

Oracle Public Sector Revenue Management

Database Administrator's Guide

Release 2.5.0.0.0

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Preface

This guide provides instructions for installing and maintaining the database for Oracle Public Sector Revenue Management .

This preface contains these topics:

- **Audience**
- **Related Documents**
- **Updates to this Documentation**
- **Conventions**

Audience

Oracle Public Sector Revenue Management Database Administrator's Guide is intended for database administrators who will be installing and maintaining the database for Oracle Public Sector Revenue Management .

Related Documents

For more information, refer to these Oracle documents:

Installation Guides and Release Notes

- *Product Name V2.5.0.0.0 Release Notes*
- *Product Name V2.5.0.0.0 Quick Install Guide*
- *Product Name V2.5.0.0.0 Installation Guide*
- *Product Name V2.5.0.0.0 Database Administrator's Guide*
- *Product Name V2.5.0.0.0 Optional Products Installation Guide*
- *Product Name V2.5.0.0.0 License Information User Guide*

Administrative and Business User Guides

- *Product Name V2.5.0.0.0 Administrative User Guide*
- *Product Name V2.5.0.0.0 Business User Guide*

Supplemental Documents

- *Product Name V2.5.0.0.0 Server Administration Guide*
- *Product Name V2.5.0.0.0 Security Guide*

Updates to this Documentation

This documentation is provided with the version of the product indicated. Additional and updated information about the operations and configuration of the product is available from the Knowledge Base section of My Oracle Support (<http://support.oracle.com>). Please refer to My Oracle Support for more information.

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.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Chapter 1

Database Overview

This section provides an overview of the Oracle Public Sector Revenue Management database, including:

- **Supported Database Platforms**
- **Database Maintenance Rules**

Supported Database Platforms

Oracle Public Sector Revenue Management is certified on the following platforms:

- Oracle Database Server 12.1.0.1+ (64-bit)

Notes:

Oracle Public Sector Revenue Management is tested on both Oracle Database Enterprise Edition and Standard Edition. Some features, such as Advanced Compression and Partitioning, require the Enterprise Edition.

Oracle Public Sector Revenue Management supports all Operating Systems which are certified with Oracle Database platforms mentioned above.

Refer to My Oracle Support for additional details.

Support for Software Patches and Upgrades

Due to the ongoing nature of software improvement, vendors will periodically issue patches and service packs for the operating systems, application servers and database servers on top of specific versions that Oracle products have already been tested against.

If it is necessary to apply an upgrade, please do so in a test environment that is running on the same platform as your production environment prior to updating the production environment itself.

The exception from this rule is Hibernate software version 4.1.0. This version should not be upgraded.

Always contact Oracle Support prior to applying vendor updates that do not guarantee backward compatibility.

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 of these components is 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 (that is, 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 in this document.

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 in anyway (altered, removed or added).
 - 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

Database Installation

This section provides the steps required to install the Oracle Public Sector Revenue Management database, including:

- **Installation Overview**
- **Installing the Oracle Database**

Installation Overview

Notes:

- Refer to the *Oracle Public Sector Revenue Management Installation Guide* for the hardware and software versions required for the installation on Unix or Windows. This installation is for Oracle Public Sector Revenue Management v2.5.0.0.0 and the upgrade of Oracle Public Sector Revenue Management v2.4.0.2.0 to v2.5.0.0.0.
- The Java and Jar file location parameters are hard coded in the OraDBI.psq file in <installer directory>\Install-upgrade folder. Update these parameters appropriately, based on your implementation standard, before running the upgrade.
- For upgrade customers only. Execute the following SQLs in your database before starting the upgrade:

```
Update CI_INSTALL_PROD set VERSION=VERSION+1
Where Owner_Flg='C1';
Commit;
```

Note: Make sure you back up your database before the upgrade.

The following type of installation is available for Oracle Public Sector Revenue Management:

- **Initial Install** - a database populated with metadata.
- **Upgrade Install** - a database upgrade to a new version from a pre-existing install.
- **Demo Install** - a database populated with demo data.

The database installation requires a supported version of the Java Development Kit Version 7.0 and Oracle 12.1.0.1 client installed on the Windows 64-bit or 32-bit desktop where the install package is staged and run from.

Creating the Database

For an initial install or demo install you will create an empty database on the Unix or Windows database server on which you operate the production instance of Oracle Public Sector Revenue Management.

-
1. Create the database using the Database Configuration Assistant (DBCA). Refer to the article *Master Note: Overview of Database Configuration Assistant (DBCA) (Doc ID 1488770.1)* on My Oracle Support for more information. Make sure to set the character set for the database as AL32UTF8.

Note: While prior versions of the product have included the cdxdba programs (cdxdba.plx for UNIX or CDXDBA.exe for Windows), this is no longer supported going forward, and the Database Configuration Assistant should be used instead.

2. Enable Mandatory Software Options:

- Oracle Spatial OR Oracle Locator
- Oracle Text

3. Run the following SQL to make sure it is successful:

```
SELECT COMP_NAME,STATUS FROM DBA_REGISTRY WHERE COMP_NAME IN ('Spatial','Oracle Text');
```

4. Create default tablespace CISTS_01 and required users and roles as follows.

```
CREATE TABLESPACE CISTS_01 LOGGING DATAFILE '/<br><db_file_location>/oradata/<DB_NAME>/cists01.dbf' SIZE 1024M<br>REUSE AUTOEXTEND ON NEXT 8192K MAXSIZE UNLIMITED EXTENT<br>MANAGEMENT LOCAL UNIFORM SIZE 1M;
```

5. Create required roles as follows:

```
CREATE ROLE CIS_USER;<br>CREATE ROLE CIS_READ;
```

6. Create users as follows:

```
CREATE USER CISADM IDENTIFIED BY CISADM DEFAULT TABLESPACE<br>CISTS_01 TEMPORARY TABLESPACE TEMP PROFILE DEFAULT;<br>GRANT UNLIMITED TABLESPACE TO CISADM WITH ADMIN OPTION;<br>GRANT SELECT ANY TABLE TO CISADM;<br>GRANT CREATE DATABASE LINK TO CISADM;<br>GRANT CONNECT TO CISADM;<br>GRANT RESOURCE TO CISADM;<br>GRANT DBA TO CISADM WITH ADMIN OPTION;<br>GRANT CREATE ANY SYNONYM TO CISADM;<br>GRANT SELECT ANY DICTIONARY TO CISADM;
```

```
CREATE USER CISUSER PROFILE DEFAULT IDENTIFIED BY CISUSER<br>DEFAULT TABLESPACE CISTS_01 TEMPORARY TABLESPACE TEMP;<br>GRANT SELECT ANY TABLE TO CISUSER;<br>GRANT CIS_USER TO CISUSER;<br>GRANT CIS_READ TO CISUSER;<br>GRANT CONNECT TO CISUSER;
```

```
CREATE USER CISOPR PROFILE DEFAULT IDENTIFIED BY OPRPLUS DEFAULT<br>TABLESPACE CISTS_01 TEMPORARY TABLESPACE TEMP;<br>GRANT CONNECT,RESOURCE,EXP_FULL_DATABASE TO CISOPR;
```

```
CREATE USER CISREAD IDENTIFIED BY CISREAD DEFAULT TABLESPACE<br>CISTS_01 TEMPORARY TABLESPACE TEMP;<br>GRANT SELECT ANY TABLE TO CISREAD;<br>GRANT CIS_READ TO CISREAD;<br>GRANT CONNECT TO CISREAD;
```

-
7. Review the Storage.xml file under the FW43010\Install-Upgrade folder prior to an initial install or upgrade install. This file allocates all base tables and indexes to the default tablespace CISTS_01 and the required users and roles. Information in this file is used by ORADBI while installing the Oracle Public Sector Revenue Management database objects. Refer to Updating Storage.xml for more details on updating this file.

Note:

- You will need to review the Storage.xml file, prior to an initial install, to update the default values to custom values (for example, TableSpace Name). OraDBI can be executed by a non-schema owner in order to upgrade the database. The Initial Install still needs to be done by the schema owner.
- The installation package contains two main subdirectories, Oracle Utilities Application Framework and Oracle Public Sector Revenue Management.
 - <installer directory>\Install-upgrade\FW
 - <installer directory>\Install-upgrade\PSRM

Each of the above directories also contains a storage.xml file. Once the storage.xml is updated in the main directory as per your requirements, make sure to copy this file to these three subdirectories.

If you decide to allocate some tables or indexes outside of the default tablespace, change the tablespace name from the default value to a custom value in the Storage.xml file.

For instance, if you decide to allocate table CI_ACCT in a tablespace MyTablespace, change Storage.xml as shown:

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

For optimum storage allocation, database administrators should create multiple tablespaces with extents sized to store different types of tables/indexes. They can then edit the storage.xml file before the 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, secure file options, Advanced Compression, and parallel information are used only for new objects. Therefore, for initial installs, information for each object should be reviewed. Be careful while editing this 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, please ensure that the Database Management System software is installed according to your site standards and the installation guide provided by the database vendor. Also please make sure that you have necessary licenses to use some of the advanced database features such as Advanced Compression.

Installing the Oracle Database

This section outlines the process for installing the Oracle Database for Oracle Public Sector Revenue Management. It contains the following topics:

- **Copying and Decompressing Install Media**
- **Database Creation**
- **Populating Language Data**

Copying and Decompressing Install Media

Follow these steps before you begin installing the database:

1. Download the Oracle Public Sector Revenue Management Database install media from the Oracle Software Delivery Cloud.
2. Unzip the Oracle Public Sector Revenue Management file to a temporary folder. This file contains FW4.3.0.1.0 and PSRM 2.5.0.0.0 files with all the database components required to install the Oracle Public Sector Revenue Management database.

Database Creation

Note: You must have Oracle Database Server 12.1.0.1 installed on your machine in order to create the database. This step is not required if you are performing a database upgrade from a previous version of the application.

You can create a database using the database creation tool (cdxdba.plx for UNIX or CDXDBA.exe for Windows) that is packaged with product. You can create the database using DBCA as well, in which case you do not need to run the database creation scripts provided by the application.

The UNIX and Windows database creation utilities create an empty database with AL32UTF8 character set and at least one tablespace for storing the application objects before running the installation. The default name of the application tablespace is CISTS_01.

- **Creating the Database on Unix**
- **Creating the Database on Windows**

Creating the Database on Unix

Create the database using the Database Configuration Assistant (DBCA).

Refer to the article *Master Note: Overview of Database Configuration Assistant (DBCA)* (Doc ID 1488770.1) on My Oracle Support for more information. Make sure to set character set for database as AL32UTF8.

Refer to *Creating the Database* for steps to create the database.

Creating the Database on Windows

You should be logged in as a user who is a member of the local ORA_DBA group on that server. The ORA_DBA group should have “administrator” privileges assigned to it.

Refer to the article *Master Note: Overview of Database Configuration Assistant (DBCA)* (Doc ID 1488770.1) on My Oracle Support for more information. Make sure to set character set for database as AL32UTF8.

Refer to *Creating the Database* for steps to create the database.

Installing the CISADM Schema

You will install the Oracle Utilities Application Framework V4.3.0.1.0 prior to Oracle Public Sector Revenue Management V2.5.0.0.0. The files for Oracle Utilities Application Framework installation are located in the FW\V4.3.0.1.0 folder. The installation process will prompt you for the following information:

- The target database name in which the product is to be installed.
- A database user that will own the application schema (for example, CISADM).
- 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.
- A database user with read-only privileges to the objects in the application schema. (for example, CISREAD).
- A database role that has read-write (select/update/insert/delete) privileges to the objects in the application schema. The application will access the database as this user. (for example, CIS_USER).
- A database role with read-only privileges to the objects in the application schema. (for example, CIS_READ).
- Location for jar files. (The Jar files are bundled with the database package.)
- Java Home (For example, C:\Java\jdk1.7.0_21).

Installing the Oracle Utilities Application Framework Database Component

To install the schema for Oracle Utilities Application Framework 4.3.0.1.0, follow these steps:

1. Run OraDBI.exe from the ..\FW\V4.3.0.1.0\Install-Upgrade directory. Please run the utility from the command prompt.

Note: Be sure to run OraDBI.exe from a Window 32-bit or 64-bit desktop that has the Oracle 12.1.0.1 32-bit client and Java Development Kit Version 7.0. The database should already be listed in the local file tnsnames.ora.

The utility prompts you to enter values for the following parameters:

- Name of the target database:<DB NAME>
- Name of the owner of the Database Schema: <CISADM>
- Password for the user (in silent mode)
- Location of Java Home: <..\jdk1.7.0_21>
- Location of UGBU Jar files: <..\FW\V4.3.0.1.0\jarfiles>
- 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>
- Name of the owner of the Database Schema: <CISADM>
- Password for the user (in silent mode)

Installing Prerequisite Database Single-Fixes

Before installing Oracle Public Sector Revenue Management, you must install Oracle Utilities Framework Prerequisite DB Hot Fixes.

Note: While prior versions of the product have included the `cdxpatch.exe` programs for applying DB Hot Fixes, this is no longer supported going forward, and the `ouafDatabasePatch.cmd` or `ouafDatabasePatch.sh` should be used instead.

To install the Framework Prerequisite DB Hot Fixes, follow these steps:

Applying Hot Fixes from a Windows machine:

Note: You must have Java 7 JDK installed on the machine to use the command. Be sure to install the JDK that is supported for your platform.

1. Copy the `FW\4.3.0.1.0-HotFixes\db_patch_standalone.jar` to a directory on Windows, under `c:\dbpatch_tools` and extract the `db_patch_standalone.jar` using below command:

```
cd c:\dbpatch_tools
jar xvf db_patch_standalone.jar
```

2. SET `TOOLSBIN=c:\dbpatch_tools\bin`
3. Apply prerequisite Framework DB single fixes by running the `ouafDatabasePatch.cmd` utility from the `..\FW\4.3.0.1.0\4.3.0.1.0-HotFixes` directory. The utility will prompt you for the value of the following parameters:
 - Enter the target database type (O/M/D) [O]:
 - Enter the username that owns the schema: <CISADM>
 - Enter the password for the `cisadm` user: <CISADM Password>
 - Enter the name of the Oracle Database Connection String:
<DB_Server:DBPORT:ORACLE_SID>

Applying Hotfixes from a Unix Standalone server:

Note: You must have Java 7 JDK installed on the machine to use the command. Be sure to install the JDK that is supported for your platform.

1. Copy the `..\FW\4.3.0.1.0\4.3.0.1.0-HotFixes\db_patch_standalone.jar` to a directory on Unix server, under `/tmp/dbpatch_tools` and extract the `db_patch_standalone.jar` using below command:

```
cd /tmp/dbpatch_tools
jar xvf db_patch_standalone.jar
```

2. export `TOOLSBIN=/tmp/dbpatch_tools/bin`
3. Apply prerequisite Framework DB single fixes by running the `ouafDatabasePatch.sh` utility from the `..\FW\4.3.0.1.0\4.3.0.1.0-HotFixes` directory. The utility will prompt you for the value of the following parameters:
 - Enter the target database type (O/M/D) [O]:
 - Enter the username that owns the schema: <CISADM>
 - Enter the password for the `cisadm` user: <CISADM Password>
 - Enter the name of the Oracle Database Connection String:
<DB_Server:DBPORT:ORACLE_SID>

Installing Oracle Public Sector Revenue Management Database Component

To install the database component of Oracle Public Sector Revenue Management, follow these steps.

1. Run ORADBI.exe from the ..\Install-upgrade\PSRM\V2.5.0.0.0\Install-Upgrade directory. The utility prompts you to enter values for the following parameters:
 - Name of the target database: <DB NAME>
 - Name of the owner of the Database Schema: <CISADM>
 - Password for the user (in silent mode)
 - Location of Java Home: <..\jdk1.7.0_21>
 - Location of UGBU Jar files: <..\ Install-upgrade\jarfiles>
 - 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>
 - Name of the owner of the Database Schema: <CISADM>
 - Password for the user (in silent mode)
 - Password for the user (in silent mode)

After setting up roles and users, the utility continues upgrading schema and system data definitions. If an error occurs while executing an SQL or another utility, it logs and displays the error message and allows you to re-execute the current step.

Note: You can perform install/upgrade of both the Oracle Utilities Application Framework and Oracle Public Sector Revenue Management in one execution.

- In the ..\Install-upgrade\ folder, create a copy of Upgrade_Database.bat and update the new copy with the correct parameter values. When executed at the command prompt, you will be prompted to enter a password four times (one for each install/upgrade).

OraDBI performs the following tasks:

- Interacts with the user to collect information about the name of Oracle account to install or upgrade, password of this account, the name of oracle account that will own the application schema (for example, CISADM), 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).
- Verifies whether tablespace names already exist in Storage.xml file (if not, the process will abort).
- Installs the schema, installs the system data, and configures security.
- Maintains install log tables in the database.
- Updates release ID when the install 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 necessary 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

- Enable the USER_LOCK Package
- Generating Database Statistics
- Refer to **Populating Language Data** on page 2-9 if the application is to run in a language other than English.

Enabling the USER_LOCK Package

For inbound web services (IWS) 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 using the following steps.

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

```
@?/rdbms/admin/userlock.sql
```
3. Grant permission by running the 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.

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 by using the DBMS_STATS package.

Security Configuration

The configuration utility and scripts are located in the Security folder.

Execute the OraGenSec.exe utility.

The script will prompt you for parameter values:

```
Enter the application read-only user or Schema Owner in the
database (e.g CISADM or CISREAD): CISADM

Enter the password for the user: CISADM

Enter the name of the Oracle Database: database name

Enter a comma-separated list of Oracle users in which synonyms need
to be created (e.g. cisuser,cisread): cisuser,cisread

Select the following options: A
(A/a): Generate security for All objects in the Database (e.g. A or
a for all objects)
(O/o): Generate security for specific Objects inputted in this
terminal (e.g. CI_ACCT,CI_ACCT_K)
Generate security for specific objects generated from an input File
(e.g. Security_Objects.txt)
```

The utility configures security for the application owner schema objects.

Note: If you run Oragensec in Interactive Mode (without using the command line options), it will by default grant permissions to CIS_USER and CIS_READ Role. If you prefer to use site-specific roles then execute Oragensec after providing command line options.

For example:

```
(Oragensec.exe -d [Schema Owner],[Schema Owner's  
Password],[Database Name] -u [Read/Write User],[Read Only User] -r  
[Read Only Role],[Read Write Role] -a A -l [Logfile Name])
```

Note: Database vault must be disabled before running

Post-Install

Configure the security for the database. Refer to **Security Configuration** on page 2-8.

Refer to the **Populating Language Data** on page 2-9 if the application is to be run in a language other than English.

Populating Language Data

At this point, the Oracle Public Sector Revenue Management database is ready for use. 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 user documentation section “Defining Background Processes.”

You can also install the language specific data packages (if available) into the database. Please contact your Oracle representative to receive information on these packages

Chapter 3

Database Design

This section 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. This section includes:

- **Database Object Standard**
- **Column Data Type and Constraints**
- **Standard Columns**

Database Object Standard

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. See **Indexes** on page 3-3 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 (LANGAGUE_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
- XT206C2
- 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, in Framework it is F1. Other examples are M1, C1, 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 M1,C1,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 M1, C1, 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.

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

Referential integrity is enforced by the application. In the database do not define FK constraints. Indexes are created on most of Foreign Key columns to increase performance.

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

The following section outlines the general implementation guidelines for the database components, including:

- **Configuration Guidelines**
- **Oracle Database Implementation Guidelines**

Configuration Guidelines

This section includes 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. This section includes:

- **Index**
- **Table Partitioning Recommendations**
- **Transparent Data Encryption Recommendations**
- **Data Compression Recommendations**
- **Database Vault Recommendations**
- **Oracle Fuzzy Search Support**
- **Information Lifecycle Management (ILM) and Data Archiving Support**
- **Storage Recommendations**
- **Database Configuration Recommendations**
- **Database Syntax**
- **Database Initialization Parameters**

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.

In an Oracle Utilities Application Framework environment, always make sure that the optimization parameters are set as follows:

```
optimizer_index_cost_adj=1
optimizer_index_caching=100
```

This will ensure that the optimizer gives a higher priority to index scans.

Note: If the implementation creates a CM index on table-columns for which 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:

- For high volume tables, keep the current table partition uncompressed. All of the older partitions will be compressed based on QUERY HIGH compression.
- For high volume tables with CLOBs ensure to always keep CLOBs in securefile and medium compressed. Also keep the current table partition uncompressed. All of the older partitions will be compressed based on QUERY HIGH compression.
- 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.

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, please refer to the chapter **Information Lifecycle Management and Data Archiving** in this guide 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 ensure that the “COMPRESS” flag is turned on by setting it to “Y” in Storage.xml. See Database Syntax for more information on SecureFiles.

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.

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Database Syntax

SecureFile

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

CREATE TABLE <Table_Name>
  ( COLUMN1 ... ,
    COLUMN2 (CLOB)
    CONSTRAINT <> 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=30000
db_writer_processes=10
optimizer_index_cost_adj=1
optimizer_index_caching=100
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 batch job BATCH C1- TRMDD:

```
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
/
```


Chapter 5

The Oracle Conversion Tool

This section explains how to set up the application database configuration in Oracle to run the Conversion Tool Kit, including:

- **Database Configuration**
- **Script Installation**
- **Preparing the Production Database**
- **Preparing the Staging Database**

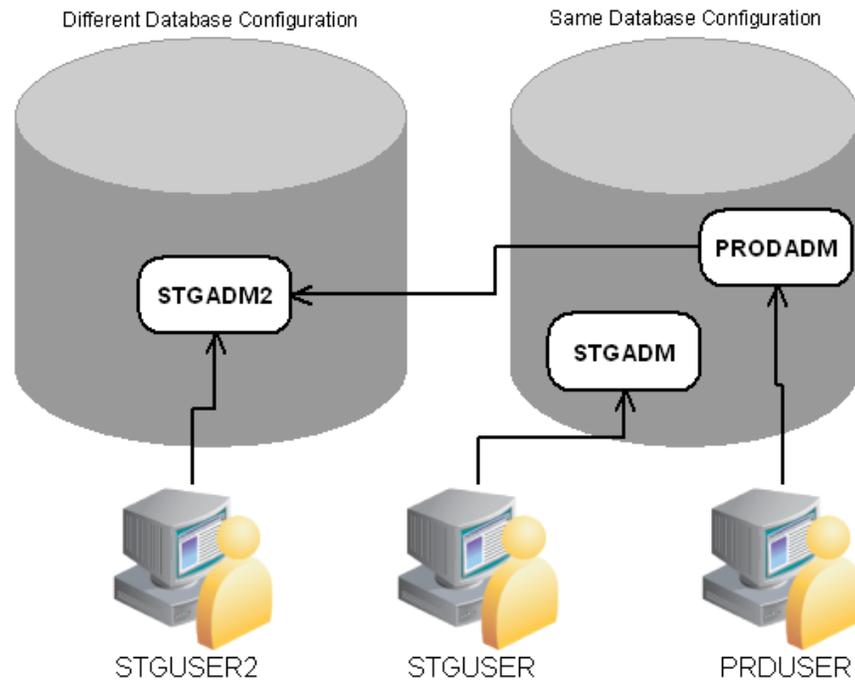
Refer to the section "The Conversion Process" in the Oracle Public Sector Revenue Management *Administration Guide* and the online help for further information.

Note: 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.

Script Installation

With Oracle Public Sector Revenue Management v2.3.1 onwards, a new Conversion Setup Utility, ConvSetup.exe, is provided to set up conversion schemas.

1. Install the Oracle client V12c or later on Windows desktop and configure SQLNet to connect to the target database.

The Conversion folder contains the conversion setup utility: ConvSetup.exe and Conversion.bat.

This section of this 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

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

Run ConvSetup.exe from under the Conversion folder. The script prompts you for the following values:

- Database Platform: Oracle (O)
- Database connection info
- Database Name
- System Password
- Production Schema Name
- Staging Schema Name
- Read-Write user for Staging Schema.

ConvSetup.exe performs following tasks:

- Creates cx* views on the master/transaction tables in the production database.
- Grants the privileges on the master/transaction tables in the production database to the staging owner.
- Drops control tables and creates views on production control tables in the staging database.
- Grants privileges on the control tables to the staging owner.
- Grants privileges on the cx* views to the staging application user.
- Creates generated key tables.
- Creates generated table primary key and secondary indexes.

In addition to above tasks ConvSetup.exe also generates the following SQL scripts:

- create_cxviews.sql
- create_ctlviews.sql
- createck_tbls.sql
- create_grants.sql
- createck_pkix.sql
- createck_secix.sql

By default the conversion.bat updates all changes to the staging schema. If you want to generate only the above sql scripts and not apply changes to staging schema then update conversion.bat by removing “-u”. The sql scripts can be applied to the staging schema later. The sqls scripts need to be executed in the same order as described above using SQL*PLus.

Once the staging schema has been set up, generate the security for the staging user using:

```
oragensec -d stgadm,schemapassword,database_name -r  
stg_read,stg_user -u stguser
```

Appendix A

Information Lifecycle Management and Data Archiving

Oracle Public Sector Revenue Management provides support for Data Archiving based on Information Lifecycle Management (ILM).

ILM is methodology designed 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 goes the same data becomes older and older. Older data starts becoming an overhead to the overall application not only in terms of storage but also in terms of performance. This older data can be compressed using advanced compression techniques like Advanced Compression and Hybrid columnar compression, and can be put into slower and cheaper storage media and can be possibly removed from the system to make an overall savings in terms of cost and performance.

This chapter includes:

- [ILM Implementation Overview](#)
- [ILM Implementation Components](#)
- [ILM Database Administrator's Tasks](#)

ILM Implementation Overview

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

The approach followed for most maintenance objects that support ILM is the concept that the age of the data is not the only criterion used to determine the lifecycle of a record. There may be business rules that dictate that some "old" records are still valid and should not be archived yet.

The Oracle Utilities Application Framework includes the combination of an ILM date and an archive switch to indicate if the record can be archived or not. The switch is set using processes that periodically review "old" data and call an algorithm to assess whether or not the record can be archived.

Database Administrators can then review older partitions and review the number of records that have the archive switch set to Y. If this is set on all records, the DBA is safe to take desired steps for that partition. If there are some records that are still not eligible to be archived, the DBA may choose to move those records to a different partition to free up the partition for desired steps.

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 field is the date used for ILM. It is defaulted to an appropriate date (typically the system date) when a new record is inserted. This column should be rarely updated. This will make sure that during the online/batch processing there is no extra overhead of moving these records from one partition to another. In circumstances where the record is not eligible for archiving, an algorithm (or a DBA) can update the ILM Date to the current system date (or another appropriate "newer" date) to remove it from a partition that is ready to be archived.
 - 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.
- Referential Integrity Constraints- To use ILM within the database, database level foreign key constraints must be added to child tables of ILM enabled MOs
- Partitioning - Partitioning is mandatory for ILM implementation. This provides segregation of data into multiple table partitions which provides better management of the data over its lifecycle.

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

The following steps provide a high-level overview of the steps that need to be performed to implement ILM on enabled MOs.

1. Backup the existing tables, 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'.

5. Enable logging option.

6. Create Primary index.
7. Create Primary key 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 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. Please note that child table should be partitioned using reference partitioning of the parent table's partitioning key.
10. Drop the backup tables after verifying the newly created partitioned tables.

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 only if it differs from the general recommendation described above.

Each table's indexes are listed with a recommendation of whether the index should be built as a global or local index and whether the index should be partitioned. In addition to the base delivered indexes, each primary (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. In each addition, the recommendation of the initial load of the ILM_DT for existing records is noted.

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		

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
		XT039S6	TD_ENTRY_ID, ASSIGNED_TO, ENTRY_STATUS_FLG	Global		
		XT039S7	COMPLETE_USER_ID, COMPLETE_DTTM, TD_ENTRY_ID	Global		
		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		
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(Child table of CI_TD_LOG)	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

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
		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		
		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 (Child Table of 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_IN_ID)				RANGE (F1_SYNC_REQ_IN_ID)	F1_SYNC_REQ_IN.CRE_DTTM
		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		
		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 (Child Table of F1_SYNC_REQ_IN_EXCP)	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		

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_LOG_PARM (Child Table of F1_SYNC_REQ_IN_LOG)	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_STAT US_FLG, OUTMSG_TYPE_CD	Global		
		ILM_FT010S2	ILM_DT, ILM_ARC_SW, OUTMSG_ID	Local Partitioned		
F1_OUTMSG_ERRPAM	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		
		ILM_F1C474S2	ILM_DT, ILM_ARC_SW, F1_SVC_TASK_ID	Local Partitioned		
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 (Child Table of F1_SVC_TASK_LOG)	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_D TTM
		FT035P0	REV_ID	Global Partitioned		
		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		
		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 (Child Table of F1_OBJ_REV_LOG)	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.

Adjustment

Primary Table Name: CI_ADJ

Child Table Names:

- CI_ADJ_APREQ
- CI_ADJ_CALC_LN
 - CI_ADJ_CL_CHAR
- CI_ADJ_CHAR

Initial Load of ILM_DT: Set to the Creation Date (CRE_DT) on CI_ADJ table.

Approval Request

Primary Table Name: CI_APPR_REQ

Child Table Names:

- CI_APPR_REQ_CHAR
- CI_APPR_REQ_LOG
 - CI_APPR_REQ_LOG_PARM

Initial Load of ILM_DT: Set to the minimum Log Date/Time (LOG_DTTM) on CI_APPR_REQ_LOG table for a given APPR_REQ_ID.

Bill

Primary Table Name: CI_BILL

Child Table Names:

- CI_BILL_CHAR
- CI_BILL_EXCP
- CI_BILL_MSGS
 - CI_BILL_MSG_PRM
- CI_BILL_SA
- CI_BILL_ROUTING

Initial Load of ILM_DT: Set to the Creation Date/Time (CRE_DTTM) on CI_BILL table.

Bill Segment

Primary Table Name: CI_BSEG

Child Table Names:

- CI_BSEG_CALC
 - CI_BSEG_CALC_LN
 - CI_BSEG_CL_CHAR
- CI_BSEG_EXCP
- CI_BSEG_MSG
- CI_BSEG_READ
- CI_BSEG_SQ
- CI_BSEG_ITEM

Initial Load of ILM_DT: Set to the Creation Date/Time (CRE_DTTM) on CI_BSEG table.

Statement

Primary Table Name: CI_STM

Child Table Names:

- CI_STM_DTL

Initial Load of ILM_DT: Set to the Statement Date (STM_DT) on CI_STM table.

Off Cycle Bill Generator

Primary Table Name: C1_OFFCYC_BGEN

Child Table Names:

- C1_OFFCYC_BGEN_ADJ
- C1_OFFCYC_BGEN_BCHG
- C1_OFFCYC_BGEN_CHAR
- C1_OFFCYC_BGEN_LOG
 - C1_OFFCYC_BGEN_LOG_PARM
- C1_OFFCYC_BGEN_SA

Initial Load of ILM_DT: Set to the Status Update Date/Time (STATUS_UPD_DTTM) on C1_OFFCYC_BGEN table.

Billable Charge

Primary Table Name: CI_BILL_CHG

Child Table Names:

- CI_BCHG_READ
- CI_BCHG_SQ
- CI_B_CHG_LINE
 - CI_B_LN_CHAR

Initial Load of ILM_DT: Set to the Start Date (START_DT) on CI_BILL_CHG table.

Case

Primary Table Name: CI_CASE

Child Table Names:

- CI_CASE_CHAR
- CI_CASE_LOG
 - CI_CASE_LOG_PARM

Initial Load of ILM_DT: Set to the minimum Log Date/Time (LOG_DTTM) on CI_CASE_LOG table for a given CASE_ID.

Field Activity

Primary Table Name: CI_FA

Child Table Names:

- CI_FA_CHAR
- CI_FA_LOG
- CI_FA_REM
 - CI_FA_REM_EXC

-
- CI_FA_REM_EXP

- CI_FA_STEP

Initial Load of ILM_DT: Set to the Creation Date/Time (CRE_DTTM) on CI_FA table for a given FA_ID.

Meter Read

Primary Table Name: CI_MR

Child Table Names:

- CI_MR_CHAR
- CI_MR_REM
 - CI_MR_REM_EXCP
- CI_REG_READ

Initial Load of ILM_DT: Set to the Read Date/Time (READ_DTTM) on CI_MR table for a given MR_ID.

Enrollment (Order)

Primary Table Name: CI_ENRL

Child Table Names:

- CI_ENRL_ADDR
- CI_ENRL_FLD
- CI_ENRL_LOG
- CI_ENRL_PER_ID
- CI_ENRL_PER_NM
- CI_ENRL_PER_PHN

Initial Load of ILM_DT: Set to the Start Date (START_DT) on CI_ENRL table for a given ENRL_ID.

Payment Event

Primary Table Name: CI_PAY_EVENT

Child Table Names:

- CI_PAY_EVT_CHAR
- CI_PAY_EVT_EXCP
- CI_PAY_TNDR
 - CI_APAY_CLR_STG
 - CI_PAY_TNDR_CHAR
- CI_P EVT_DST_DTL

Initial Load of ILM_DT: Set to the Payment Date (PAY_DT) on CI_PAY_EVENT table.

Payment

Primary Table Name: CI_PAY

Child Table Names:

- CI_PAY_CHAR
- CI_PAY_EXCP

-
- CI_PAY_SEG

Initial Load of ILM_DT: Set to the Payment Date (PAY_DT) on CI_PAY_EVENT table.

Match Event

Primary Table Name: CI_MATCH_EVT

Child Table Names: N/A

Initial Load of ILM_DT: Set to the Creation Date (CREATE_DT) on CI_MATCH_EVT table.

Usage Request

Primary Table Name: C1_USAGE

Child Table Names:

- C1_USAGE_CHAR
- C1_USAGE_LOG
- C1_USAGE_LOG_PARM

Initial Set Load of ILM_DT: Set to the Creation Date/Time (CRE_DTTM) on C1_USAGE table.

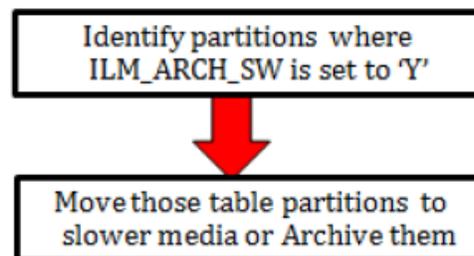
On-going Maintenance Phase

As mentioned in the overview, for each maintenance object that supports ILM, there are batch processes that periodically review "old" records and mark the ILM Archive switch to "Y".

Once the ILM fields are populated with their relevant values, the ILM facilities are then used within the database to implement storage savings, as per the following:

- 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.

The following figure illustrates the steps necessary for this phase:



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

- ILM Assistant Users Guide available at
<http://download.oracle.com/otn/other/ilm/ilma-users-guide.html>
- 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 in the current 11g database implementation can provide the following

- Setup ILM Lifecycle definition - Here you can define different lifecycle definitions for different MOs and say that after what period of time 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 that when data is moved from one partition to another it should be automatically compressed.
- Lifecycle Management - There is a tab called Lifecycle Management where the system admin will be alerted for when the partitions are eligible for archiving.

ILM Assistant can then be used with the ILM to make sure the records that have ILM_ARCH_SW = 'Y' can be moved to slower and slower disks and possibly get purged.



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

<http://www.oracle.com/webfolder/technetwork/tutorials/obe/db/11g/r2/prod/storage/ilm/ilm.htm?cid=4196&ssid=115606280996764>

Appendix B

Sample Statements and DDL for ILM Enabled Maintenance Objects

This section denotes a sample script of a maintenance object. Other maintenance object's implementations can follow similar pattern.

```
CREATE TABLE CI_TD_ENTRY
(
    TD_ENTRY_ID          CHAR(14 BYTE) NOT NULL ENABLE,
    BATCH_CD             CHAR(8 BYTE)  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 BYTE)  DEFAULT ' ' NOT NULL ENABLE,
    TD_TYPE_CD           CHAR(8 BYTE)  DEFAULT ' ' NOT NULL ENABLE,
    ROLE_ID              CHAR(10 BYTE) DEFAULT ' ' NOT NULL ENABLE,
    ENTRY_STATUS_FLG     CHAR(2 BYTE)  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 BYTE)  DEFAULT ' ' NOT NULL ENABLE,
    COMMENTS             VARCHAR2(254 BYTE) DEFAULT ' ' NOT NULL ENABLE,
    ASSIGNED_USER_ID    CHAR(8 BYTE)  DEFAULT ' ' NOT NULL ENABLE,
    TD_PRIORITY_FLG     CHAR(4 BYTE)  DEFAULT ' ' NOT NULL ENABLE,
    ILM_DT DATE DEFAULT SYSDATE,
    ILM_ARCH_SW         CHAR(1 BYTE)  DEFAULT 'N' NOT NULL ENABLE
)PARTITION BY RANGE (ILM_DT)
SUBPARTITION BY RANGE (TD_ENTRY_ID)
SUBPARTITION TEMPLATE
(
    SUBPARTITION SUB1 VALUES LESS THAN ( '124999999999' ),
    SUBPARTITION SUB2 VALUES LESS THAN ( '249999999999' ),
    SUBPARTITION SUB3 VALUES LESS THAN ( '374999999999' ),
    SUBPARTITION SUB4 VALUES LESS THAN ( '499999999999' ),
    SUBPARTITION SUB5 VALUES LESS THAN ( '624999999999' ),
    SUBPARTITION SUB6 VALUES LESS THAN ( '744999999999' ),
    SUBPARTITION SUB7 VALUES LESS THAN ( '874999999999' ),
    SUBPARTITION SUB8 VALUES LESS THAN ( MAXVALUE )
)
(PARTITION P2 VALUES LESS THAN(TO_DATE('01/06/2002 00:00:01','DD/MM/YYYY
HH24:MI:SS')),
 PARTITION P3 VALUES LESS THAN(TO_DATE('01/06/2003 00:00:01','DD/MM/YYYY
HH24:MI:SS')),
 PARTITION P4 VALUES LESS THAN(TO_DATE('01/06/2010 00:00:01','DD/MM/YYYY
HH24:MI:SS')),
 PARTITION P5 VALUES LESS THAN(TO_DATE('01/06/2012 00:00:01','DD/MM/YYYY
HH24:MI:SS')),
 PARTITION P6 VALUES LESS THAN(TO_DATE('01/12/2012 00:00:01','DD/MM/YYYY
HH24:MI:SS'))),
```

```

PARTITION P7 VALUES LESS THAN(TO_DATE('01/06/2013 00:00:01','DD/MM/YYYY
HH24:MI:SS')),
PARTITION P8 VALUES LESS THAN(TO_DATE('01/12/2013 00:00:01','DD/MM/YYYY
HH24:MI:SS')),
PARTITION P9 VALUES LESS THAN(TO_DATE('01/06/2014 00:00:01','DD/MM/YYYY
HH24:MI:SS')),
PARTITION P1 VALUES LESS THAN (MAXVALUE)
)
ENABLE ROW MOVEMENT
/

CREATE UNIQUE INDEX XT039P0 ON CI_TD_ENTRY
(
    TD_ENTRY_ID
)
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 ( '744999999999' ),
    PARTITION P7 VALUES LESS THAN ( '874999999999' ),
    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
)
/

CREATE INDEX XT039S3 ON CI_TD_ENTRY
(
    ENTRY_STATUS_FLG,
    ASSIGNED_TO
)
/

CREATE INDEX XT039S4 ON CI_TD_ENTRY
(
    ROLE_ID, TD_TYPE_CD, ENTRY_STATUS_FLG, TD_PRIORITY_FLG
)
/

CREATE INDEX XT039S5 ON CI_TD_ENTRY
(
    BATCH_CD,
    BATCH_NBR,
    ENTRY_STATUS_FLG
)
/

CREATE UNIQUE INDEX XT039S6 ON CI_TD_ENTRY
(
    TD_ENTRY_ID, ASSIGNED_TO, ENTRY_STATUS_FLG
)
/

CREATE UNIQUE INDEX XT039S7 ON CI_TD_ENTRY
(
    COMPLETE_USER_ID, COMPLETE_DTTM, TD_ENTRY_ID
)

```

```

/
CREATE UNIQUE INDEX XT039S8 ON CI_TD_ENTRY
(
    ILM_DT, ILM_ARCH_SW, TD_ENTRY_ID
)
/

CREATE TABLE CI_TD_ENTRY_CHA
(
    TD_ENTRY_ID    CHAR(14 BYTE) NOT NULL ENABLE,
    CHAR_TYPE_CD   CHAR(8 BYTE) NOT NULL ENABLE,
    SEQ_NUM        NUMBER(3,0) DEFAULT 0 NOT NULL ENABLE,
    CHAR_VAL       CHAR(16 BYTE) DEFAULT ' ' NOT NULL ENABLE,
    VERSION        NUMBER(5,0) DEFAULT 1 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,
    SRCH_CHAR_VAL  VARCHAR2(50 BYTE) DEFAULT ' ' NOT NULL ENABLE,
    CONSTRAINT CI_TD_ENTRY_CHA_FK FOREIGN KEY(TD_ENTRY_ID) REFERENCES
CI_TD_ENTRY)
PARTITION BY REFERENCE (CI_TD_ENTRY_CHA_FK)
ENABLE ROW MOVEMENT
/

CREATE UNIQUE INDEX XT701P0 ON CI_TD_ENTRY_CHA
(
    TD_ENTRY_ID, CHAR_TYPE_CD, SEQ_NUM
)
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 ( '744999999999' ),
    PARTITION P7 VALUES LESS THAN ( '874999999999' ),
    PARTITION P8 VALUES LESS THAN ( MAXVALUE )
)
/

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
)
/

CREATE TABLE CI_TD_DRLKEY
(
    TD_ENTRY_ID CHAR(14 BYTE) 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)
PARTITION BY REFERENCE (CI_TD_DRLKEY_FK)
ENABLE ROW MOVEMENT
/

```

```

CREATE UNIQUE INDEX XT037P0 ON CI_TD_DRLKEY
(
    TD_ENTRY_ID, SEQ_NUM
)
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 ( '744999999999' ),
    PARTITION P7 VALUES LESS THAN ( '874999999999' ),
    PARTITION P8 VALUES LESS THAN ( MAXVALUE )
)
/

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
)
/

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

CREATE UNIQUE INDEX XT721P0 ON CI_TD_LOG
(
    TD_ENTRY_ID, SEQ_NUM
)
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 ( '744999999999' ),
    PARTITION P7 VALUES LESS THAN ( '874999999999' ),
    PARTITION P8 VALUES LESS THAN ( MAXVALUE )
)
/

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
    )
/

CREATE TABLE CI_TD_MSG_PARM
(
    TD_ENTRY_ID CHAR(14 BYTE) NOT NULL ENABLE,
    SEQ_NUM NUMBER(3,0) NOT NULL ENABLE,
    MSG_PARM_VAL VARCHAR2(30 BYTE) 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)
PARTITION BY REFERENCE (CI_TD_MSG_PARM_FK)
ENABLE ROW MOVEMENT
/

CREATE UNIQUE INDEX XT040P0 ON CI_TD_MSG_PARM
(
    TD_ENTRY_ID, SEQ_NUM
)
/

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

CREATE TABLE CI_TD_SRTKEY
(
    TD_ENTRY_ID CHAR(14 BYTE) 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)
PARTITION BY REFERENCE (CI_TD_SRTKEY_FK)
ENABLE ROW MOVEMENT
/

CREATE UNIQUE INDEX XT041P0 ON CI_TD_SRTKEY
(
    TD_ENTRY_ID, SEQ_NUM
)
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 ( '744999999999' ),
    PARTITION P7 VALUES LESS THAN ( '874999999999' ),
    PARTITION P8 VALUES LESS THAN ( MAXVALUE )
)
/

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
)
/

```

```
CREATE TABLE CI_TD_ENTRY_K
(
  TD_ENTRY_ID CHAR(14 BYTE) NOT NULL ENABLE,
  ENV_ID      NUMBER(6,0) NOT NULL ENABLE,
  CONSTRAINT XT547P0 PRIMARY KEY (TD_ENTRY_ID, ENV_ID) ENABLE
)
/
```

Appendix C

Upgrades to the Oracle Public Sector Revenue Management Database

This section describes the database upgrades for the Oracle Public Sector Revenue Management database from v2.4.0.2.0 to v2.5.0.0.0. It highlights changes made to the administrative tables and how those changes should be applied to the data in order for a previous database to work with the v2.5.0.0.0 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.

The added functionality of v2.5.0.0.0 is not the scope of this documentation. The upgrade scripts do not turn on the newly added functionality by default. For new functionality, refer to the v2.5.0.0.0 Release Notes.

This section includes:

- **Upgrading from 2.4.0.2.0 to 2.5.0.0.0**
 - **Schema Changes for 2.5.0.0.0**
 - **New System Data for 2.5.0.0.0**
 - **De-supported System Data for 2.5.0.0.0**

Upgrading from 2.4.0.2.0 to 2.5.0.0.0

This section includes:

- **Schema Changes for 2.5.0.0.0**
- **New System Data for 2.5.0.0.0**
- **De-supported System Data for 2.5.0.0.0**

Schema Changes for 2.5.0.0.0

New Tables

None.

Dropped Tables

None.

Added Columns

None.

Column Format Change

Table	Column	From	To
CI_ADDRESS_LOG_PARM	MESSAGE_PARM	VARCHAR2 30	VARCHAR2 2000
CI_APPEAL_LOG_PARM	MESSAGE_PARM	VARCHAR2 30	VARCHAR2 2000
CI_ASSET_OWN_LOG_PARM	MESSAGE_PARM	VARCHAR2 30	VARCHAR2 2000
CI_AUDIT_CASE_LOG_PARM	MESSAGE_PARM	VARCHAR2 30	VARCHAR2 2000
CI_BANK_EVENT_LOG_PARM	MESSAGE_PARM	VARCHAR2 30	VARCHAR2 2000
CI_BANKRUPTCY_LOG_PARM	MESSAGE_PARM	VARCHAR2 30	VARCHAR2 2000
CI_DRCT_DR_MNDT_LOG_PARM	MESSAGE_PARM	VARCHAR2 30	VARCHAR2 2000
CI_ENTITY_CORR_CTRL_LOG_PARM	MESSAGE_PARM	VARCHAR2 30	VARCHAR2 2000
CI_FORM_CTRL_LOG_PARM	MESSAGE_PARM	VARCHAR2 30	VARCHAR2 2000
CI_OD_CTRL_LOG_PARM	MESSAGE_PARM	VARCHAR2 30	VARCHAR2 2000
CI_REFUND_CTRL_LOG_PARM	MESSAGE_PARM	VARCHAR2 30	VARCHAR2 2000
CI_REVIEW_LOG_PARM	MESSAGE_PARM	VARCHAR2 30	VARCHAR2 2000
CI_SUPPRESSION_LOG_PARM	MESSAGE_PARM	VARCHAR2 30	VARCHAR2 2000
CI_TAX_BILL_LOG_PARM	MESSAGE_PARM	VARCHAR2 30	VARCHAR2 2000
CI_VALTN_LOG_PARM	MESSAGE_PARM	VARCHAR2 30	VARCHAR2 2000

CI_ACCT_MSG_PRM	MSG_PARM_VAL	VARCHAR2 30 VARCHAR2 2000
CI_ADJ_LOG_PARM	MESSAGE_PARM	VARCHAR2 30 VARCHAR2 2000
CI_ADJ_STG_CTL_MSGP	MESSAGE_PARM	VARCHAR2 30 VARCHAR2 2000
CI_ADJ_STG_UP_MSGP	MESSAGE_PARM	VARCHAR2 30 VARCHAR2 2000
CI_AM_REQ_LOG_PARM	MESSAGE_PARM	VARCHAR2 30 VARCHAR2 2000
CI_APPR_REQ_LOG_PARM	MESSAGE_PARM	VARCHAR2 30 VARCHAR2 2000
CI_ASSET_LOG_PARM	MESSAGE_PARM	VARCHAR2 30 VARCHAR2 2000
CI_BCHG_UP_EXCP	MESSAGE_PARM1	VARCHAR2 30 VARCHAR2 2000
CI_BCHG_UP_EXCP	MESSAGE_PARM2	VARCHAR2 30 VARCHAR2 2000
CI_BCHG_UP_EXCP	MESSAGE_PARM3	VARCHAR2 30 VARCHAR2 2000
CI_BCHG_UP_EXCP	MESSAGE_PARM4	VARCHAR2 30 VARCHAR2 2000
CI_BCHG_UP_EXCP	MESSAGE_PARM5	VARCHAR2 30 VARCHAR2 2000
CI_BCHG_UP_EXCP	MESSAGE_PARM6	VARCHAR2 30 VARCHAR2 2000
CI_BCHG_UP_EXCP	MESSAGE_PARM7	VARCHAR2 30 VARCHAR2 2000
CI_BCHG_UP_EXCP	MESSAGE_PARM8	VARCHAR2 30 VARCHAR2 2000
CI_BCHG_UP_EXCP	MESSAGE_PARM9	VARCHAR2 30 VARCHAR2 2000
CI_BILL_EXCP	MESSAGE_PARM1	VARCHAR2 30 VARCHAR2 2000
CI_BILL_EXCP	MESSAGE_PARM2	VARCHAR2 30 VARCHAR2 2000
CI_BILL_EXCP	MESSAGE_PARM3	VARCHAR2 30 VARCHAR2 2000
CI_BILL_EXCP	MESSAGE_PARM4	VARCHAR2 30 VARCHAR2 2000
CI_BILL_EXCP	MESSAGE_PARM5	VARCHAR2 30 VARCHAR2 2000
CI_BILL_EXCP	MESSAGE_PARM6	VARCHAR2 30 VARCHAR2 2000
CI_BILL_EXCP	MESSAGE_PARM7	VARCHAR2 30 VARCHAR2 2000
CI_BILL_EXCP	MESSAGE_PARM8	VARCHAR2 30 VARCHAR2 2000
CI_BILL_EXCP	MESSAGE_PARM9	VARCHAR2 30 VARCHAR2 2000
CI_BILL_MSG_PARM	MSG_PARM_VAL	VARCHAR2 30 VARCHAR2 2000
CI_BSEG_EXCP	MESSAGE_PARM1	VARCHAR2 30 VARCHAR2 2000
CI_BSEG_EXCP	MESSAGE_PARM2	VARCHAR2 30 VARCHAR2 2000
CI_BSEG_EXCP	MESSAGE_PARM3	VARCHAR2 30 VARCHAR2 2000
CI_BSEG_EXCP	MESSAGE_PARM4	VARCHAR2 30 VARCHAR2 2000
CI_BSEG_EXCP	MESSAGE_PARM5	VARCHAR2 30 VARCHAR2 2000
CI_BSEG_EXCP	MESSAGE_PARM6	VARCHAR2 30 VARCHAR2 2000
CI_BSEG_EXCP	MESSAGE_PARM7	VARCHAR2 30 VARCHAR2 2000
CI_BSEG_EXCP	MESSAGE_PARM8	VARCHAR2 30 VARCHAR2 2000

CI_BSEG_EXCP	MESSAGE_PARM9	VARCHAR2 30 VARCHAR2 2000
CI_CASE_LOG_PARM	MESSAGE_PARM	VARCHAR2 30 VARCHAR2 2000
CI_COLL_CASE_LOG_PARM	MESSAGE_PARM	VARCHAR2 30 VARCHAR2 2000
CI_COLL_CASE_TYPE_LOG_PARM	MESSAGE_PARM	VARCHAR2 30 VARCHAR2 2000
CI_COP_EVT_EXP	MESSAGE_PARM	VARCHAR2 30 VARCHAR2 2000
CI_DV_TEST_EXCP	MESSAGE_PARM1	VARCHAR2 30 VARCHAR2 2000
CI_DV_TEST_EXCP	MESSAGE_PARM2	VARCHAR2 30 VARCHAR2 2000
CI_DV_TEST_EXCP	MESSAGE_PARM3	VARCHAR2 30 VARCHAR2 2000
CI_DV_TEST_EXCP	MESSAGE_PARM4	VARCHAR2 30 VARCHAR2 2000
CI_DV_TEST_EXCP	MESSAGE_PARM5	VARCHAR2 30 VARCHAR2 2000
CI_DV_TEST_EXCP	MESSAGE_PARM6	VARCHAR2 30 VARCHAR2 2000
CI_DV_TEST_EXCP	MESSAGE_PARM7	VARCHAR2 30 VARCHAR2 2000
CI_DV_TEST_EXCP	MESSAGE_PARM8	VARCHAR2 30 VARCHAR2 2000
CI_DV_TEST_EXCP	MESSAGE_PARM9	VARCHAR2 30 VARCHAR2 2000
CI_FA_REM_EXP	MESSAGE_PARM	VARCHAR2 30 VARCHAR2 2000
CI_FA_STGUP_EXC	MESSAGE_PARM1	VARCHAR2 30 VARCHAR2 2000
CI_FA_STGUP_EXC	MESSAGE_PARM2	VARCHAR2 30 VARCHAR2 2000
CI_FA_STGUP_EXC	MESSAGE_PARM3	VARCHAR2 30 VARCHAR2 2000
CI_FA_STGUP_EXC	MESSAGE_PARM4	VARCHAR2 30 VARCHAR2 2000
CI_FA_STGUP_EXC	MESSAGE_PARM5	VARCHAR2 30 VARCHAR2 2000
CI_FA_STGUP_EXC	MESSAGE_PARM6	VARCHAR2 30 VARCHAR2 2000
CI_FA_STGUP_EXC	MESSAGE_PARM7	VARCHAR2 30 VARCHAR2 2000
CI_FA_STGUP_EXC	MESSAGE_PARM8	VARCHAR2 30 VARCHAR2 2000
CI_FA_STGUP_EXC	MESSAGE_PARM9	VARCHAR2 30 VARCHAR2 2000
CI_FORM_BATCH_HDR_LOG_PARM	MESSAGE_PARM	VARCHAR2 30 VARCHAR2 2000
CI_FORM_TYPE_LOG_PARM	MESSAGE_PARM	VARCHAR2 30 VARCHAR2 2000
CI_FORM_UPLD_STG_LOG_PARM	MESSAGE_PARM	VARCHAR2 30 VARCHAR2 2000
CI_INTV_DS_EXC	MESSAGE_PARM1	VARCHAR2 30 VARCHAR2 2000
CI_INTV_DS_EXC	MESSAGE_PARM2	VARCHAR2 30 VARCHAR2 2000
CI_INTV_DS_EXC	MESSAGE_PARM3	VARCHAR2 30 VARCHAR2 2000
CI_INTV_DS_EXC	MESSAGE_PARM4	VARCHAR2 30 VARCHAR2 2000
CI_INTV_DS_EXC	MESSAGE_PARM5	VARCHAR2 30 VARCHAR2 2000

CI_INTV_DS_EXC	MESSAGE_PARM6	VARCHAR2 30 VARCHAR2 2000
CI_INTV_DS_EXC	MESSAGE_PARM7	VARCHAR2 30 VARCHAR2 2000
CI_INTV_DS_EXC	MESSAGE_PARM8	VARCHAR2 30 VARCHAR2 2000
CI_INTV_DS_EXC	MESSAGE_PARM9	VARCHAR2 30 VARCHAR2 2000
CI_MR_REM_EXCP	MESSAGE_PARM1	VARCHAR2 30 VARCHAR2 2000
CI_MR_REM_EXCP	MESSAGE_PARM2	VARCHAR2 30 VARCHAR2 2000
CI_MR_REM_EXCP	MESSAGE_PARM3	VARCHAR2 30 VARCHAR2 2000
CI_MR_REM_EXCP	MESSAGE_PARM4	VARCHAR2 30 VARCHAR2 2000
CI_MR_REM_EXCP	MESSAGE_PARM5	VARCHAR2 30 VARCHAR2 2000
CI_MR_REM_EXCP	MESSAGE_PARM6	VARCHAR2 30 VARCHAR2 2000
CI_MR_REM_EXCP	MESSAGE_PARM7	VARCHAR2 30 VARCHAR2 2000
CI_MR_REM_EXCP	MESSAGE_PARM8	VARCHAR2 30 VARCHAR2 2000
CI_MR_REM_EXCP	MESSAGE_PARM9	VARCHAR2 30 VARCHAR2 2000
CI_MR_STGUP_EXC	MESSAGE_PARM1	VARCHAR2 30 VARCHAR2 2000
CI_MR_STGUP_EXC	MESSAGE_PARM2	VARCHAR2 30 VARCHAR2 2000
CI_MR_STGUP_EXC	MESSAGE_PARM3	VARCHAR2 30 VARCHAR2 2000
CI_MR_STGUP_EXC	MESSAGE_PARM4	VARCHAR2 30 VARCHAR2 2000
CI_MR_STGUP_EXC	MESSAGE_PARM5	VARCHAR2 30 VARCHAR2 2000
CI_MR_STGUP_EXC	MESSAGE_PARM6	VARCHAR2 30 VARCHAR2 2000
CI_MR_STGUP_EXC	MESSAGE_PARM7	VARCHAR2 30 VARCHAR2 2000
CI_MR_STGUP_EXC	MESSAGE_PARM8	VARCHAR2 30 VARCHAR2 2000
CI_MR_STGUP_EXC	MESSAGE_PARM9	VARCHAR2 30 VARCHAR2 2000
CI_OD_PROC_LOGPARM	MESSAGE_PARM	VARCHAR2 30 VARCHAR2 2000
CI_OP_PROC_LOG_PARM	MESSAGE_PARM	VARCHAR2 30 VARCHAR2 2000
CI_OP_PROC_TYPE_LOG_PARM	MESSAGE_PARM	VARCHAR2 30 VARCHAR2 2000
CI_PAY_EVT_EXCP	MESSAGE_PARM1	VARCHAR2 30 VARCHAR2 2000
CI_PAY_EVT_EXCP	MESSAGE_PARM2	VARCHAR2 30 VARCHAR2 2000
CI_PAY_EVT_EXCP	MESSAGE_PARM3	VARCHAR2 30 VARCHAR2 2000
CI_PAY_EVT_EXCP	MESSAGE_PARM4	VARCHAR2 30 VARCHAR2 2000
CI_PAY_EVT_EXCP	MESSAGE_PARM5	VARCHAR2 30 VARCHAR2 2000
CI_PAY_EVT_EXCP	MESSAGE_PARM6	VARCHAR2 30 VARCHAR2 2000
CI_PAY_EVT_EXCP	MESSAGE_PARM7	VARCHAR2 30 VARCHAR2 2000
CI_PAY_EVT_EXCP	MESSAGE_PARM8	VARCHAR2 30 VARCHAR2 2000

CI_PAY_EVT_EXCP	MESSAGE_PARM9	VARCHAR2 30	VARCHAR2 2000
CI_PAY_EXCP	MESSAGE_PARM1	VARCHAR2 30	VARCHAR2 2000
CI_PAY_EXCP	MESSAGE_PARM2	VARCHAR2 30	VARCHAR2 2000
CI_PAY_EXCP	MESSAGE_PARM3	VARCHAR2 30	VARCHAR2 2000
CI_PAY_EXCP	MESSAGE_PARM4	VARCHAR2 30	VARCHAR2 2000
CI_PAY_EXCP	MESSAGE_PARM5	VARCHAR2 30	VARCHAR2 2000
CI_PAY_EXCP	MESSAGE_PARM6	VARCHAR2 30	VARCHAR2 2000
CI_PAY_EXCP	MESSAGE_PARM7	VARCHAR2 30	VARCHAR2 2000
CI_PAY_EXCP	MESSAGE_PARM8	VARCHAR2 30	VARCHAR2 2000
CI_PAY_EXCP	MESSAGE_PARM9	VARCHAR2 30	VARCHAR2 2000
CI_PL_CTRL_LOG_PARM	MESSAGE_PARM	VARCHAR2 30	VARCHAR2 2000
CI_PROC_FLOW_LOG_PARM	MESSAGE_PARM	VARCHAR2 30	VARCHAR2 2000
CI_REG_DS_EXP	MESSAGE_PARM	VARCHAR2 30	VARCHAR2 2000
CI_REG_FORM_EXCP_MSG_PARM	MESSAGE_PARM	VARCHAR2 30	VARCHAR2 2000
CI_REG_FORM_LOG_PARM	MESSAGE_PARM	VARCHAR2 30	VARCHAR2 2000
CI_TAX_FORM_EXCP_MSG_PARM	MESSAGE_PARM	VARCHAR2 30	VARCHAR2 2000
CI_TAX_FORM_LOG_PARM	MESSAGE_PARM	VARCHAR2 30	VARCHAR2 2000
CI_TAX_ROLE_LOG_PARM	MESSAGE_PARM	VARCHAR2 30	VARCHAR2 2000
CI_TNDR_ST_EXCP	MESSAGE_PARM1	VARCHAR2 30	VARCHAR2 2000
CI_TNDR_ST_EXCP	MESSAGE_PARM2	VARCHAR2 30	VARCHAR2 2000
CI_TNDR_ST_EXCP	MESSAGE_PARM3	VARCHAR2 30	VARCHAR2 2000
CI_TNDR_ST_EXCP	MESSAGE_PARM4	VARCHAR2 30	VARCHAR2 2000
CI_TNDR_ST_EXCP	MESSAGE_PARM5	VARCHAR2 30	VARCHAR2 2000
CI_TNDR_ST_EXCP	MESSAGE_PARM6	VARCHAR2 30	VARCHAR2 2000
CI_TNDR_ST_EXCP	MESSAGE_PARM7	VARCHAR2 30	VARCHAR2 2000
CI_TNDR_ST_EXCP	MESSAGE_PARM8	VARCHAR2 30	VARCHAR2 2000
CI_TNDR_ST_EXCP	MESSAGE_PARM9	VARCHAR2 30	VARCHAR2 2000
CI_TOU_DS_EXP	MESSAGE_PARM	VARCHAR2 30	VARCHAR2 2000
CI_WAIVER_LOG_PARM	MESSAGE_PARM	VARCHAR2 30	VARCHAR2 2000
CI_WAIVER_TYPE_LOG_PARM	MESSAGE_PARM	VARCHAR2 30	VARCHAR2 2000

New System Data for 2.5.0.0.0

Inbound Web Services

Web Service Name	Description
TAddressMaintenance	Self Service - Taxpayer AddressMaintenance
TEnrollmentServiceRequest	Self Service - Enrollment Service Request
TGetConfirmationInformation	Self Service - Get Confirmation Info
TGetEnrollmentSummary	Self Service - Get Enrollment Summary
TGetFilingHistory	Self Service - Get Filing History
TGetPaymentHistory	Self Service - Get Payment History
TGetRefundStatus	Self Service - Get Refund Status
TGetServiceRequestHistory	Self Service - Get Service Request History
TGetTaxAccountsAlert	Self Service - Get Tax Account Alerts
TGetTaxAccountSummary	Self Service - Get Tax Account Summary
TGetTaxpayerContactInformation	Self Service - Get Taxpayer Contact Info
TGetTaxpayerCorrespondenceInformation	Self Service - Get Taxpayer Address Info
TGetTaxpayerSummary	Self Service - Get Taxpayer Summary
TGetUserEnrollment	Self Service - Get User Enrollment
TOneTimePayment	Self Service - One Time Payment
TPrepareExtPaymentData	Self Service - Validate & Prepare Extra Info
TProcessExtPayReportRecord	Self Service - Process Payment Record Info
TProcessRegistrationForm	Self Service - Process Registration Form
TProcessTaxForm	Self Service - Process Tax Form
TRefreshFormLookup	Self Service - Refresh Form Lookup
TRetrieveActiveFormTypes	Self Service - Retrieve Active Form Types
TRetrieveFormTypeDefinitions	Self Service - Retrieve Form Type Definitions
TRetrievePaymentsDue	Self Service - Retrieve Payments Due
TTaxpayerIdentification	Self Service - Taxpayer Identification
TTaxpayerServiceRequest	Self Service - Taxpayer Service Request
TUploadSupportingDocument	Self Service - Upload File

Lookup

Field Name	Field Value	Description
REF_CONST_OWNER	C1	Base

De-supported System Data for 2.5.0.0.0

Algorithm Types

Algorithm Type	Description
SYCR-AS	Account Staging Sync Criteria
SYPR-BC	Batch Control Sync Processing
CUPR-PC	Person Identifier Substitution

Algorithm Parameters

Algorithm Type	Seq No	Param Req Switch	Label
SYPR-PC	10	Y	Person Identifier Type
SYPR-PC	20	Y	Substitution Characters (must conform to the identifier type format)

Application Services

Application Service	Description
CILXNDNP	XAI Download Maintenance
CILYASTP	Account Staging
CILYDBPP	DB Process
CILYDFQP	Difference Query
CILYDPIP	DB Instruction
CILYROBP	Root Object

Lookup Field

Field Name	Custom Switch	Description
DB_ROLE_FLG	N	Database Role

Lookup

Field Name	Field Value	Description
ALG_ENTITY_FLG	ARCD	DB Process Instruction - Archive Copy Data
ALG_ENTITY_FLG	ARCR	DB Process Instruction - Archive Criteria
ALG_ENTITY_FLG	ARPR	DB Process Instruction - Archive Processing
ALG_ENTITY_FLG	COCR	DB Process Instruction - Compare Criteria
ALG_ENTITY_FLG	PRCR	DB Process Instruction - Purge Criteria
ALG_ENTITY_FLG	PRPR	DB Process Instruction - Purge Processing
ALG_ENTITY_FLG	SYCR	DB Process Instruction - Sync Criteria
DB_ROLE_FLG	ARCH	Archive Target
DB_ROLE_FLG	ATRG	Apply Target
DB_ROLE_FLG	CSRC	Compare Source
DB_ROLE_FLG	SSRC	Synch Source
DB_ROLE_FLG	STRG	Synch Target

Maintenance Object

Maintenance Object	Description
ACCT STG	Config Lab Account Staging

Menu

Menu Name	Description
CI_CONFIGLAB	Configuration Lab
CI_CONTEXTDBPROCESS	DB Process

Menu Line

Menu Line	Menu Name
CI04464619	CI_CONFIGLAB
CI06387704	CI_CONFIGLAB
CI19778129	CI_CONTEXTDBPROCESS
CI28060664	CI_CONFIGLAB
CI31615545	CI_CONTEXTBATCHCONTROL
CI69397108	CI_ADMINMENU

Menu Line	Menu Name
CI84382276	CI_IMPDATABASECONTROL
CI88692570	CI_CONTEXTDBPROCESS
CI90866906	CI_IMPDATABASECONTROL
CI96387500	CI_CONTEXTDBPROCESS
CI96779778	CI_CONTEXTDBPROCESS

Navigation Option

Navigation Option	Description
CI000000553	DB Process
CI000000579	DB Process +
CI00000059	Difference Query
CI000000597	Difference Query
CI000000693	DB Instruction +
CI000000703	Root Object
CI000000730	DB Instruction
CI000000742	Account Staging
CI000000922	DB Process +
CI000000954	DB Instruction +
CI000001239	DB Process
CI000001254	Difference Query
CI000001292	Root Object
CI000001304	DB Instruction
CI000001311	Account Staging
CI100000559	DB Process
CI100000730	DB Instruction
DBInstructionContextAdd	DB Instruction +
accountStgTabPage	Account Staging
dbProcessInstructionsTabPage	DB Instruction
dbProcessInstructionsTabPage1	DB Instruction
dbProcessInstructionsTabPage2	DB Instruction +
dbProcessTabPage	DB Process
dbProcessTabPage1	DB Process

Navigation Option	Description
diffQueryFromBatch	Difference Query
differenceQueryMenu	Difference Query
differenceQueryMenu1	Difference Query
rootObjectTabPage	Root Object
rootObjectTabPage2	Root Object
rootObjectTabPage3	Root Object
rootObjectTabPage4	Root Object

Navigation Keys

Navigation Key
accountStgGrid
accountStgMainPage
accountStgTabPage
adjTypeAlgPage_H
dbInstructionTree
dbInstructionTreePage
dbInstructionTreePage_H
dbProcessInstrucAlgorithmGrid
dbProcessInstructionSearchData
dbProcessInstructionSearchPage
dbProcessInstructionsGrid
dbProcessInstructionsTabMenu
dbProcessInstructionsTabPage
dbProcessInstructionsTabPage_H
dbProcessMainPage
dbProcessMainPage_H
dbProcessMainSearchData
dbProcessOverrideInstrucGrid
dbProcessPanel
dbProcessRestrictedSearchData
dbProcessRestrictedSearchPage
dbProcessSearchData
dbProcessSearchPage

Navigation Key

dbProcessTabMenu
dbProcessTree
dbProcessTreePage
dbProcessTreePage_H
dbProcInstParentSeqSearchData
dbProcInstParentSeqSearchPage
differenceQueryGrid
differenceQueryMainPage
differenceQueryMainPage_H
differenceQueryMenu
differenceQuerySummaryGrid
differenceQuerySummaryPage
differenceQuerySummaryPage_H
rootObjConfigLabGrid
rootObjConfigLabMainPage
rootObjConfigLabMainPage_H
rootObjConfigLabPopupPage
rootObjConfigLabTreeMainPage
rootObjConfigLabTreeMainPage_H
rootObjConfigLabTreePage
rootObjectInstrGrid
rootObjectMainPage
rootObjectMainPage_H
rootObjectPKGrid
rootObjectSearchData
rootObjectSearchPage
rootObjectTabPage

Service Programs

Service Name	Description
CILYAPKL	Archive Root Object Prime Key List
CILYARIL	Archive Root Object Instruction

Service Name	Description
CILYBRCS	Batch Run Search
CILYDBPL	DB Process List
CILYDBPP	DB Process
CILYDBPS	DB Process Search
CILYDCNS	DB Instructions Constraint Search
CILYDFQP	Difference Query
CILYDPIP	DB Process Instructions
CILYDPIS	DB Process Instruction Search
CILYDPRL	DB Process List
CILYDPRS	DB Process Restricted Search
CILYPSQS	DB Instructions Parent Seq Search
CILYROBP	Root Object
CILYROBS	Root Object Search
CILYROCL	Root Object List
CILYROEP	Root Object Exception
CILYROPL	Root Object Parameters List

Program Components

Program Component	Description
CICYAPKT	Archive Root Object PK T-Copybook
CICYARIT	Archive Root ObjectInstruction T-Copybook
CICYAROT	Archive Root Object T-Copybook
CICYASTT	Config Lab Account Staging T-Copybook
CICYDBPT	DB Process T Copybook
CICYDIFT	Data Difference Row T Copybook
CICYDPIT	DB Process Instruction T Copybook
CICYDPKT	Data Difference PK Row T Copybook
CICYENRT	Environment References T-Copybook
CICYPIAT	DB Process Instruction Algorithm T copybook
CICYPIOT	DB Process Instruction Override
CICYRDFT	Root Difference Row T Copybook
CICYROBT	Root Object T-Copybook

Program Component	Description
CICYROET	Cobol Field Definitions for CI_ROOT_OBJ_EXC
CICYROIT	Root Object Instruction T-Copybook
CICYROPT	Cobol Field Definitions for CI_ROOT_OBJ_EXP
CICYRPKT	Root Object PK T-Copybook
CIPAADJJ	Driver for This program maintains Adjustments
CIPBBICJ	Driver for Billable Charge Page Maintenance
CIPBBLJ	Driver for Page Maintenance for Bill (CI_BILL)
CIPBSEGJ	Driver for Bill Segment Page Maintenance
CIPCACCJ	Driver for Account Page Maintenance
CIPCBCUJ	Driver for Billable Charge Upload Page Maintenance
CIPCBPJ	Driver for Page Maintenance for Bill Print Group
CIPCCSCJ	Driver for Customer Contact Page Maintenance
CIPCNBBJ	Driver for Non-Billed Budget Main Page
CIPCPERJ	Driver for Page Maintenance for Person (CI_PER)
CIPCPRMJ	Driver for Premise Page Maintenance
CIPCSVAJ	Driver for Service Agreement Page Maintenance
CIPECTLJ	Driver for Page Maintenance for Generator Control
CIPEELTJ	Driver for Element Type Page Maintenance
CIPELOCJ	Driver for Program Location Page Maintenance
CIPESTYJ	Driver for Page Maintenance for Source Type
CIPETMPJ	Driver for Page Maintenance for Template
CIPEUISJ	COBOL Page Maintenance Page Driver
CIPEUITJ	Driver for Page Maintenance for UI Tabs
CIPFBLJ	Driver for Balance Control Maintenance
CIPFFNTJ	Driver for Page Maintenance for Financial Transaction

Program Component	Description
CIPFMVTJ	Driver for Match Event Page Maintenance
CIPLCARJ	Driver for Collection Agency Page Maintenance
CIPLODPJ	Driver Program for Overdue Process
CIPMSDWJ	Driver for Meter Read Dwnld Stg Page(Arch/CL)
CIPPD CNJ	Driver for Deposit Control Page Maintenance
CIPPD CSJ	Driver for Page Maintenance for Deposit Control
CIPPEPLJ	Driver Program for table Payment Event Upload Staging
CIPPEVTJ	Driver for Payment Page Maintenance
CIPPPAYJ	Driver for Payment Maintenance
CIPPP TSJ	Driver for Payment Upload Staging Page Maintenance
CIPPTCNJ	Driver for Tender Control Page Maintenance
CIPQCASJ	Driver Program for Case
CIPQCLEB	To Do Entry for Tracking Level 1 Roots in Error
CIPRRTCJ	Driver for Rate Component Maintenance Page
CIPRRTSJ	Driver for Page Maintenance for Rate Schedule
CIPRRTVJ	Driver for Rate Version Maintenance Page
CIPTACRJ	Driver for Adjustment Cancel Reason
CIPTAMGJ	Driver for Account Management Group Page Maint
CIPTAPAJ	Driver for Auto Pay SourcePage Maintenance
CIPTAPRJ	Driver for A/P Request Type Page Maintenance
CIPTAROJ	Driver for Auto Pay Route Type Page Maintenance
CIPTARTJ	Driver for Account Relationship Type Page Maintenance
CIPTATCJ	Driver Program for Adjustment Type
CIPTATPJ	Driver for Page Maintenance for Adjustment Type Profile
CIPTATYJ	Driver for Alert Type Page Maintenance

Program Component	Description
CIPTBCRJ	Driver for Bill Cancel Reason Page Maintenance
CIPTBCTJ	Driver for Billable Charge Template Page Maintenance
CIPTBFFJ	Driver for Bill Factor Page Maintenance
CIPTBFVJ	Driver for Bill Factor Value Page Maintenance
CIPTBIMJ	Driver for Bill Message Page Maintenance
CIPTBLCJ	Driver for Bill Cycle Page Maintenance
CIPTBLPJ	Driver for Bill Period Page Maintenance
CIPTBNKJ	Driver for Bank and Bank Account Page Maintenance
CIPTBRTJ	Driver for Bill Route Type Page Maintenance
CIPTBSTJ	Driver for Bill Segment Type Page Maintenance
CIPTBXTJ	Driver for Billable Charge Line Type
CIPTCAGJ	Driver for Collection Agency Page Maintenance
CIPTCATJ	Driver Program for Case Type
CIPTCCCJ	Driver for Customer Contact Class Page Maintenance
CIPTCCTJ	Driver for Page Maintenance for Customer Contact
CIPTCIDJ	Driver for CIS Division To Do Page Maintenance
CIPTCLGJ	Driver for Calendar Page Maintenance
CIPTCOCJ	Driver for Collection Class Page Maintenance
CIPTCUSJ	Driver for Customer Class Page Maintenance
CIPTDSTJ	Driver for Page Maintenance for GL Distribution
CIPTFNDJ	Driver for Fund Page Maintenance
CIPTFRQJ	Driver for Frequency Page Maintenance
CIPTGLDJ	Driver for General Ledger Division Page Maintenance
CIPTIDTJ	Driver for Identifier Type Page Maintenance
CIPTINCJ	Driver for CC&B Installation Options Page Maintenance

Program Component	Description
CIPTINSJ	Driver for Page Maintenance for Installation Options
CIPTLETJ	Driver for Letter Template Maintenance
CIPTMCRJ	Driver for Match Event Cancel Reason Maintenance
CIPTMHTJ	Driver for Match Type Maintenance
CIPTMSCJ	Driver for Message Category Page Maintenance
CIPTMSLJ	Message Log Maintenance Page(Archive/ ConfigLab)
CIPTNBRJ	Driver for Non-Billed Budget Rule(CI_NB_RULE) Page
CIPTOCRJ	Driver Program for Overdue Event Cancel Reason
CIPTOETJ	Driver Program for Overdue Event Type
CIPTOPTJ	Driver Program for Overdue Process Template
CIPTORAJ	Driver Program for Collection Class Overdue Rules
CIPTPCRJ	Driver for Pay Cancel Reason Page Maintenance
CIPTPDRJ	Distribution Rule (CI_DST_RULE) driver program
CIPTPRTJ	Driver for Premise Type Maintenance
CIPTPSDJ	Driver for Page Maintenance - Postal Default
CIPTPSTJ	Driver for Pay Segment Type Page Maintenance
CIPTPTRJ	Driver for Person Relationship Type Page Maintenance
CIPTRGLJ	Driver for Revenue Class Page Maintenance
CIPTSATJ	Driver for SA Type Maintenance Page
CIPTSICJ	Driver for SIC Code Page Maintenance
CIPTSQIJ	Driver for Service Quantity Identifier Page Maintenance
CIPTSQRJ	Driver for Service Quantity Rule Page Maintenance
CIPTSVIJ	Driver for Page Maintenance for Service Type
CIPTNSJ	Driver for Tender Source Page Maintenance

Program Component	Description
CIPTTNTJ	Driver for Tender Type Page Maintenance
CIP'TTOUJ	Driver for Time of Use Page Maintenance
CIP'TUOMJ	Driver for Unit of Measure Page Maintenance
CIP'TWFPJ	Driver for Workflow Process Profile Page Maintenance
CIP'TWSDJ	Driver for WFM System Page Maintenance
CIPVAINB	COBOL Conversion Validation Driver for Address
CIPVAOWB	COBOL Conversion Validation Driver for Asset Ownership
CIPVAPPB	COBOL Conversion Validation Appeal
CIPVASTB	COBOL Conversion Validation Driver for Asset
CIPVAUDB	COBOL Conversion Validation Driver for Audit Case
CIPVBKCB	COBOL Conversion Validation Driver for Bankruptcy
CIPVCCSB	COBOL Conversion Validation Driver for Collection Case
CIPVFSJ	Driver for FK Validation Err Summary Page (Arch/CL)
CIPVODPB	COBOL Conversion Validation Driver for Overdue Process
CIPVOPPB	COBOL Conversion Validation Driver for Overpayment Process
CIPVPRFB	COBOL Conversion Validation Driver for Process Flow
CIPVREVB	COBOL Conversion Validation Driver for Review
CIPVSUPB	COBOL Conversion Validation Driver for Suppression
CIPVTXFB	COBOL Conversion Validation Driver for Tax Form
CIPVTXRB	COBOL Conversion Validation Driver for Tax Role
CIPVVLEJ	Driver for Page Maintenance for Valuation Error
CIPWDWNJ	Driver for Notification Download Staging Maintenance

Program Component	Description
CIPXAIJ	Driver for XAI Inbound Service Page Maintenance
CIPYACAX	Adjustment Archive Criteria Algorithm
CIPYACBX	Bill Archive Criteria Algorithm
CIPYACEX	Match Event Archive Criteria Algorithm
CIPYACPX	Payment Archive Criteria Algorithm
CIPYADFN	Apply Differences for Root Object Routine
CIPYAPFX	FT Purge Processing
CIPYAPIL	Primary Archive Root Object Instruction List Maintenance
CIPYAPKL	Archive Root Object PK List Maintenance
CIPYAPKR	Row Maintenance for Archive Root Object PK
CIPYARIL	Archive Root Object Instruction List Maintenance
CIPYARIR	Row Maintenance for Archive Root Object Instruction
CIPYAROJ	Driver for Archive Root Object Page Maintenance
CIPYAROP	Archival Root Object Page Maintenance
CIPYAROR	Row Maintenance for Archive Root Object
CIPYASTJ	Driver for Account Staging Page Maintenance
CIPYASTL	Account StagingList Maintenance
CIPYASTP	Account Staging Page Maintenance
CIPYASTPTM	
CIPYASTR	Account Staging Row Maintenance
CIPYAZZN	Archive Criteria Algorithm Driver
CIPYBRCS	Batch Control Tree Search
CIPYCARB	Process Archive Roots
CIPYCARN	Creates Primary Root and Instruction (Archival)
CIPYCLRN	Creates Primary Root and Instruction (Config Lab)
CIPYCMPN	Call Perl Compare Utility Routine
CIPYCPRB	Store Primary Root Objects (Archive/Purge)

Program Component	Description
CIPYCRCB	Store Child Root Objects and Instructions - Archive
CIPYCRRN	Check for Recursive References
CIPYCZZN	Copy Data for Archival
CIPYDBPJ	Driver for DB Process Page Maintenance
CIPYDBPL	DB Process List Inquire
CIPYDBPP	DB Process Page Maintenance
CIPYDBPP3P	
CIPYDBPPGD	
CIPYDBPPMP	
CIPYDBPPPN	

Table

Table Name	Description
CL_ACCT_STG	ConfigLab Account Staging

Table Field

Table Name	Field Name
CL_ACCT_STG	ACCT_ID
CL_ACCT_STG	CRE_DTTM
CL_ACCT_STG	ENV_REF_CD
CL_ACCT_STG	USER_ID
CL_ACCT_STG	VERSION

TO DO Type

ToDo Type	Description
TD-CLERR	Root Objects in Error

TO DO Drill Key Type

ToDo Type	SeqNo	Table Name	Field Name
TD-CLERR	1	CI_ROOT_OBJ	ROOT_OBJ_ID

TODO Sort Key Type

ToDo Type	SeqNo	Description
TD-CLERR	3	Error Message Number
TD-CLERR	1	DB Process Type
TD-CLERR	2	Maintenance Object Code

Appendix D

Oracle Public Sector Revenue Management System Table Guide

This chapter lists the system tables owned by Oracle Public Sector Revenue Management V2.4.0 and explains the data standards of the system tables. The data standards are required for Oracle Public Sector Revenue Management installation, development within Oracle Public Sector Revenue Management, configuration of the product, and customization of the product. Adhering to the data standards is a prerequisite for a seamless upgrade to the next release of the product.

For information about the application framework system tables, see **Appendix D: Oracle Application Framework System Table Guide**.

This section includes:

- **Business Configuration Tables**

Business Configuration Tables

Installation Options

The installation option has only one row that is shipped with the initial installation of the product. The updateable columns 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	CO_INSTALLATION
Initial Data	Location Geo Type Usage: Required Alternate Representation: None Person ID Usage: Required Bill Segment Freeze Option: Freeze At Will Accounting Date Freeze Option: Change If Period Is Closed Rollover Threshold Factor: 0.7 User Can Override Bill Date: Yes Fund Accounting: Not Practiced

Appendix E

Upgrades to the Oracle Utilities Application Framework 4.3.0.1.0 Database

This section describes the database upgrade process for the Oracle Utilities Application Framework database from V4.3.0.0.1 to V4.3.0.1.0. 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 V4.3.0.1.0 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.

The added functionality of V4.3.0.1.0 is not the scope of this documentation. The upgrade scripts do not turn on the newly added functionality by default. For new functionality, refer the V4.3.0.1.0 User Guides.

This section includes:

- **Automatic Data Upgrade**
- **Schema Change**

Automatic Data Upgrade

This section describes what the upgrade script will populate in new tables and columns to preserve the existing base product application functions of the previous version of Oracle Utilities Application Framework.

Schema Change

New Tables

The following table is added to Oracle Utilities Application Framework.

Table	Description
F1_EXT_LOOKUP_VAL_CHAR	Extendable Lookup Characteristics

New Views

None

Dropped Tables

None

Unsupported Tables

None

Added Columns

The following table columns are added to Oracle Utilities Application Framework.

Table	Column	Required
F1_EXT_LOOKUP_VAL	BASE_BO_DATA_AREA	N
CI_BATCH_CTRL_P	TEXT_SECURITY_FLG	N

Dropped Columns

None

Unsupported Table Columns

None

Column Format Change

Table Name	Column Name	From	To
CI_BATCH_CTRL	EMAILID	VARCHAR(70)	VARCHAR(254)
CI_BATCH_JOB	EMAILID	VARCHAR(70)	VARCHAR(254)
SC_USER	EMAILID	VARCHAR(70)	VARCHAR(254)

Appendix F

Oracle Application Framework System Table Guide

This section lists the system tables owned by the Oracle Utilities Application Framework V4.3.0.1 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 Table Standards**
- **Guidelines for System Table Updates**
- **System Table List**

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.
- The standards 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
Initial Data	North America (NORTHAM) and Europe (EURO).

Installation Options

Installation Option has only one row that is shipped with the initial installation of the Oracle Utilities Application Framework. The updatable columns 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).

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 Public Sector Revenue 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.

Starting with version 2.2 of the framework a new system data upgrade rule was introduced - 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, 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) 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)
Customer Modification	Adhoc Characteristic Value Validation Rule (ADHOC_VAL_ALG_CD) on Characteristic Entity Table (CI_CHAR_ENTITY)

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_INSTR_L, F1_MIGR_REQ_INSTR_ENTITY
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

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
Standard Data Fields	Business Object (BUS_OBJ_CD), Extendable Lookup Value (F1_EXT_LOOKUP_VALUE)
Customer Modification	Override Description (DESCR_OVRD) on Extendable Lookup Field Value Language Table (F1_EXT_LOOKUP_VAL_L)

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_S VC_OPER_L,F1_IWS_SVC_OPER, 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_A NN_TYPE_PARM_L
Standard Data Fields	Webservice Name (IN_SVC_NAME), Annotation (ANN_CD), Annotation Type (ANN_TYPE_CD)
Customer Modification	Debug (DEBUG_SW), Active (ACTIVE_SW), Trace (TRACE_SW), Post Error (POST_ERROR_SW), Request XSL (REQUEST_XSL), Response XSL (RESPONSE_XSL)

Lookup

Properties	Description
Tables	CI_LOOKUP_FIELD, CI_LOOKUP_VAL, CI_LOOKUP_VAL_L,
Standard Data Fields	<p>Field Name (FIELD_NAME)</p> <ul style="list-style-type: none"> 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. <p>Field Value (FIELD_VALUE)</p> <ul style="list-style-type: none"> 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 can extend the Oracle Utilities Application Framework owned lookup field's value with caution. When it needs to be extended, prefix the first letter of the Owner Flag to the value. For example, when adding a new value to the algorithm entity flag (ALG_ENTITY_FLG), prefix with C1 if you are developing an Oracle Public Sector Revenue Management product.
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
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
Standard Data Fields	<p>Message Category (MESSAGE_CAT_NBR)</p> <ul style="list-style-type: none"> 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. You must use only the assigned category for your product. Oracle Public Sector Revenue Management and Oracle Utilities Business Intelligence - 00001 thru 00100 Oracle Utilities Application Framework Java - 11001 thru 11100 Oracle Public Sector Revenue Management Java - 11101 thru 11200 Oracle Utilities Business Intelligence Java - 11201 thru 11300 Implementer COBOL - 90000 Implementer WSS - 90001 Implementer Java - 90002 Reserved for Tests - 99999 <p>Message Number (MESSAGE_NBR) for COBOL message categories</p> <ul style="list-style-type: none"> Message numbers below 1000 are reserved for common messages. Implementers must not use message numbers below 1000. <p>Message Number (MESSAGE_NBR) for Java message categories</p> <ul style="list-style-type: none"> 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.

Properties	Description
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	<p>Table Name (TBL_NAME)</p> <ul style="list-style-type: none"> 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	<p>Audit Switches (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.</p>

Meta Data - Constraints

Properties	Description
Tables	CI_MD_CONST, CI_MD_CONST_FLD
Standard Data Fields	<p>Constraint Id (CONST_ID)</p> <ul style="list-style-type: none"> Index Name for Primary Constraints <Index Name>Rnn for Foreign Key Constraints Where <ul style="list-style-type: none"> 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

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

Portal and Zone

Properties	Description
Tables	CI_PORTAL, CI_PORTAL_L, CI_PORTAL_ZONE, 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	<p>Portal Code (PORTAL_CD), Zone Code (ZONE_CD), Zone Type Code (ZONE_HDL_CD)</p> <ul style="list-style-type: none"> 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).

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_PRMPPT, CI_SCR_PRMPPT_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)

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 XAI Option Table (CI_XAI_OPTION)

The following XAI tables might have system data installed upon the initial installation but a subsequent system data upgrade process will not update the content of these table unless the change is documented in the database upgrade guide: 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

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)

Oracle Utilities Application Framework Only Tables

All data of the tables in this group belong to the Oracle Utilities Application Framework. No data modification or addition is allowed for these tables by base product development and customer modification. When an environment is upgraded to the next release of the Oracle Utilities Application Framework, the upgrade process will refresh the data in these tables.

- CI_MD_AT_DTL / CI_MD_AT_DTL_L
- CI_MD_ATT_TY
- CI_MD_CTL / CI_MD_CTL_L
- CI_MD_CTL_TMPL
- CI_MD_ELTY / CI_MD_ELTY_L
- CI_MD_ELTY_AT
- CI_MD_LOOKUP / CI_MD_LOOKUP_F
- CI_MD_PDF / CI_MD_PDF_VAL
- CI_MD_MSG / CI_MD_MSG_L
- CI_MD_SRC_TYPE / CI_MD_SRC_TYPE_L
- CI_MD_TMPL / CI_MD_TMPL_L
- CI_MD_TMPL_ELTY
- CI_MD_TMPL_VAR / CI_MD_TMPL_VAR_L
- CI_MD_VAR / CI_MD_VAR_DTL / CI_MD_VAR_DTL_L
- CI_XAI_EXECUTER / CI_XAI_EXECUTER_L

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.

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

Table Name	Upgrade Action	Description
CI_MD_PRG_LOC	MG	Program Location
CI_MD_PRG_MOD	MG	Program Module
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_SO CG	MG	Search Object Criteria Group
CI_MD_SO CG_FLD	MG	Search Object Criteria Group Field
CI_MD_SO CG_FLDAT	MG	Search Criteria Group Field Attribute
CI_MD_SO CG_L	MG	Search Object Criteria Group Language
CI_MD_SO CG_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

Table Name	Upgrade Action	Description
CI_NAV_OPT	MG	Navigation Option
CI_NAV_OPT_CTX	MG	Navigation Option Context
CI_NAV_OPT_L	MG	Navigation Option Language
CI_NAV_OPT_USG	MG	Navigation Option Usage
CI_PORTAL	MG	Portal
CI_PORTAL_L	MG	Portal Language
CI_PORTAL_ZONE	MG	Portal Zone
CI_SCR	MG	Script
CI_SCR_CR	MG	Script Criteria
CI_SCR_CR_GRP	MG	Script Criteria Group
CI_SCR_CR_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_PR	MG	Script Prompt
CI_SCR_PR_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	XAI Class
CI_XAI_CLASS_L	MG	XAI Class Language
CI_XAI_ENV_HNDL	MG	XAI Envelope Handler

Table Name	Upgrade Action	Description
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
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_RS	MG	Status Reason
F1_BUS_OBJ_STATUS_RS_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

Table Name	Upgrade Action	Description
F1_DATA_AREA_L	MG	Data Area Language
F1_DB_OBJECTS_REPO	MG	Database Objects Repository
F1_EXT_LOOKUP_VAL	MG	Extendable Lookup
F1_EXT_LOOKUP_VAL_L	MG	Extendable Lookup Language
F1_IWS_ANN	MG	Inbound Web Service Annotation
F1_IWS_ANN_L	MG	Inbound Web Service Annotation Language
F1_IWS_ANN_PARM	MG	Inbound Web Service Annotation Parameter
F1_IWS_ANN_TYPE	MG	Inbound Web Service Annotation Type
F1_IWS_ANN_TYPE_L	MG	Inbound Web Service Annotation Type Language
F1_IWS_ANN_TYPE_PARM	MG	Inbound Web Service Annotation Type Parm
F1_IWS_ANN_TYPE_PARM_L	MG	Inbound 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_L	MG	Inbound Web Service Operations Language
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

Table Name	Upgrade Action	Description
F1_MIGR_REQ	MG	Migration Request
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_SCHEMA	MG	Schema
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_ACC_GRP	KP	Access Group
CI_ACC_GRP_DAR	KP	Access Group / Data Access Group
CI_ACC_GRP_L	KP	Access Group Language
CI_APP_SVC_SCTY	KP	Security Type Application Service
CI_CAL_HOL	KP	Work Calendar Holidays
CI_CAL_HOL_L	KP	Work Calendar Holidays Language
CI_CAL_WORK	KP	Work Calendar
CI_CAL_WORK_L	KP	Work Calendar Language
CI_CHTY_TDTY	KP	To Do Type Template Characteristics
CI_COUNTRY	KP	Country
CI_COUNTRY_L	KP	Country Language
CI_CURRENCY_CD	KP	Currency Code
CI_CURRENCY_CD_L	KP	Currency Code Language
CI_DAR	KP	Data Access Role
CI_DAR_L	KP	Data Access Language
CI_DAR_USR	KP	Data Access User
CI_DISP_PROF	KP	Display Profile
CI_DISP_PROF_L	KP	Display Profile Language

Table Name	Upgrade Action	Description
CI_ENV_REF	KP	Environment Reference
CI_ENV_REF_L	KP	Environment Reference Language
CI_FUNC	KP	Function
CI_FUNC_FLD	KP	Function Field
CI_FUNC_FLD_L	KP	Function Field Language
CI_FUNC_L	KP	Function Language
CI_GEO_TYPE	KP	Geographic Type
CI_GEO_TYPE_L	KP	Geographic Type Language
CI_INSTALL_ALG	KP	Installation Algorithm
CI_INSTALL_MSG	KP	Installation Message
CI_INSTALL_MSG_L	KP	Installation Message Language
CI_INSTALL_PROD	KP	Installation Product
CI_MD_RPT	KP	Report Definition
CI_MD_RPT_L	KP	Report Language
CI_MD_RPT_LBL	KP	Report Labels
CI_MD_RPT_PARM	KP	Report Parameters
CI_MD_RPT_PARM_L	KP	Report Parameters Language
CI_MD_TOOLREP_XML	KP	MD Tool Reference XML
CI_MD_TOOL_REP	KP	MD Tool Reference
CI_NT_DNTY_CTXT	KP	Notification Download Type Context
CI_NT_DWN_FORM	KP	Notification Download Format
CI_NT_DWN_FORM_L	KP	Notification Download Format Language
CI_NT_DWN_PROF	KP	Notification Download Profile
CI_NT_DWN_PROF_L	KP	Notification Download Profile Language
CI_NT_DWN_TYPE	KP	Notification Download Type
CI_NT_DWN_TYPE_L	KP	Notification Download Type Language
CI_NT_UP_XTYPE	KP	Notification Upload Type

Table Name	Upgrade Action	Description
CI_NT_UP_XTYPE_L	KP	Notification Upload Type Language
CI_NT_XID	KP	External System
CI_NT_XID_L	KP	External System Language
CI_PHONE_TYPE	KP	Phone Type
CI_PHONE_TYPE_L	KP	Phone Type Language
CI_ROLE	KP	Role
CI_ROLE_L	KP	Role Language
CI_ROLE_USER	KP	Role User
CI_RPT_OPTION	KP	Report Options
CI_SC_AUTH_LVL	KP	Security Type Auth Level
CI_SC_AUTH_LVL_L	KP	Security Type Auth Level Language
CI_SC_TYPE	KP	Security Type
CI_SC_TYPE_L	KP	Security Type Language
CI_SEAS_SHIFT	KP	Seasonal Time Shift Schedule
CI_SEAS_TM_SHIFT	KP	Seasonal Time Shift
CI_SEAS_TM_SHIFT_L	KP	Seasonal Shift Language
CI_STATE	KP	State
CI_STATE_L	KP	State Language
CI_TD_EX_LIST	KP	To Do Type Message Overrides
CI_TD_TYPE_ALG	KP	To Do Type Algorithms
CI_TD_TYPE_CHAR	KP	To Do Type Characteristic
CI_TD_VAL_ROLE	KP	To Do Type Role
CI_TIME_ZONE	KP	Time Zone
CI_TIME_ZONE_L	KP	Time Zone Language
CI_USR_GRP_SC	KP	User Group Security Type
CI_USR_PORTAL	KP	User Portal
CI_USR_SCR	KP	User Scripts
CI_USR_ZONE	KP	User Zone
CI_WFM	KP	Feature Configuration
CI_WFM_L	KP	Feature Configuration Language

Table Name	Upgrade Action	Description
CI_WFM_MSG	KP	Feature Configuration Message
CI_WFM_OPT	KP	Feature Configuration Options
CI_WF_EVT_TYPE	KP	WF Event Type
CI_WF_EVT_TYPE_L	KP	WF Event Type Language
CI_WF_PP	KP	WF Process Profile
CI_WF_PP_L	KP	WF Process Profile Language
CI_WF_PP_NT	KP	WF Process Notification
CI_WF_PP_NT_CRT	KP	WF Process Notification Criteria
CI_WF_PROC_SCHED	KP	WF Process Creation Schedule
CI_WF_PROC_SCHED_K	KP	WF Process Creation Schedule Key
CI_WF_PROC_TMPL	KP	WF Process Template
CI_WF_PROC_TMPL_L	KP	WF Process Template Language
CI_WF_RESP	KP	WF Response
CI_WF_RESP_DEP	KP	WF Response Dependency
CI_XAI_JDBC_CON	KP	XAI JDBC Connection
CI_XAI_JDBC_CON_L	KP	XAI JDBC Connection Language
CI_XAI_JMS_CON	KP	XAI JMS Connection
CI_XAI_JMS_CON_L	KP	XAI JMS Connection Language
CI_XAI_JMS_Q	KP	XAI JMS Queue
CI_XAI_JMS_Q_L	KP	XAI JMS Queue Language
CI_XAI_JMS_TPC	KP	XAI JMS Topic
CI_XAI_JMS_TPC_L	KP	XAI JMS Topic Language
CI_XAI_JNDI_SVR	KP	XAI JNDI Server
CI_XAI_JNDI_SVR_L	KP	XAI JNDI Server Language
CI_XAI_OPTION	KP	XAI Option
CI_XAI_RCVR	KP	XAI Receiver
CI_XAI_RCVR_CTX	KP	XAI Receiver Context

Table Name	Upgrade Action	Description
CI_XAI_RCVR_L	KP	XAI Receiver Language
CI_XAI_RCVR_RGRP	KP	XAI Receiver Rule Group
CI_XAI_RCVR_RSP	KP	XAI Receiver Response
CI_XAI_RGRP	KP	XAI Rule Group
CI_XAI_RGRP_ATT	KP	XAI Rule Group Attachment
CI_XAI_RGRP_L	KP	XAI Rule Group Language
CI_XAI_ROUTING	KP	XAI Routing
CI_XAI_RT_TYPE	KP	XAI Route Type
CI_XAI_RT_TYPE_L	KP	XAI Route Type Language
CI_XAI_RULE	KP	XAI Rule
CI_XAI_SENDER	KP	XAI Sender
CI_XAI_SENDER_L	KP	XAI Sender Language
CI_XAI_SNDR_CTX	KP	XAI Sender Context
F1_BKT_CONFIG	KP	Bucket Configuration
F1_BKT_CONFIG_L	KP	Bucket Configuration Language
F1_BKT_CONFIG_REL_OBJ	KP	Bucket Configuration Related Object
F1_BKT_CONFIG_VAL	KP	Bucket Configuration Value
F1_BKT_CONFIG_VAL_L	KP	Bucket Configuration Value Language
F1_BUS_OBJ_STATUS_RS N_CHAR	KP	Status Reason Characteristic
F1_EXTSYS_OUTMSG_P ROF	KP	External System Outbound Message Type
F1_INSTALLATION	KP	Installation Option - Framework
F1_IWS_ANN_CHAR	KP	Inbound Web Service Annotation Characteristics
F1_IWS_ANN_TYPE_CHAR	KP	Inbound Web Service Annotation Type Characteristics
F1_IWS_SVC_ANN	KP	Inbound Web Service Link to Annotation
F1_IWS_SVC_CHAR	KP	Inbound Web Service Characteristics
F1_IWS_SVC_LOG	KP	Inbound Web Service Log

Table Name	Upgrade Action	Description
F1_IWS_SVC_LOG_PARM	KP	Inbound Web Service Log Parameter
F1_MAP_OVRD	KP	UI Map Override
F1_MD_DB_OBJ	KP	MD Database Object
F1_MST_CONFIG	KP	Master Configuration
F1_OUTMSG_TYPE	KP	Outbound Message Type
F1_OUTMSG_TYPE_L	KP	Outbound Message Type Language
F1_REQ_TYPE	KP	Request Type
F1_REQ_TYPE_L	KP	Request Type Language
F1_REQ_TYPE_LOG	KP	Request Type Log
F1_REQ_TYPE_LOG_PARM	KP	Request Type Log Parameters
F1_SVC_TASK_TYPE	KP	Service Task Type
F1_SVC_TASK_TYPE_CHAR	KP	Service Task Type Characteristics
F1_SVC_TASK_TYPE_L	KP	Service Task Type Language
F1_WEB_SVC	KP	Web Service Adapter
F1_WEB_SVC_CHAR	KP	Web Service Adapter Characteristics
F1_WEB_SVC_L	KP	Web Service Adapter Language
F1_WEB_SVC_LOG	KP	Web Service Adapter Log
F1_WEB_SVC_LOG_PARM	KP	Web Service Adapter Log Parameter
F1_WEB_SVC_OPERATIONS	KP	Web Service Adapter Operations
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

Table Name	Upgrade Action	Description
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
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

Appendix G

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