns
None

Unsupported Table Columns
None

Column Format Change
None

Primary Key Change
None

Index Changes
Index S1C675S1 for table F1_EXT_LOOKUP_VAL_CHAR has been renamed to F1C675S1.

Upgrading from Oracle Utilities Application Framework v4.3.0.5.0 to v4.3.0.6.0

New Tables

Table	Description	Table Type
F1_ATTACHMENT_K	Attachment Key	Transaction
F1_CRYPTO_KEY	Key Ring Key	Admin
F1_CRYPTO_KEY_RING	Key Ring	Admin
F1_CRYPTO_KEY_RING_L	Key Ring Language	Admin
F1_CRYPTO_KEY_RING_LOG	Key Ring Log	Admin
F1_CRYPTO_KEY_RING_LOG_PARM	Key Ring Log Parameter	Admin
F1_CUBE_TYPE	Cube Type	Admin
F1_CUBE_TYPE_L	Cube Type Language	Admin
F1_CUBE_VIEW	Cube View	Transaction
F1_CUBE_VIEW_L	Cube View Language	Transaction
F1_CUBE_VIEW_LOG	Cube View Log	Transaction
F1_CUBE_VIEW_LOG_PARM	Cube View Log Parameters	Transaction
F1_DEPLOYMENT_K	Deployment Key	Transaction
F1_ERASURE_SCHED	Object Erasure Schedule	Transaction
F1_ERASURE_SCHED_K	Object Erasure Schedule Key	Transaction
F1_ERASURE_SCHED_LOG	Object Erasure Schedule Log	Transaction
F1_ERASURE_SCHED_LOG_PARM	Object Erasure Schedule Log Parameter	Transaction
F1_MDT_K	Mobile Data Terminal Key	Transaction
F1_MIGR_OBJ_SQL_PK	Migration Object SQL Primary Key	Transaction
F1_PROC_DEFN	Process Flow Type	Admin
F1_PROC_DEFN_L	Process Flow Type Language	Admin
F1_PROC_NEXT_PANEL	Next Panel	Admin
F1_PROC_PANEL	Process Panel	Admin
F1_PROC_STORE	Process Flow	Transaction

Table	Description	Table Type
F1_PROC_STORE_DTL_ELEMENTS	Process Flow Detail Elements	Transaction
F1_PROC_STORE_K	Process Flow Key	Transaction
F1_PROC_STORE_LOG	Process Flow Log	Transaction
F1_PROC_STORE_LOG_PARM	Process Flow Log Parameters	Transaction
F1_REMOTE_MSG_K	Mobile Remote Message Key	Transaction
F1_STATS_SNPSHT_K	Statistics Snapshot Key	Transaction

Note that the following tables have system generated keys but do not have a separate key table. Per the new table list, the key tables are provided and these tables are updated accordingly.

Table	Description
F1_ATTACHMENT	Attachment
F1_DEPLOYMENT	Deployment
F1_MDT	Mobile Data Terminal
F1_REMOTE_MSG	Mobile Remote Message
F1_STATS_SNPSHT	Statistics Snapshot

New Views

None

Dropped Tables

Table
F1_IWS_SVC_OPER_L

Unsupported Tables

The table below has been added for future functionality and is not currently in use.

Table
F1_CRYPTO_KEY_RING_LINK

Added Columns

Table	Column	Required
CI_BATCH_RUN	END_DTTM	N

Table	Column	Required
CI_BATCH_RUN	START_DTTM	N
CI_COUNTRY	ADDR1_USG_FLG	Y
CI_COUNTRY	ADDR2_USG_FLG	Y
CI_COUNTRY	ADDR3_USG_FLG	Y
CI_COUNTRY	ADDR4_USG_FLG	Y
CI_COUNTRY	CITY_USG_FLG	Y
CI_COUNTRY	COUNTY_USG_FLG	Y
CI_COUNTRY	GEO_CODE_USG_FLG	Y
CI_COUNTRY	HOUSE_TYPE_USG_FLG	Y
CI_COUNTRY	IN_CITY_LIM_USG_FLG	Y
CI_COUNTRY	NUM1_USG_FLG	Y
CI_COUNTRY	NUM2_USG_FLG	Y
CI_COUNTRY	POSTAL_USG_FLG	Y
CI_COUNTRY	STATE_USG_FLG	Y
F1_ATTACHMENT	ATTACHMENT_EXT_ID	N
F1_ATTACHMENT	COMMENT_LONG	N
F1_IWS_SVC	RESOURCE_CAT_XFLG	N
F1_IWS_SVC	WEB_SVC_CLASS_FLG	Y
F1_IWS_SVC_OPER	RESOURCE_URI	N
F1_IWS_SVC_OPER	REST_HTTP_METHOD_FLG	N
F1_SVC_CATALOG	WEB_SVC_CLASS_FLG	Y

Dropped Columns

Column Format Change
None

Primary Key Change
None

Index Changes
None

Upgrading from Oracle Utilities Application Framework v4.3.0.6.0 to v4.4.0.0.0

New Tables
None

New Views
None

Dropped Tables
None

Unsupported Tables
None

Added Columns
None

Dropped Columns
None

Column Format Change
None

Primary Key Change
None

Index Changes
create index XT039S8 on CI_TD_ENTRY(ENTRY_STATUS_FLG,TD_TYPE_CD,MESSAGE_CAT_NBR,MESSAGE_NBR)

Upgrading from Oracle Utilities Application Framework v4.4.0.0.0 to v4.4.0.2.0

New Tables

Table	Description	Table Type
F1_MKTPROC	Market Process	Transaction
F1_MKTPROC_LOG	Market Process Log	Transaction
F1_MKTPROC_LOG_PARM	Market Process Log Parameter	Transaction
F1_MKTPROC_CHAR	Market Process Characteristics	Transaction
F1_MKTPROC_ID	Market Process Identifiers	Transaction
F1_MKTPROC_REL_OBJ	Market Process Related Objects	Transaction
F1_MKTPROC_REL_PROC	Related Market Processes	Transaction
F1_MKTMSG_IN	Inbound Market Message	Transaction
F1_MKTMSG_IN_LOG	Inbound Market Message Log	Transaction
F1_MKTMSG_IN_LOG_PARM	Inbound Market Message Log Parameter	Transaction
F1_MKTMSG_IN_CHAR	Inbound Market Message Characteristics	Transaction
F1_MKTMSG_IN_DATA	Inbound Market Message Data	Transaction
F1_MKTMSG_IN_EXT_REF	Inbound Market Message References	Transaction
F1_MKTMSG_IN_ID	Inbound Market Message Identifiers	Transaction
F1_MKTMSG_IN_REL_OBJ	Inbound Market Message Related Objects	Transaction
F1_MKTCFG	Market Configuration	Admin
F1_MKTCFG_L	Market Configuration Language	Admin(non system)
F1_MKTCFG _CHAR	Market Configuration Characteristics	Master
F1_MKTMSG_TYPE	Market Message Type	Admin(non system)

Table	Description	Table Type
F1_MKTMSG_TYPE_L	Market Message Type	Admin (non system)
F1_MKTMSG_TYPE_CHAR	Market Message Type Characteristics	Admin (non system)
F1_MKTPROC_EVT	Market Process Event	Transaction
F1_MKTPROC_EVT _LOG	Market Process Event Log	Transaction
F1_MKTPROC_EVT _LOG_PARM	Market Process Event Log Parameter	Transaction
F1_MKTPROC_EVT _CHAR	Market Process Event Characteristics	Transaction
F1_MKTPROC_EVT _REL_OBJ	Market Process Event Related Objects	Transaction
F1_MKTMSG_OUT	Outbound Market Message	Transaction
F1_MKTMSG_OUT_LOG	Outbound Market Message Log	Transaction
F1_MKTMSG_OUT_LOG_PARM	Outbound Market Message Log Parameter	Transaction
F1_MKTMSG_OUT_CHAR	Outbound Market Message Characteristics	Transaction
F1_MKTMSG_OUT_DATA	Outbound Market Message Data	Transaction
F1_MKTMSG_OUT_EXT_REF	Outbound Market Message References	Transaction
F1_MKTMSG_OUT_ID	Outbound Market Message Identifiers	Transaction
F1_MKTMSG_OUT_REL_OBJ	Outbound Market Message Related Objects	Transaction
F1_MKTPROC_TYPE	Market Process Type	Admin(non system)
F1_MKTPROC_TYPE_L	Market Process Type Language	Admin(non system)
F1_MKTPROC_TYPE_CHAR	Market Process Type Characteristics	Admin(non system)
F1_MKTPROC_TYPE_EVT	Market Process Type Events	Admin(non system)
F1_CALENDAR_D	Calendar Dimension	Transaction
F1_TIME_D	Time Dimension	Transaction
F1_IWS_SVC_OPER_PARM	Inbound Web Service Operations Parameter	Admin

New Views
None

Dropped Tables
None

Unsupported Tables
None

Added Columns

Table	Description	Table Type
CI_BATCH_THD	THD_RETRY_CNT	N
F1_IWS_SVC	URI_COMPONENT	N

Dropped Columns
None

Column Format Change
None

Primary Key Change
None

Index Changes
create index XT039S8 on CI_TD_ENTRY(ENTRY_STATUS_FLG,TD_TYPE_CD,MESSAGE_CAT_NBR,MESSAGE_NBR)

CREATE INDEX XT026S5 ON CI_NT_DWN (SPR_CD,CRE_DTTM)

PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS STORAGE(INITIAL 262144 NEXT 262144 MINEXTENTS 1 MAXEXTENTS 2147483645 PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1

BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT) TABLESPACE "CISTS_01"

Upgrading from Oracle Utilities Application Framework v4.4.0.2.0 to v4.4.0.3.0

New Tables

Table	Description	Table Type
F1_INSIGHT_TYPE	Insight Type	Admin System
F1_INSIGHT_TYPE_CHAR	Insight Type Characteristic	Admin System
F1_INSIGHT_TYPE_L	Insight Type Language	Admin System
F1_INSIGHT_TYPE_ALG	Insight Type Algorithm	Admin System
F1_INSIGHT_TYPE_USER_ACT	Insight Type User Action	Admin System
F1_INSIGHT_TYPE_USER_ACT_ALG	Insight Type User Action Algorithm	Admin System
F1_INSIGHT_TYPE_VISUAL_SETTING	Insight Type Visual Setting	Admin System
F1_COLOR_OPT	Color Option	Admin System
F1_COLOR_OPT_L	Color Option Language	Admin System
F1_COLOR_OPT_ITEM	Color Option Item	Admin System
F1_TREE	Tree	Admin System
F1_TREE_L	Tree Language	Admin System
F1_TREE_NODE	Tree Node	Admin System
F1_TREE_NODE_L	Tree Node Language	Admin System
F1_TREE_NODE_ALG	Tree Node Algorithms	Admin System
F1_INSIGHT_GRP	Insight Group	Admin
F1_INSIGHT_GRP_L	Insight Group Language	Admin
F1_INSIGHT_GRP_TYPE	Insight Group Insight Type	Admin
F1_INSIGHT_GRP_VISUAL_STR	Insight Group Valid Visual Structure	Admin
F1_INSIGHT_GRP_CHAR	Insight Group Characteristics	Admin

New Views

None

Dropped Tables

None

Unsupported Tables
None

Added Columns

Table	Field	Required
SC_USER	DASHBOARD_LOC_FLG	Yes
SC_USER	DASHBOARD_STATE_FLG	Yes
CI_BATCH_INST	START_DTTM	No
CI_BATCH_INST	END_DTTM	No
F1_MD_BI_TBL_FLD	LOGICAL_DM_NAME	No

Dropped Columns
None

Column Format Change
None

Primary Key Change
None

Index Changes
- Modified secondary index, F1T819S1 on table F1_ATTACHMENT to include MO + PK_Val 1-5 + attachment ID.

  ```
  CREATE UNIQUE INDEX F1T819S1 ON F1_ATTACHMENT (MAINT_OBJ_CD,
  PK_VAL1, PK_VAL2, PK_VAL3, PK_VAL4, PK_VAL5, ATTACHMENT_ID) ;
  ```

- Added new index secondary index, F1T819S3 on table F1_ATTACHMENT for columns ATTACHMENT_FILE_NAME + ATTACHMENT_ID

  ```
  CREATE UNIQUE INDEX F1T819S3 ON F1_ATTACHMENT
  (ATTACHMENT_FILE_NAME, ATTACHMENT_ID) ;
  ```

Appendix H

Oracle Application Framework System Table Guide

This section lists the system tables owned by the Oracle Utilities Application Framework V4.4.0.3.0 and explains the data standards of the system tables. The data standards are required for the installation of Oracle Utilities Application Framework, development within the Oracle Utilities Application Framework, and the configuration and customization of Oracle Utilities products. Adhering to the data standards is a prerequisite for seamless upgrade to future releases.

This section includes:

About the Application Framework System Tables

System tables are a subset of the tables that must be populated at the time the product is installed. They include metadata and configuration tables. The data stored in the system tables are the information that Oracle Utilities Application Framework product operations are based on.

As the product adds more functionality, the list of system tables can grow. The complete list of the system tables can be found in the System Table List section.

System Table Standards

System table standards must be observed for the following reasons:

- The product installation and upgrade process and customer modification data extract processes depend on the data prefix and owner flag values to determine the system data owned by each product.
- The standards ensure that there will be no data conflict in the product being developed and the future Oracle Utilities Application Framework release. They also ensure that there will be no data conflict between customer modifications and future Oracle Utilities product releases.
- The data prefix is used to prevent test data from being released to production.

  Developer's Note: All test data added to the system data tables must be prefixed by ZZ (all upper case) in order for the installation and upgrade utility to recognize them as test data.

Guidelines for System Table Updates

This section describes guidelines regarding the updating of the system table properties.

Business Configuration Tables

The majority of data in the tables in this group belongs to the customer. But these tables are shipped with some initial data in order for the customer to login to the system and begin configuring the product. Unless specified otherwise, the initial data is maintained by Oracle Utilities Application Framework and subject to subsequent upgrade.

Application Security and User Profile

These tables define the access rights of a User Group to Application Services and Application Users.

Properties	Description
Tables	SC_ACCESS_CNTL, SC USER, SC_USR_GRP_PROF, SC_USR_GRP_USR, SC_USER_GROUP, SC_USER_GROUP_L
Initial Data	User Group ALL_SERVICES and default system user SYSUSER. Upon installation the system default User Group ALL_SERVICES is given unrestricted accesses to all services defined in Oracle Utilities Application Framework.

Developer's Note: When a new service is added to the system, all actions defined for the service must be made available to the User Group ALL_ SERVICES.

Currency Code

The ISO 4217 three-letter codes are taken as the standard code for the representation of each currency.

Properties	Description
Tables	CI_CURRENCY_CD, CI_CURRENCY_CD_L
Initial Data	United States Dollar (USD)

Display Profile

The Display Profile Code is referenced in the User (SC_USER) table.

Properties	Description
Tables	CI_DISP_PROF, CI_DISP_PROF_L

Properties	Description
Initial Data	North America (NORTHAM) and Europe (EURO) and HIJRI Format (HIJRI) **Configuration Note**: In order to use HIJRI Format display profile, additional configuration is needed to define the mappings between Hijri dates and Gregorian dates. Refer to the Display Profile documentation for more information.

Configuration Note: In order to use HIJRI Format display profile, additional configuration is needed to define the mappings between Hijri dates and Gregorian dates.

Refer to the Display Profile documentation for more information.

Installation Options

Installation Option has only one row that is shipped with the initial installation of the Oracle Utilities Application Framework. The columns that can be updated in these tables are customer data and will not be overridden by the upgrade process unless a special script is written and included in the upgrade process.

Properties	Description
Tables	F1_INSTALLATION, CI_INSTALL_ALG, CI_INSTALL_MSG, CI_INSTALL_MSG_L, CI_INSTALL_PROD
Initial Data	Option 11111

Developer's Note: The system data owner of an environment is defined in the Installation Option. This Owner Flag value is stamped on all system data that is added to this environment. The installation default value is Customer Modification (CM). This value must be changed in the base product development environments.

Language Code

Language Code must be a valid code defined in ISO 639-2 Alpha-3. Adding a new language code to the table without translating all language dependent objects in the system can cause errors when a user chooses the language.

Properties	Description
Tables	CI_LANGUAGE
Initial Data	English (ENG)

Time Zone

The installation options require a valid time zone. A value for UTC (Coordinated Universl Time) is provided. Implementations should define the appropriate time zone and update the installation option value accordingly.

Properties	Description
Tables	CI_TIME_ZONE, CI_TIME_ZONE_L
Initial Data	UTC

To Do Priority and Role

New To Do Types released will be linked to the default To Do Role and set to the product assigned priority value initially. These initial settings can be overridden by the implementation.

Properties	Description
Tables	CI_ROLE(L), CI_TD_VAL_ROLE
Initial Data	F1_DFLT

Development and Implementation System Tables

This section defines the standards for the system tables that contain data for application development. The data in these tables implement business logic and UI functions shared by various products and product extensions in the same database.

Standards

When adding new data, the owner flag value of the environment must prefix certain fields of these tables. For example, when a developer adds a new algorithm type to an Oracle Utilities Market Settlements Management environment, C1 should prefix the new Algorithm Type code. The fields that are subject to this rule are listed in Standard Data Fields property.

The data that is already in these tables cannot be modified if the data owner is different than the environment owner. This prevents the developers from accidentally modifying system data that belongs to the Oracle Utilities Application Framework or the base products. However, some fields are exempt from this rule and can be modified by Customer Modification. These fields are listed in the Customer Modification Fields property.

Note that the system supports a system upgrade rule called Override Owner flag. If duplicate data rows (data row with same primary key values) are found at the time of upgrade, the owner flag values will get overridden. The lower level application system data will override the upper level system data. For example, F1 overrides C1, F1&C1 override CM, and so on. This rule will be applied to the following tables: CI_CHAR_ENTITY, CI_MD_MO_ALG, C1_PORTAL_OPT, F1_BUS_OBJ_ALG, F1_BUS_OBJ_STATUS_ALG, CI_MD_MO_OPT, F1_BUS_OBJ_OPT, F1_BUS_OBJ_STATUS_OPT, F1_BUS_OBJ_STATUS, F1_BUS_OBJ_STATUS_L

Algorithm Type

Properties	Description
Tables	CI_ALG_TYPE, CI_ALG_TYPE_L, CI_ALG_TYPE_PRM, CI_ALG_TYPE_PRM_L
Standard Data Fields	Algorithm Type (ALG_TYPE_CD)
Customer Modification	None

Algorithm

Properties	Description
Tables	CI_ALG, CI_ALG_L, CI_ALG_PARM, CI_ALG_VER
Standard Data Fields	Algorithm (ALG_CD)
Customer Modification	None

Application Security

Properties	Description
Tables	SC_APP_SERVICE, SC_APP_SERVICE_L, CI_APP_SVC_ACC
Standard Data Fields	Application Service ID (APP_SVC_ID).
Customer Modification	None

Batch Control

Properties	Description
Tables	CI_BATCH_CTRL, CI_BATCH_CTRL_L, CI_BATCH_CTRL_P, CI_BATCH_CTRL_P_L
Standard Data Fields	Batch Process (BATCH_CD), Program Name (PROGRAM_NAME)

Properties	Description
Customer Modification	Next Batch Number (NEXT_BATCH_NBR), Last Update Instance (LAST_UPDATE_INST), Last Update Date time (LAST_UPDATE_DTTM) and the batch process update these columns. Time Interval (TIMER_INTERVAL), Thread Count (BATCH_THREAD_CNT), Maximum Commit Records (MAX_COMMIT_RECS), User (USER_ID), Language (LANGUAGE_CD), Email Address (EMAILID), Start program debug tracing (TRC_PGM_STRT_SW), End Program Debug trace (TRC_PGM_END_SW), SQL debug tracing (TRC_SQL_SW) and Standard debug tracing (TRC_STD_SW) on CI_BATCH_CTRL Table. Batch Parameter Value (BATCH_PARM_VAL) and Security flag (TEXT_SECURITY_FLG) on Batch Control Parameters Table (CI_BATCH_CTRL_P)

Business Object

Properties	Description
Tables	F1_BUS_OBJ, F1_BUS_OBJ_L, F1_BUS_OBJ_ALG, F1_BUS_OBJ_OPT, F1_BUS_OBJ_STATUS, F1_BUS_OBJ_STATUS_L, F1_BUS_OBJ_STATUS_ALG, F1_BUS_OBJ_STATUS_OPT, F1_BUS_OBJ_STATUS_RSN, F1_BUS_OBJ_STATUS_RSN_L, F1_BUS_OBJ_STATUS_RSN_CHAR, F1_BUS_OBJ_TR_RULE, F1_BUS_OBJ_TR_RULE_L
Standard Data Fields	Business Object (BUS_OBJ_CD), Status Reason (BO_STATUS_REASON_CD)
Customer Modification	Batch Control (BATCH_CD), Alert (BO_ALERT_FLG), Sequence (SORT_SEQ5), Status Reason (STATUS_REASON_FLG) fields on Business Object Status Table (F1_BUS_OBJ_STATUS). Instance Control (INSTANCE_CTRL_FLG), Application Service (APP_SVC_ID) on Business Object Table (F1_BUS_OBJ). Status Reason Selection (STATUS_REASON_SELECT_FLG) on Status Reason Table (F1_BUS_OBJ_STATUS_RSN)

Business Service

Properties	Description
Tables	F1_BUS_SVC, F1_BUS_SVC_L
Standard Data Fields	Business Service (BUS_SVC_CD)
Customer Modification	Application Service (APP_SVC_ID)

Characteristics

Properties	Description
Tables	CI_CHAR_TYPE, CI_CHAR_TYPE_L, CI_CHAR_ENTITY, CI_CHAR_VAL, CI_CHAR_VAL_L
Standard Data Fields	Characteristic Type (CHAR_TYPE_CD) Characteristic Value (CHAR_VAL) on CI_CHAR_VAL If the characteristic type is customizable, Customer Modification can insert new characteristic values. CM must prefix when implementers introduce a new characteristic value.
Customer Modification	Adhoc Characteristic Value Validation Rule (ADHOC_VAL_ALG_CD), Allow Search by Characteristic Value (SEARCH_FLG)

Configuration Migration Assistant

Properties	Description
Tables	F1_MIGR_PLAN,F1_MIGR_PLAN_L,F1_MIGR_PLAN_INSTR,F1_MIGR_PLAN_INSTR_L, F1_MIGR_PLAN_INSTR_ALG, F1_MIGR_REQ, F1_MIGR_REQ_L, F1_MIGR_REQ_INSTR, F1_MIGR_REQ_INST R_L, F1_MIGR_REQ_INSTR_ENTITY, F1_MIGR_REQ_INCL_REQ
Standard Data Fields	Migration Plan Code (MIGR_PLAN_CD), Migration Request Code (MIGR_REQ_CD)
Customer Modification	None

Data Area

Properties	Description
Tables	F1_DATA_AREA, F1_DATA_AREA_L
Standard Data Fields	Data Area Code (DATA_AREA_CD)
Customer Modification	None

Deployment Part

Properties	Description
Tables	F1_DEPLOYMENT_PART, F1_DEPLOYMENT_PART_L, F1_DEPLOYMENT_ITEM
Standard Data Fields	Deployment ID (F1_DEPLOYMENT_ID)
Customer Modification	None

Display Icon

Properties	Description
Tables	CI_DISP_ICON, CI_DISP_ICON_L
Standard Data Fields	Display Icon Code (DISP_ICON_CD)
Customer Modification	None

Extendable Lookup

Properties	Description
Tables	F1_EXT_LOOKUP_VAL, F1_EXT_LOOKUP_VAL_L, F1_EXT_LOOKUP_VAL_CHAR
Standard Data Fields	Business Object (BUS_OBJ_CD), Extendable Lookup Value (F1_EXT_LOOKUP_VALUE)
Customer Modification	Business Object Data Area (BO_DATA_AREA) Override Description (DESCR_OVRD) on Extendable Lookup Field Value Language Table (F1_EXT_LOOKUP_VAL_L) **Note:** When the product releases base owned records in Extendable Lookup, if there are additional elements the business object will map the element to the BO_DATA_AREA if the value is allowed to be modified by an implementation.

Foreign Key Reference

Properties	Description
Tables	CI_FK_REF, CI_FK_REF_L
Standard Data Fields	FK reference code (FK_REF_CD)
Customer Modification	Info Program Name (INFO_PRG), Zone (ZONE_CD)

Inbound Web Service

Properties	Description
Tables	F1_IWS_SVC_L, F1_IWS_SVC, F1_IWS_SVC_OPER_L, F1_IWS_SVC_OPER, F1_IWS_SVC_OPER_PARM, F1_IWS_ANN_L, F1_IWS_ANN_PARM, F1_IWS_ANN, F1_IWS_ANN_TYPE_L, F1_IWS_ANN_TYPE, F1_IWS_ANN_TYPE_PARM, F1_IWS_ANN_TYPE_PARM_L
Standard Data Fields	Webservice Name (IN_SVC_NAME), Annotation (ANN_CD), Annotation Type (ANN_TYPE_CD)

Properties	Description
Customer Modification	Debug (DEBUG_SW), Active (ACTIVE_SW), Trace (TRACE_SW), Request XSL (REQUEST_XSL), Response XSL (RESPONSE_XSL)

Unsupported Metadata

Properties	Description
Tables	F1_LGCY_OBJ
Standard Data Fields	Object ID (LGCY_OBJ_ID)
Customer Modification	None

Lookup

Properties	Description
Tables	CI_LOOKUP_FIELD, CI_LOOKUP_VAL, CI_LOOKUP_VAL_L
Standard Data Fields	Field Name (FIELD_NAME) • A lookup field name must have corresponding field metadata. The name of the lookup field column must be assigned to avoid conflicts among different products. If you follow the standards for database field names, a Customer Modification lookup field name will be automatically Customer Modification prefixed. Field Value (FIELD_VALUE) • If a lookup field is customizable, Customer Modification can insert new lookup values. X or Y must prefix when implementers introduce a new lookup value. • Product development may add lookup values to a Oracle Utilities Application Framework owned lookup field's value. When extended new value is added, the Owner Flag is used to prefix the value. .
Customer Modification	Override Description (DESCR_OVRD) on Lookup Field Value Language Table (CI_LOOKUP_VAL_L)

Map

Properties	Description
Tables	F1_MAP, F1_MAP_L

Properties	Description
Standard Data Fields	UI Map (MAP_CD)
Customer Modification	None

Managed Content

Properties	Description
Tables	F1_MANAG_CONTENT, F1_MANAG_CONTENT_L
Standard Data Fields	Managed Content (MANAG_CONTENT_CD)
Customer Modification	None

Messages

Properties	Description
Tables	CI_MSG_CATEGORY, CI_MSG_CATEGORY_L, CI_MSG, CI_MSG_L

Properties	Description
Standard Data Fields	Message Category (MESSAGE_CAT_NBR) • Messages are grouped in categories and each category has message numbers between 1 and 99999. A range of message categories is assigned to a product. An implementation may only use categories assigned for customization use. • Implementer Message Categories are 80000 and 90000 • Reserved for Tests - 99999 Message Number (MESSAGE_NBR) for message categories • Message numbers below 1000 are reserved for common messages. Implementers must not use message numbers below 1000. Message Number (MESSAGE_NBR) for Java message categories • Subsystem Standard Messages - 00001 thru 02000 • Reserved - 02001 thru 09999 • Published Messages - 10001 thru 11000 • Package Messages - 10001 thru 90000 • Reserved - 90001 thru 99999 • Each package is allocated 100 message numbers, each starting from 101. • Published Messages are messages that are special-interest messages that implementations need to know about and are therefore published in the user docs. Examples of these include messages that are highly likely to be changed for an implementation, or messages that are embedded into other texts/messages and therefore the message number is never shown • Reserved message number ranges are for future use and therefore must not be used by all products.
Customer Modification	Override Description (DESCRLONG_OVRD), Message Text Override (MESSAGE_TEXT_OVRD)

Meta Data - Table and Field

Properties	Description
Tables	CI_MD_TBL, CI_MD_TBL_FLD, CI_MD_TBL_L, CI_MD_TBL_FLD_L, CI_MD_FLD, CI_MD_FLD_L, F1_DB_OBJECTS_REPO
Standard Data Fields	Table Name (TBL_NAME) • Table names must match with the physical table name or view name in the database. • Field Name (FLD_NAME) Field name must match with the physical column name in the database unless the field is a work field. Field name does not have to follow the prefixing standard unless the field is a work field or customer modification field. • F1_DB_OBJECTS_REPO Table stores information about Indexes, Sequences, Triggers and other database objects excluding Tables and Fields (as they are already stored in the other Metadata tables)
Customer Modification	AuditSwitches(AUDIT_INSERT_SW,AUDIT_UPDATE_SW, AUDIT_DELETE_SW), Override label (OVRD_LABEL) on MD Table Field Table (CI_MD_TBL_FLD). Audit Program Name (AUDIT_PGM_NAME), Audit Table Name (AUDIT_TBL_NAME), Audit Program Type (AUDIT_PGM_TYPE_FLG), Key Validation (KEY_VALIDATION_FLG) and Caching strategy (CACHE_FLG) on MD Table (CI_MD_TBL). Override Label (OVRD_LABEL) and Customer Specific Description (DESCRLONG_OVRD) on Field Table.

Meta Data - Constraints

Properties	Description
Tables	CI_MD_CONST, CI_MD_CONST_FLD
Standard Data Fields	Constraint Id (CONST_ID) • Index Name for Primary Constraints • <Index Name>Rnn for Foreign Key Constraints Where • nn: integer, 01 through 99
Customer Modification	None

Meta Data - Menu

Menus can be extended to support multiple products by adding a new menu line to an existing menu. The sequence number on the menu line language table

(CI_MD_MENU_LINE_L) determines the order the menu lines appear. Within the same sequence, alphabetic sorting is used.

Properties	Description
Tables	CI_MD_MENU, CI_MD_MENU_L, CI_MD_MENU_ITEM, CI_MD_MENU_ITEM_L, CI_MD_MENU_LINE, CI_MD_MENU_LINE_L
Standard Data Fields	Menu Name (MENU_NAME), Menu Item Id (MENU_ITEM_ID), Menu Line Id (MENU_LINE_ID)
Customer Modification	Override Label (OVRD_LABEL) on Menu Line Language Table (CI_MD_MENU_LINE_L)

Meta Data - Program, Location and Services

Properties	Description
Tables	CI_MD_PRG_COM, CI_MD_PRG_LOC, CI_MD_SVC, CI_MD_SVC_L, CI_MD_SVC_PRG, CI_MD_PRG_MOD, CI_MD_PRG_EL_AT, CI_MD_PRG_ELEM, CI_MD_PRG_SEC, CI_MD_PRG_SQL, CI_MD_PRG_VAR, CI_MD_PRG_TAB
Standard Data Fields	Program Component Id (PROG_COM_ID), Location Id (LOC_ID), Program Component Name (PROG_COM_NAME), Service Name (SVC_NAME), Navigation Key (NAVIGATION_KEY)
Customer Modification	User Exit Program Name (USER_EXIT_PGM_NAME) on Program Components Table (CI_MD_PRG_COM),

Meta Data - Maintenance Object

Properties	Description
Tables	CI_MD_MO, CI_MD_MO_L, CI_MD_MO_TBL, CI_MD_MO_OPT, CI_MD_MO_ALG
Standard Data Fields	Maintenance Object (MAINT_OBJ_CD)
Customer Modification	None

Meta Data - Work Tables

Properties	Description
Tables	CI_MD_WRK_TBL, CI_MD_WRK_TBL_L, CI_MD_WRK_TBLFLD, CI_MD_MO_WRK
Standard Data Fields	Work Table Name (WRK_TBL_NAME)
Customer Modification	None

Meta Data - Search Object

Properties	Description
Tables	CI_MD_SO, CI_MD_SO_L, CI_MD_SO_RSFLD, CI_MD_SO_RSFLDAT, CI_MD_SOCG, CI_MD_SOCG_FLD, CI_MD_SOCG_FLDAT, CI_MD_SOCG_L, CI_MD_SOCG_SORT
Standard Data Fields	Search Object (SO_CD)
Customer Modification	None

Mobile Component

Properties	Description
Tables	F1_MOBILE_COMPONENT, F1_MOBILE_COMPONENT_L, F1_MOB_COMP_CNT, F1_MOBILE_COMP_CHAR
Standard Data Fields	Mobile Component Code (F1_MOB_COMP_TYPE_CD)
Customer Modification	Expiration Days (F1_EXPIRATION_TIME_DUR)

Navigation Option

Properties	Description
Tables	CI_NAV_OPT, CI_NAV_OPT_L, CI_NAV_OPT_CTXT, CI_NAV_OPT_USG, CI_MD_NAV
Standard Data Fields	Navigation Option Code (NAV_OPT_CD), Navigation Key (NAVIGATION_KEY)
Customer Modification	None

Outbound Message Type

Properties	Description
Tables	F1_OUTMSG_TYPE, F1_OUTMSG_TYPE_L
Standard Data Fields	Outbound Message Type Code (OUTMSG_TYPE_CD)
Customer Modification	Priority (OUTMSG_PRIOR_FLG)

Portal and Zone

Properties	Description
Tables	CI_PORTAL, CI_PORTAL_L, CI_PORTAL_ZONE, CI_PORTAL_OPT, CI_ZONE, CI_ZONE_L, CI_ZONE_PRM, CI_ZONE_HDL, CI_ZONE_HDL_L, CI_ZONE_HDL_PRM, CI_ZONE_HDL_PRM_L, CI_UI_ZONE
Standard Data Fields	Portal Code (PORTAL_CD), Zone Code (ZONE_CD), Zone Type Code (ZONE_HDL_CD) • A new Zone can be added to the Product owned Portal Pages. • The existing Zones cannot be removed from the Product owned Portal Pages.
Customer Modification	Sort Sequence (SORT_SEQ) on Context Sensitive Zone Table (CI_UI_ZONE). Show on Portal Preferences (USER_CONFIG_FLG) on Portal Table (CI_PORTAL). Override Sequence (SORT_SEQ_OVRD) on Portal Zone Table (CI_PORTAL_ZONE). Customer Specific Description (DESCRLONG_OVRD) on Zone Language Table (CI_ZONE_L). Override Parameter Value (ZONE_HDL_PARM_OVRD) on Zone Type Parameters Table (CI_ZONE_HDL_PRM). Override Parameter Value (ZONE_PARM_VAL_OVRD) on Zone Parameters Table (CI_ZONE_PRM).

Process Flow Type

Properties	Description
Tables	F1_PROC_DEFN F1_PROC_DEFN_L F1_PROC_NEXT_PANEL F1_PROC_PANEL
Standard Data Fields	Process Flow Type (PROCESS_CD)
Customer Modification	None

Sequence

Properties	Description
Tables	CI_SEQ
Standard Data Fields	Sequence Name (SEQ_NAME)
Customer Modification	Sequence Number (SEQ_NBR) This field is updated by the application process and must be set to 1 initially.

Schema

Properties	Description
Tables	F1_SCHEMA
Standard Data Fields	Schema Name (SCHEMA_NAME)
Customer Modification	None

Script

Properties	Description
Tables	CI_SCR, CI_SCR_L, CI_SCR_CRT, CI_SCR_CRT_GRP, CI_SCR_CRT_GRP_L, CI_SCR_DA, CI_SCR_FLD_MAP, CI_SCR_PRMPT, CI_SCR_PRMPT_L, CI_SCR_STEP, CI_SCR_STEP_L
Standard Data Fields	Script (SCR_CD)
Customer Modification	None

To Do Type

Properties	Description
Tables	CI_TD_TYPE, CI_TD_TYPE_L, CI_TD_SRTKEY_TY, CI_TD_DRLKEY_TY, CI_TD_SRTKEY_TY_L
Standard Data Fields	To Do Type Code (TD_TYPE_CD)
Customer Modification	Creation Batch Code (CRE_BATCH_CD), Route Batch Code (RTE_BATCH_CD), Priority Flag (TD_PRIORITY_FLG) on To Do Type Table (CI_TD_TYPE)

Web Service Category

Properties	Description
Tables	F1_WEB_CAT, F1_WEB_CAT_L, F1_WEB_CAT_INCL_SVC
Standard Data Fields	Web Service Category code (WEB_SVC_CAT_CD)
Customer Modification	None

XAI Configuration

Properties	Description
Tables	CI_XAI_ADAPTER, CI_XAI_ADAPTER_L, CI_XAI_CLASS, CI_XAI_CLASS_L, CI_XAI_ENV_HNDL, CI_XAI_ENV_HNDL_L, CI_XAI_FORMAT, CI_XAI_FORMAT_L, CI_XAI_RCVR, CI_XAI_RCVR_L, CI_XAI_RCVR_CTX, CI_XAI_RCVR_RSP, CI_XAI_RCVR_RGRP, CI_XAI_SENDER, CI_XAI_SERNDER_L, CI_XAI_SNDR_CTX, CI_XAI_OPTION
Standard Data Fields	Adapter Id (XAI_ADAPTER_ID), Class Id (XAI_CLASS_ID), Envelope Handler Id (XAI_ENV_HNDL_ID), XAI Format Id (XAI_FORMAT_ID), Receiver Id (XAI_RCVR_ID), Sender Id (XAI_SENDER_ID)
Customer Modification	Option Value (OPTION_VALUE) on Message Option Table (CI_XAI_OPTION)

XAI Services

Properties	Description
Tables	CI_XAI_IN_SVC, CI_XAI_IN_SVC_L, CI_XAI_SVC_PARM
Standard Data Fields	XAI Inbound Service Id (XAI_IN_SVC_ID), XAI Inbound Service Name (XAI_IN_SVC_NAME)
Customer Modification	XAI Version (XAI_VERSION_ID), Trace (TRACE_SW), Debug (DEBUG_SW), Request XSL (INPUT_XSL), Response XSL (RESPONSE_XSL), Record XSL (RECORD_XSL and Post Error (POST_ERROR_SW) on XAI Inbound Service Table (CI_XAI_IN_SVC)

Inbound Web Service Operations Parameter

Properties	Description
Tables	F1_IWS_SVC_OPER_PARM
Standard Data Fields	Inbound Service Name (IN_SVC_NAME)
Customer Modification	None

Market Configuration

Properties	Description
Tables	F1_MKTCFG
Standard Data Fields	Market Configuration Code (MKTCFG_CD)
Customer Modification	None

File Integration

Properties	Description
Tables	F1_FILE_INT_REC, F1_FILE_INT_REC_L, F1_FILE_INT_REC_ALG, F1_FILE_INT_TYPE, F1_FILE_INT_TYPE_L
Standard Data Fields	File Integration Record (FILE_INT_REC_CD), File Integration Type (FILE_INT_TYPE_CD)
Customer Modification	None

Meta Data - BI

Properties	Description
Tables	F1_MD_BI_TBL, F1_MD_BI_TBL_L, F1_MD_BI_TBL_FLD
Standard Data Fields	Table Name (BI_TBL_NAME)
Customer Modification	None

Data Export Control

Properties	Description
Tables	F1_DATA_EXPORT_CTRL, F1_DATA_EXPORT_CTRL_LOG, F1_DATA_EXPORT_CTRL_LOG_PARM
Standard Data Fields	F1_DATA_EXPORT_CTRL (DATA_EXPORT_CD)
Customer Modification	None

System Table List

This section contains names of system tables, upgrade actions, and a brief description of tables. The upgrade actions are explained below.

Keep (KP): The data in the table in the customer's database is kept untouched. No insert or delete is performed to this table by the upgrade process. The initial installation will add necessary data for the system

Merge (MG): The non-base product data in the table in the database is kept untouched. If the data belongs to the base product, any changes pertaining to the new version of the software are performed.

Refresh (RF): The existing data in the table is replaced with the data from the base product table. The product does not support customer specific data in these tables.

> **Note.** New product data is also inserted into tables marked as 'Merge'. If implementers add rows for a customer specific enhancement, it can cause duplication when the system data gets upgraded to the next version. We strongly recommend following the guidelines on how to use designated range of values or prefixes to segregate the implementation data from the base product data.

Table Name	Upgrade Action	Description
CI_ALG	MG	Algorithm
CI_ALG_L	MG	Algorithm Language
CI_ALG_PARM	MG	Algorithm Parameters
CI_ALG_TYPE	MG	Algorithm Type
CI_ALG_TYPE_L	MG	Algorithm Type Language
CI_ALG_TYPE_PRM	MG	Algorithm Type Parameter
CI_ALG_TYPE_PRM_L	MG	Algorithm Type Parameter Language
CI_ALG_VER	MG	Algorithm Version
CI_APP_SVC_ACC	MG	Application Service Access Mode
CI_BATCH_CTRL	MG	Batch Control
CI_BATCH_CTRL_ALG	MG	Batch Control Algorithm
CI_BATCH_CTRL_L	MG	Batch Control Language
CI_BATCH_CTRL_P	MG	Batch Control Parameters
CI_BATCH_CTRL_P_L	MG	Batch Control Parameters Language
CI_CHAR_ENTITY	MG	Characteristic Type Entity
CI_CHAR_TYPE	MG	Characteristic Type
CI_CHAR_TYPE_L	MG	Characteristic Type Language
CI_CHAR_VAL	MG	Characteristic Type Value
CI_CHAR_VAL_L	MG	Characteristic Type Value Language

Table Name	Upgrade Action	Description
CI_DISP_ICON	MG	Display Icon
CI_DISP_ICON_L	MG	Display Icon Language
CI_FK_REF	MG	Foreign Key Reference
CI_FK_REF_L	MG	Foreign Key Reference Language
CI_LANGUAGE	MG	Language Code
CI_LOOKUP_FIELD	MG	Lookup Field
CI_LOOKUP_VAL	MG	Lookup Field Value
CI_LOOKUP_VAL_L	MG	Lookup Field Value Language
CI_MD_CONST	MG	Constraints
CI_MD_CONST_FLD	MG	Constraint Fields
CI_MD_FLD	MG	Field
CI_MD_FLD_L	MG	Field Language
CI_MD_MENU	MG	Menu Information
CI_MD_MENU_IMOD	MG	Menu Item Module Maint
CI_MD_MENU_ITEM	MG	Menu Item
CI_MD_MENU_ITEM_L	MG	Menu Item Language
CI_MD_MENU_L	MG	Menu Language
CI_MD_MENU_LINE	MG	Menu Line
CI_MD_MENU_LINE_L	MG	Menu Line Language
CI_MD_MENU_MOD	MG	Menu Product Components
CI_MD_MO	MG	Maintenance Object
CI_MD_MO_ALG	MG	Maintenance Object Algorithm
CI_MD_MO_L	MG	Maintenance Object Language
CI_MD_MO_OPT	MG	Maintenance Object Option
CI_MD_MO_TBL	MG	Maintenance Object Table
CI_MD_MO_WRK	MG	Maintenance Object Work Tables
CI_MD_NAV	MG	Navigation Key
CI_MD_PRG_COM	MG	Program Components
CI_MD_PRG_ELEM	MG	UI Page Elements
CI_MD_PRG_EL_AT	MG	UI Page Element Attributes
CI_MD_PRG_LOC	MG	Program Location
CI_MD_PRG_MOD	MG	Program Module

Table Name	Upgrade Action	Description
CI_MD_PRG_SEC	MG	UI Page Sections
CI_MD_PRG_SQL	MG	MD SQL Meta Data
CI_MD_PRG_TAB	MG	UI Tab Meta Data
CI_MD_PRG_VAR	MG	Program Variable
CI_MD_SO	MG	Search Object
CI_MD_SOCG	MG	Search Object Criteria Group
CI_MD_SOCG_FLD	MG	Search Object Criteria Group Field
CI_MD_SOCG_FLDAT	MG	Search Criteria Group Field Attribute
CI_MD_SOCG_L	MG	Search Object Criteria Group Language
CI_MD_SOCG_SORT	MG	Search Criteria Group Result Sort Order
CI_MD_SO_L	MG	Search Object Language
CI_MD_SO_RSFLD	MG	Search Object Result Field
CI_MD_SO_RSFLDAT	MG	Search Object Result Field Attribute
CI_MD_SVC	MG	MD Service
CI_MD_SVC_L	MG	MD Service Language
CI_MD_SVC_PRG	MG	MD Service Program
CI_MD_TAB_MOD	MG	UI Tab Module
CI_MD_TBL	MG	MD Table
CI_MD_TBL_FLD	MG	MD Table Field
CI_MD_TBL_FLD_L	MG	MD Table Field Language
CI_MD_TBL_L	MG	MD Table Language
CI_MD_WRK_TBL	MG	Work Table
CI_MD_WRK_TBLFLD	MG	Work Table Field
CI_MD_WRK_TBL_L	MG	Work Table Language
CI_MSG	MG	Message
CI_MSG_CATEGORY	MG	Message Category
CI_MSG_CATEGORY_L	MG	Message Category Language
CI_MSG_L	MG	Message Language
CI_NAV_OPT	MG	Navigation Option
CI_NAV_OPT_CTXT	MG	Navigation Option Context
CI_NAV_OPT_L	MG	Navigation Option Language
CI_NAV_OPT_USG	MG	Navigation Option Usage

Table Name	Upgrade Action	Description
CI_PORTAL	MG	Portal
CI_PORTAL_L	MG	Portal Language
C1_PORTAL_OPT	MG	Portal Option
CI_PORTAL_ZONE	MG	Portal Zone
CI_SCR	MG	Script
CI_SCR_CRT	MG	Script Criteria
CI_SCR_CRT_GRP	MG	Script Criteria Group
CI_SCR_CRT_GRP_L	MG	Script Criteria Group Language
CI_SCR_DA	MG	Script Data Area
CI_SCR_FLD_MAP	MG	Script Field Mapping
CI_SCR_L	MG	Script Language
CI_SCR_PRMPT	MG	Script Prompt
CI_SCR_PRMPT_L	MG	Script Prompt Language
CI_SCR_STEP	MG	Script Step
CI_SCR_STEP_L	MG	Script Step Language
CI_SEQ	MG	Sequence
CI_TD_DRLKEY_TY	MG	To Do Type Drill Key
CI_TD_SRTKEY_TY	MG	To Do Type Sort Key
CI_TD_SRTKEY_TY_L	MG	To Do Type Sort Key Language
CI_TD_TYPE	MG	To Do Type
CI_TD_TYPE_L	MG	To Do Type Language
CI_UI_ZONE	MG	Context Sensitive Zone
CI_USR_NAV_LINK	MG	User Favorite Links
CI_XAI_ADAPTER	MG	XAI Adapter
CI_XAI_ADAPTER_L	MG	XAI Adapter Lang
CI_XAI_CLASS	MG	Message Class
CI_XAI_CLASS_L	MG	Message Class Language
CI_XAI_ENV_HNDL	MG	XAI Envelope Handler
CI_XAI_ENV_HNDL_L	MG	XAI Envelope Handler Language
CI_XAI_IN_SVC	MG	XAI Inbound Service
CI_XAI_IN_SVC_L	MG	XAI Inbound Service Language
CI_XAI_SVC_PARM	MG	XAI Inbound Service Parameters

Table Name	Upgrade Action	Description
CI_ZONE	MG	Zone
CI_ZONE_HDL	MG	Zone Type
CI_ZONE_HDL_L	MG	Zone Type Language
CI_ZONE_HDL_PRM	MG	Zone Type Parameters
CI_ZONE_HDL_PRM_L	MG	Zone Type Parameters Language
CI_ZONE_L	MG	Zone Language
CI_ZONE_PRM	MG	Zone Parameters
F1_BUS_OBJ	MG	Business Object
F1_BUS_OBJ_ALG	MG	Business Object Algorithm
F1_BUS_OBJ_L	MG	Business Object Language
F1_BUS_OBJ_OPT	MG	Business Object Option
F1_BUS_OBJ_STATUS	MG	Business Object Status
F1_BUS_OBJ_STATUS_ALG	MG	Business Object Status Algorithm
F1_BUS_OBJ_STATUS_L	MG	Business Object Status Language
F1_BUS_OBJ_STATUS_OPT	MG	Business Object Status Option
F1_BUS_OBJ_STATUS_RSN	MG	Status Reason
F1_BUS_OBJ_STATUS_RSN_L	MG	Status Reason Language
F1_BUS_OBJ_TR_RULE	MG	Business Object Transition Rule
F1_BUS_OBJ_TR_RULE_L	MG	Business Object Transition Rule Language
F1_BUS_SVC	MG	Business Service
F1_BUS_SVC_L	MG	Business Service Language
F1_DATA_AREA	MG	Data Area
F1_DATA_AREA_L	MG	Data Area Language
F1_DB_OBJECTS_REPO	MG	Database Objects Repository
F1_DEPLOYMENT_ITEM	MG	Deployment Part Item
F1_DEPLOYMENT_PART	MG	Deployment Part
F1_DEPLOYMENT_PART_L	MG	Deployment Part Language
F1_EXT_LOOKUP_VAL	MG	Extendable Lookup
F1_EXT_LOOKUP_VAL_L	MG	Extendable Lookup Language
F1_EXT_LOOKUP_VAL_CHAR	MG	Extendable Lookup Characteristics
F1_IWS_ANN	MG	Web Service Annotation

Table Name	Upgrade Action	Description
F1_IWS_ANN_L	MG	Web Service Annotation Language
F1_IWS_ANN_PARM	MG	Web Service Annotation Parameter
F1_IWS_ANN_TYPE	MG	Web Service Annotation Type
F1_IWS_ANN_TYPE_L	MG	Web Service Annotation Type Language
F1_IWS_ANN_TYPE_PARM	MG	Web Service Annotation Type Parm
F1_IWS_ANN_TYPE_PARM_L	MG	Web Service Annotation Type Parameter Language
F1_IWS_SVC	MG	Inbound Web Service
F1_IWS_SVC_L	MG	Inbound Web Service Language
F1_IWS_SVC_OPER	MG	Inbound Web Service Operations
F1_IWS_SVC_OPER_PARM	MG	Inbound Web Service Operations Parameter
F1_MKTCFG	MG	Market Configuration
F1_MANAG_CONTENT	MG	Managed Content
F1_MANAG_CONTENT_L	MG	Managed Content Language
F1_MAP	MG	UI Map
F1_MAP_L	MG	UI Map Language
F1_MIGR_PLAN	MG	Migration Plan
F1_MIGR_PLAN_INSTR	MG	Migration Plan Instruction
F1_MIGR_PLAN_INSTR_ALG	MG	Migration Plan Instruction Algorithm
F1_MIGR_PLAN_INSTR_L	MG	Migration Plan Instruction Language
F1_MIGR_PLAN_L	MG	Migration Plan Language
F1_MIGR_REQ	MG	Migration Request
F1_MIGR_REQ_INCL_REQ	MG	Migration Request Grouping
F1_MIGR_REQ_INSTR	MG	Migration Request Instruction
F1_MIGR_REQ_INSTR_ ENTITY	MG	Migration Request Instruction Entity
F1_MIGR_REQ_INSTR_L	MG	Migration Request Instruction Language
F1_MIGR_REQ_L	MG	Migration Request Language
F1_MOBILE_COMPONENT	MG	Mobile Component
F1_MOBILE_COMPONENT_L	MG	Mobile Component Language
F1_MOB_COMP_CHAR	MG	Mobile Component Characteristics

Table Name	Upgrade Action	Description
F1_MOB_COMP_CNT	MG	Mobile Component Content
F1_OUTMSG_TYPE	MG	Outbound Message Type
F1_OUTMSG_TYPE_L	MG	Outbound Message Type Language
F1_PROC_DEFN	MG	Process Flow Type
F1_PROC_DEFN_L	MG	Process Flow Type Language
F1_PROC_NEXT_PANEL	MG	Next Panel
F1_PROC_PANEL	MG	Process Panels
F1_SCHEMA	MG	Schema
F1_WEB_CAT	MG	Web Service Category
F1_WEB_CAT_L	MG	Web Service Category Language
F1_WEB_CAT_INCL_SVC	MG	Web Service Category Included Services
F1_FILE_INT_REC	MG	File Integration Record Table
F1_FILE_INT_REC_L	MG	File Integration Record Language Table
F1_FILE_INT_REC_ALG	MG	File Integration Record Algorithm Table
F1_FILE_INT_TYPE	MG	File Integration Type
F1_FILE_INT_TYPE_L	MG	File Integration Language Table
F1_MD_BI_TBL	MG	MD Table for BI
F1_MD_BI_TBL_L	MG	MD Language Table for BI
F1_MD_BI_TBL_FLD	MG	MD Field Table for BI
SC_ACCESS_CNTL	MG	User Group Access Control
SC_APP_SERVICE	MG	Application Service
SC_APP_SERVICE_L	MG	Application Service Language
SC_USR_GRP_PROF	MG	User Group Profile
CI_CURRENCY_CD	KP	Currency Code
CI_CURRENCY_CD_L	KP	Currency Code Language
CI_DISP_PROF	KP	Display Profile
CI_DISP_PROF_L	KP	Display Profile Language
CI_TIME_ZONE	KP	Time Zone
CI_TIME_ZONE_L	KP	Time Zone Language
CI_USR_PORTAL	KP	User Portal
CI_XAI_JNDI_SVR	KP	XAI JNDI Server
CI_XAI_JNDI_SVR_L	KP	XAI JNDI Server Language

Table Name	Upgrade Action	Description
CI_XAI_OPTION	KP	Message Option
CI_XAI_SENDER	KP	Message Sender
CI_XAI_SENDER_L	KP	Message Sender Language
CI_XAI_SNDR_CTX	KP	Message Sender Context
F1_BUS_OBJ_STATUS_RSN_CHAR	KP	Status Reason Characteristic
F1_INSTALLATION	KP	Installation Option - Framework
SC_USER	KP	User
SC_USER_CHAR	KP	User Characteristic
SC_USER_GROUP	KP	User Group
SC_USER_GROUP_L	KP	User Group Language
SC_USR_GRP_USR	KP	User Group User
CI_MD_ATT_TY	RF	MD Element Attribute Type
CI_MD_AT_DTL	RF	MD Element Attribute Type Detail
CI_MD_AT_DTL_L	RF	MD Element Attribute Type Detail Language
CI_MD_CTL	RF	Generator Control
CI_MD_CTL_L	RF	Generator Control Language
CI_MD_CTL_TMPL	RF	Generator Control Template
CI_MD_ELTY	RF	MD Element Type
CI_MD_ELTY_AT	RF	Element Type Attributes
CI_MD_ELTY_L	RF	Element Type Language
CI_MD_LOOKUP_F	RF	MD Lookup Field
CI_MD_MSG	RF	MD Message
CI_MD_MSG_L	RF	MD Message Language
CI_MD_PDF	RF	Predefined Fields
CI_MD_PDF_VAL	RF	Predefined Values
CI_MD_SRC_TYPE	RF	Source Type
CI_MD_SRC_TYPE_L	RF	Source Type Language
CI_MD_TMPL	RF	Template
CI_MD_TMPL_ELTY	RF	Template Element Types
CI_MD_TMPL_L	RF	Template Language
CI_MD_TMPL_VAR	RF	Template Variable

Table Name	Upgrade Action	Description
CI_MD_TMPL_VAR_L	RF	Template Variable Language
CI_MD_VAR	RF	Variable
CI_MD_VAR_DTL	RF	Variable Detail
CI_MD_VAR_DTL_L	RF	Variable Detail Language
CI_XAI_EXECUTER	RF	XAI Executer
CI_XAI_EXECUTER_L	RF	XAI Executer Language
CI_XAI_FORMAT	RF	XAI Format
CI_XAI_FORMAT_L	RF	XAI Format Language
F1_LGCY_OBJ	RF	Unsupported Metadata