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Database Administrator's Guide

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Preface

About This Document

This document will help you to understand how to install and maintain the Oracle Revenue Management and Billing (ORMB) database.

Intended Audience

This document is intended for the following audience:

- End-Users
- Database Administrators
- Consulting Team
- Implementation Team

Organization of the Document

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

Section No.	Section Name	Description
Section 1	Database Overview	Lists the database server supported on each platform. It also lists the dos and don'ts while maintaining a database.
Section 2	Database Installation	Explains how to install the Oracle Revenue Management and Billing database.
Section 3	Database Design	Lists the naming conventions for various database objects. It also lists and describes the column data types and foreign key constraints.
Section 4	Exadata Database Settings	Lists a set of activities that you need to perform if you are using the Oracle Exadata Database machine as the database server.
Section 5	Database Implementation Guidelines	Lists and describes the general guidelines for configuring various objects in the database and implementing Oracle Database.
Appendix A	New Objects in the Oracle Revenue Management and Billing V2.5.0.1.0 Database	Lists the objects that are newly added in the Oracle Revenue Management and Billing V2.5.0.1.0 database.

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Section No.	Section Name	Description
Appendix B	New Objects in the Oracle Utilities Application Framework V4.3.0.1.0 Database	Lists the objects that are newly added in the Oracle Utilities Application Framework V4.3.0.1.0 database.
Appendix C	Changing the DB User Password	Explains how to change the database user password.
Appendix D	Oracle Application Framework System Table Guide	Lists and describes the system tables of Oracle Utilities Application Framework. It also explains the guidelines for updating these system tables.
Appendix E	License and Copyright Notices	Lists all notices with reference to usage of third party products.

Related Documents

You can refer to the following documents for more information:

Document	Description
Oracle Revenue Management and Billing Version 2.5.0.1.0 Release Notes	Provides a brief description about the new features, enhancements, UI and database level changes, supported platforms, framework upgrade, supported upgrades, and technology upgrade made in this release. It also highlights the discontinued features, bug fixes, and known issues in this release.
Oracle Revenue Management and Billing Installation Guide	Lists the application server pre-requisites, supported platforms, and software and hardware requirements for installing the Oracle Revenue Management and Billing application. It explains how to install the Oracle Revenue Management and Billing application.
Oracle Revenue Management and Billing Quick Installation Guide	Provides high-level information on how to install the Oracle Revenue Management and Billing (ORMB) application and selected additional software.
Oracle Revenue Management and Billing Server Administration Guide	Explains the Oracle Revenue Management and Billing (ORMB) architecture and technical know-how required for configuring and using the ORMB application. It explains how to configure and deploy web and business application servers. In addition, it explains how to monitor client machines, web and/or business application servers, and database connections.
Oracle Revenue Management and Billing Security Guide	Lists the security features available in the Oracle Revenue Management and Billing application. It explains how to configure security for the Oracle Revenue Management and Billing application using the default security features.

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Conventions

The following conventions are used across this document:

Convention	Meaning
boldface	Boldface indicates graphical user interface elements associated with an action, or terms defined in the text.
italic	Italic indicates a document or book title.
`Monospace`	Monospace indicates information that an end-user needs to enter in the application.

Change Log

Revision	Last Update	Updated Section	Comments
8.1	21-Mar-2016	Section 2.3.1.5: Post Installation Tasks (Grant Permissions to the DBMS_LOCK Package and Recompile Database Objects)	Added Information
		Section 2.3.2.4: Post Demo Database Creation Tasks (Grant Permissions to the DBMS_LOCK Package and Recompile Database Objects)	Added Information
		Section 2.3.2.5: Configuring Security	Updated Information
		Section 5.2.3: Materialized View	Updated Information
		Appendix B.2: New System Data	Updated Information
		Appendix D.3.2.8: Characteristics	Updated Information
		Appendix D.3.2.12: Extendable Lookup	Updated Information
8.2	30-June-2016	Section 5.1.11: Shrink Tables	Added Information
8.3	13-Feb-2017	Appendix C: Changing the DB User Password	Added Section

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1. Database Overview

This section provides an overview of the Oracle Revenue Management and Billing database, including:

- Supported Database Platforms
- Database Maintenance Rules

1.1 Supported Database Platforms

This section defines the platforms on which Oracle Revenue Management and Billing is verified to operate.

1.1.1 Supported Platforms Summary Table

Oracle Revenue Management and Billing (ORMB) is supported on the following platforms:

Platform	Database Server
AIX 7.1 TL1 (POWER 64-bit)	Oracle Database Server 12.1.0.2 (64-bit)
Oracle Linux 6.5 and 7.0 (64-bit)	Oracle Database Server 12.1.0.2 (64-bit)
Red Hat Enterprise Linux[1] 6.5 and 7.0 (64-bit)	Oracle Database Server 12.1.0.2 (64-bit)
Windows Server 2012 R2 (64-bit)	Oracle Database Server 12.1.0.2 (64-bit)

Note:
Oracle Corporation distributes Oracle Linux with the following two kernels:

- **Red Hat Compatible Kernel** – This kernel is identical to the kernel shipped in Red Hat Enterprise Linux.
- **Unbreakable Enterprise Kernel** – This kernel is based on a later Linux 2.6-series kernel, with Oracle's own enhancements for OLTP, InfiniBand, SSD disk access, NUMA-optimizations, Reliable Datagram Sockets (RDS), async I/O, OCFS2, and networking.

Oracle claims that the Unbreakable Enterprise Kernel is compatible with Red Hat Enterprise Linux; and Oracle middleware and third-party Red Hat Enterprise Linux-certified applications can be installed and run unchanged on Unbreakable Enterprise Kernel. However, for users requiring strict compatibility with Red Hat or for users running kernel modules dependent on specific kernel versions, the Red Hat Compatible Kernel offers 100% compatibility with Red Hat Enterprise Linux.

The following Oracle Database Server Editions are supported:

- Oracle Database Enterprise Edition

Oracle Database Client 12.1.0.2 is required for Oracle Database Server 12.1.0.2.

[1] Oracle Revenue Management and Billing is tested and certified on Oracle Linux 6.5 and 7.0. Oracle Linux is 100% userspace-compatible with Red Hat Enterprise Linux, and therefore Oracle Revenue Management and Billing is supported on Red Hat Enterprise Linux.

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Note:
Oracle Database Enterprise Edition, including the Advanced Compression and Partitioning options, is strongly recommended in all situations.
We strongly recommend you to install Oracle Revenue Management and Billing (ORMB) on Windows platform only for non-production activities, such as User Acceptance Testing (UAT), development setup, and so on.

1.1.2 Support for Software Patches and Upgrades

Due to the ongoing nature of software improvement, vendors will issue patches and service packs for the operating systems, application servers and database servers on top of specific versions that Oracle Revenue Management and Billing has been tested with.

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 Oracle Revenue Management and Billing production environment.

The exception from this rule is Hibernate Version 4.1 GA. This version should not be upgraded.

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

1.2 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.

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1.2.1 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.

1.2.2 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.

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2. Installing Oracle Revenue Management and Billing Version 2.5.0.1.0 Database

This section provides the instructions for installing the Oracle Revenue Management and Billing database. This section includes the following topics:

2.1 Installation Overview

Note: Refer to the Supported Database Platforms section for information about the supported platforms on which Oracle Revenue Management and Billing is verified to operate.

The following types of installation are available for Oracle Revenue Management and Billing:

- Initial Install — a database without demo data
- Demo Install — a database with demo data

The database installation requires Java Development Kit Version 7.0 and Oracle Database Client 12.1.0.2 (32-bit) installed on the Windows 64-bit or 32-bit desktop where the install package is staged and run from.

2.2 Creating the Database

For an initial install or demo install, you will create an empty database on a UNIX or Windows database server on which you operate the production instance of Oracle Revenue Management and Billing.

To create the database:

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. Ensure that you set the database character set to AL32UTF8.

Note: In the prior versions of the product, the cdxdba utility (cdxdba.plx for UNIX and CDXDBA.exe for Windows) was included in the package. However, it is no longer supported from this release onwards. Instead of using the cdxdba utility, use the Database Configuration Assistant to create the database.

2. Enable the following mandatory software options:
   - Oracle Spatial OR Oracle Locator
   - Oracle Text
3. Execute the following SQL command to verify whether the above mandatory software options are enabled:

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


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4. Create default tablespace named CISTS_01 using the following command:

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

5. Create the CIS_USER and CIS_READ roles using the following commands:

```
CREATE ROLE CIS_USER;

CREATE ROLE CIS_READ;
```

6. Create the CISADM, CISUSER, CISOPR, and CISREAD users using the following commands:

```
CREATE USER CISADM IDENTIFIED BY CISADM DEFAULT TABLESPACE CISTS_01 TEMPORARY TABLESPACE TEMP PROFILE DEFAULT;

GRANT UNLIMITED TABLESPACE TO CISADM WITH ADMIN OPTION; GRANT SELECT ANY TABLE TO CISADM;

GRANT CREATE DATABASE LINK TO CISADM; GRANT CONNECT TO CISADM;

GRANT RESOURCE TO CISADM;

GRANT DBA TO CISADM WITH ADMIN OPTION; GRANT CREATE ANY SYNONYM TO CISADM; GRANT SELECT ANY DICTIONARY TO CISADM;


CREATE USER CISUSER PROFILE DEFAULT IDENTIFIED BY CISUSER DEFAULT TABLESPACE CISTS_01 TEMPORARY TABLESPACE TEMP;

GRANT SELECT ANY TABLE TO CISUSER; GRANT CIS_USER TO CISUSER;

GRANT CIS_READ TO CISUSER; GRANT CONNECT TO CISUSER;


CREATE USER CISOPR PROFILE DEFAULT IDENTIFIED BY OPRPLUS DEFAULT TABLESPACE CISTS_01 TEMPORARY TABLESPACE TEMP;

GRANT CONNECT,RESOURCE,EXP_FULL_DATABASE TO CISOPR;


CREATE USER CISREAD IDENTIFIED BY CISREAD DEFAULT TABLESPACE CISTS_01 TEMPORARY TABLESPACE TEMP;

GRANT SELECT ANY TABLE TO CISREAD; GRANT CIS_READ TO CISREAD;

GRANT CONNECT TO CISREAD;
```

7. Review the `Storage.xml` file under the `FW\FW43010\Install-Upgrade` folder prior to initial 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 Revenue Management and Billing database objects. Refer to the Updating Storage.xml section for more information on how to update the `Storage.xml` 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.

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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 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.

2.3 Oracle Database Installation

This section describes how to install Oracle Database for Oracle Revenue Management and Billing Version 2.5.0.1.0. It contains the following topics:

- Initial Install, or Installing Version 2.5.0.1.0 for the First Time
- Demo Install

Note: The installation tools outlined in this guide run on Windows and UNIX/Linux only. Please refer to the Supported Database Platforms section for more information on supported platforms.

2.3.1 Initial Install, or Installing Version 2.5.0.1.0 for the First Time

This section describes how to install the database components of Oracle Revenue Management and Billing. It includes the following topics:

- Copying and Decompressing Install Media
- Creating the Database
- Installing Oracle Utilities Application Framework
- Installing Oracle Revenue Management and Billing
- Post Installation Tasks

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Note:
You must have a supported version of the Java Development Kit installed on the Windows desktop where you stage and run the database installation package. Refer to the *Oracle Revenue Management and Billing Installation Guide* for more information.
Before you begin with the installation, ensure that you have Oracle Database Client installed on the Windows desktop.

2.3.1.1 Copying and Decompressing Install Media

To download and decompress the ORMB Database package:

1. Download the RMB V2.5.0.1.0 - <Domain> patch from My Oracle Support using the following patch number:

Domain	Patch Number
Banking	22480614
Insurance	22480621

   A zip file is downloaded.

2. Unzip the downloaded file in your local folder. The contents include the following zip files:

Domain	Patch Number	Contents Include
Banking	22480614	• FW-V4.3.0.1.0-MultiPlatform • RMB-V2.5.0.1.0-MultiPlatform • RMB-V2.5.0.1.0-FW-PREREQ-MultiPlatform • RMB-V2.5.0.1.0-Oracle-Database-MultiPlatform
Insurance	22480621	• FW-V4.3.0.1.0-MultiPlatform • RMB-V2.5.0.1.0-MultiPlatform • RMB-V2.5.0.1.0-FW-PREREQ-MultiPlatform • RMB-V2.5.0.1.0-Oracle-Database-MultiPlatform

3. Create a temporary directory named `TEMPDIR` on your local machine.
4. Unzip the `RMB-V2.5.0.1.0-Oracle-Database-MultiPlatform` file in the `TEMPDIR` directory. The contents include the following sub-folders:
   - `Demo_dump`
   - `FW`
   - `RMB`

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2.3.1.2 Creating the Database

Note: You must have Oracle Database Server 12.1.0.2 installed on your machine in order to create the database.

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. Ensure that you set the database character set to AL32UTF8.

For more information on how to create the database, refer to the Creating the Database section.

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.

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. Ensure that you set the database character set to AL32UTF8.

For more information on how to create the database, refer to the Creating the Database section.

2.3.1.3 Installing Oracle Utilities Application Framework

You need to install Oracle Utilities Application Framework Version 4.3.0.1.0 prior to Oracle Revenue Management and Billing Version 2.5.0.1.0. The files for Oracle Utilities Application Framework installation are located in the `FW\FW43010` folder. The installation process will prompt you to provide 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, and 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, and delete) privileges to the objects in the application schema (for example, CIS_USER).
- A database role with read-only privileges to the objects in the application schema (for example, CIS_READ).
- Location of the jar files. (The Jar files are bundled in the database package.)
- Java Home (for example, C:\Java\jdk1.7.0_21)

Note: Ensure that you do not create more than one schema on a database.

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To install Oracle Utilities Application Framework (OUAF), you need to install the following in the specified order:

1. Install Oracle Utilities Application Framework Version 4.3.0.1.0
2. Install Rollup Pack for Oracle Utilities Application Framework Version 4.3.0.1.0

Installing Oracle Utilities Application Framework Version 4.3.0.1.0

To install the schema for Oracle Utilities Application Framework Version 4.3.0.1.0:

1. Execute the `OraDBI.exe` utility from the `..\TEMPDIR\FW\FW43010\Install-Upgrade\` directory.

Note:
Please run the utility from the command prompt.
The `TEMPDIR` folder is the location where you have extracted the contents of the `RMB-V2.5.0.1.0-Oracle-Database-MultiPlatform.zip` file.
Ensure that you execute the `OraDBI` utility from the Window 32-bit or 64-bit desktop that has Oracle Database Client 12.1.0.2 (32-bit) and Java Development Kit Version 7.0 installed. The database must be listed in the `tnsnames.ora` file on your local machine.

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

Parameter	Value
Enter the name of the target database	`<DB NAME>`
Enter your database username	`<DB_USER>` Example: `CISADM`
Enter your password username	`<DB_USER_PASSWORD>`
Enter the location for Java Home (e.g. C:\Java\jdk1.6.0_18)	`..\jdk1.7.0_21`
Enter the TUGBU jarfiles location (e.g. C:\Database-Install\Jarfiles)	`..\FW\FW43010\jarfiles`
Enter the Oracle user with read-write privileges to Database Schema	`<DB_USER>` Example: `CISUSER`
Enter the Oracle user with read-only privileges to Database Schema	`<DB_USER>` Example: `CISREAD`
Enter the database role with read-write privileges to Database Schema	`<DB_USER_ROLE>` Example: `CIS_USER`
Enter the database role with read-only privileges to Database Schema	`<DB_USER_ROLE>` Example: `CIS_READ`
Enter the name of the target Schema where you want to install or upgrade	`<Schema_Name>`
Enter the password for <DB_USER> schema	`<DB_USER_PASSWORD>`
Re-enter the password	`<DB_USER_PASSWORD>`

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2. Enter the required parameter values. The following message appears in the command line:

   ```
   Ready to perform initial install of Database Rel.V4.3.0.1.0, do you want to continue (Y/N)?
   ```

3. Type **Y** and then press **Enter**. The following message appears in the command line:

   ```
   Ready to upgrade the target database, Do you want to continue? (Y/N)
   ```

4. Type **Y** and then press **Enter**. A message appears indicating that the process is completed successfully.

On installing Oracle Utilities Application Framework Version 4.3.0.1.0, various objects are created in the database under CISADM schema. The following table lists the number of objects that are created when you install framework:

Object Type	Count
INDEX	700
LOB	47
SEQUENCE	4
TABLE	502
TRIGGER	1
VIEW	8

Ideally, the Oracle Utilities Application Framework Version 4.3.0.1.0 installation should approximately finish in 5 minutes. The execution time can vary to great extent depending on network speed between local machine and server location.

Note:
OraDBI performs the following tasks:

→ Interacts with the user to collect information about the name of Oracle account that will own the application schema (for example, `CISADM`), password of this account, and the name of the Oracle account that the application user will use (for example, `CISUSER`), and the name of the Oracle account that will be assigned read-only privileges to the application schema (for example, `CISREAD`).

→ Verifies whether tablespace names already exist in the `Storage.xml` file (if not, the process will abort).

→ Installs the schema, installs the system data, and configures security.

→ Maintains upgrade log tables in the database.

→ Updates release ID when the upgrade is completed successfully.

→ If an error occurs while executing a SQL script or another utility, it logs and displays the error message and allows you to re-execute the current step. Log files `OraDBI###.log` are created in the same folder as OraDBI and contains all the SQL commands executed against the database along with the results. The log files are incremental so that the results are never overwritten. If warning messages are generated during the upgrade, OraDBI prompts the user at the end of the process. Users should check the log files to verify the warning messages.

→ Warning messages are only alerts and do not necessary mean a problem exists.

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→ Stores the Schema owner and password in the feature configuration table. The password is stored in encrypted format.
→ OraDBI can be executed by a non-schema owner.

Installing Rollup Pack for Oracle Utilities Application Framework Version 4.3.0.1.0

You can install the rollup pack for Oracle Utilities Application Framework Version 4.3.0.1.0 from a Windows machine and UNIX Standalone server. To install the rollup pack for Oracle Utilities Application Framework Version 4.3.0.1.0:

1. Unzip the RMB-V2.5.0.1.0-FW-PREREQ-MultiPlatform file in the `TEMPDIR` directory. The contents include the `ORMB-V25010-FW-PREREQ-MultiPlatform.jar` file.

Note: The `RMB-V2.5.0.1.0-FW-PREREQ-MultiPlatform.zip` file is available at the location where you have extracted the contents of the RMB V2.5.0.1.0 - <Domain> patch.

2. Decompress the JAR file using the following command:

   ```
   cd TEMPDIR
   jar -xvf ORMB-V25010-FW-PREREQ-MultiPlatform.jar
   ```

   A sub-directory named FW-V4.3.0.1.0-Rollup is extracted. It contains the following two sub-folders:

   - Application
   - Database

3. Create a directory named `dbpatch_tools` in the `TEMPDIR` directory.
4. Copy the `db_patch_standalone.jar` file to the `dbpatch_tools` directory using the following command:

   Windows:

   ```
   copy TEMPDIR\FW-V4.3.0.1.0-
   Rollup\Database\db_patch_standalone.jar TEMPDIR\dbpatch_tools
   ```

   UNIX:

   ```
   cp /TEMPDIR/FW-V4.3.0.1.0-Rollup/Database/db_patch_standalone.jar
   TEMPDIR/dbpatch_tools
   ```

5. Decompress the JAR file using the following command:

   Windows:

   ```
   cd TEMPDIR\dbpatch_tools
   jar -xvf db_patch_standalone.jar
   ```

   UNIX:

   ```
   cd /TEMPDIR/dbpatch_tools
   jar -xvf db_patch_standalone.jar
   ```

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The contents are extracted in the dbpatch_tools folder. The contents include the following three sub-folders:

- bin
- config
- lib

6. Set the TOOLSBIN environment variable using the following command:

   Windows:

   ```
   SET TOOLSBIN=TEMPDIR\dbpatch_tools\bin
   ```

   UNIX:

   ```
   export TOOLSBIN=/TEMPDIR/dbpatch_tools/bin
   ```

7. Change to the Database directory using the following command:

   Windows:

   ```
   cd TEMPDIR\FW-V4.3.0.1.0-Rollup\Database
   ```

   UNIX:

   ```
   cd /TEMPDIR/FW-V4.3.0.1.0-Rollup/Database
   ```

8. Execute the ouafDatabasePatch utility using the following command:

   Windows:

   ```
   ouafDatabasePatch.cmd
   ```

   UNIX:

   ```
   ouafDatabasePatch.sh
   ```

Note:

In the previous versions of Oracle Revenue Management and Billing, you used to execute the cdxpatch utility while installing the rollup pack for Oracle Utilities Application Framework. Henceforth, the cdxpatch utility is no longer supported and you need to use the ouafDatabasePatch utility.

Ensure that you execute the ouafDatabasePatch utility from the Window 32-bit or 64-bit desktop that has Oracle Database Client 12.1.0.2 (32-bit) and Java Development Kit Version 7.0 installed. The database must be listed in the tnsnames.ora file on your local machine.

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

Parameter	Value
Enter the target database type (O/M/D) [O]	O (if you have Oracle database) OR M (if you have MySQL database)
Enter the username that owns the schema	<DB_USER> Example: CISADM

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Parameter	Value
Enter the password for the <DB_USER> user	<DB_USER_PASSWORD>
Enter the name of the Oracle Database Connection String	<DB_Server:DBPORT:ORACLE_SID>

Note: If you have changed the database user password, you will not be able to install the rollup pack for Oracle Utilities Application Framework Version 4.3.0.1.0. You will have to first change the database user password. For more information on how to change the database user password, refer to Appendix C: Changing the DB User Password.

9. Enter the required parameter value. The following message appears in the command line:

   `Ready to process patches, Do you want to continue? (Y/N)`

10. Type **Y** and then press **Enter**. A message appears indicating that the patches are applied successfully.

On installing the rollup pack for Oracle Utilities Application Framework Version 4.3.0.1.0, various objects are created in the database under CISADM schema. The following table lists the number of objects that are created when you install the framework rollup pack:

Object Type	Count
INDEX	700
LOB	47
SEQUENCE	4
TABLE	502
TRIGGER	1
VIEW	8

Ideally, the framework rollup pack installation should approximately finish in 5 minutes. The execution time can vary to great extent depending on network speed between local machine and server location.

2.3.1.4 Installing Oracle Revenue Management and Billing

To install Oracle Revenue Management and Billing Version 2.5.0.1.0:

1. Execute the `CdxDBI` utility from the `..\TEMPDIR\RMB\Upgrade\Oracle\Install-Upgrade\` directory.

Note:
The `TEMPDIR` folder is the location where you have extracted the contents of the `RMB-V2.5.0.1.0-Oracle-Database-MultiPlatform.zip` file.
Ensure that you execute the `CdxDBI` utility from the Window 32-bit or 64-bit desktop that has Oracle Database Client 12.1.0.2 (32-bit) and Java Development Kit Version 7.0 installed. The database must be listed in the `tnsnames.ora` file on your local machine.

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

Parameter	Value
Enter the name of the target database	<DB_NAME>
Enter the name of the owner of Database Schema	<DB_USER> Example: CISADM
Enter the location for Java Home (e.g. C:\Java\jdk1.6.0_18)	..\jdk1.7.0_21
Enter the TUGBU jarfiles location (e.g. C:\Database-Install\Jarfiles)	..\RMB\jarfiles
Enter the password for <DB_USER> schema (or hit ENTER to quit)	<DB_USER_PASSWORD>
Re-enter the password	<DB_USER_PASSWORD>
Enter the Oracle user with read-write privileges to Database Schema	<DB_USER> Example: CISUSER
Enter the Oracle user with read-only privileges to Database Schema	<DB_USER> Example: CISREAD
Enter the database role with read-write privileges to Database Schema	<DB_USER_ROLE> Example: CIS_USER
Enter the database role with read-only privileges to Database Schema	<DB_USER_ROLE> Example: CIS_READ

2. Enter the required parameter values. The following message appears in the command line:

   ```
   Ready to perform initial install of Database Rel.V2.5.0.1.0, do you want to continue (Y/N)?
   ```

3. Type **Y** and then press **Enter**. The following message appears in the command line:

   ```
   Ready to upgrade the target database, Do you want to continue? (Y/N)
   ```

4. Type **Y** and then press **Enter**. The utility upgrades the schema and system data definitions, and thereby reflects the metadata changes in the database. If an error occurs while executing the utility, it logs and displays the error message and allows you to re-execute the current step.

On installing Oracle Revenue Management and Billing Version 2.5.0.1.0, various objects are created in the database under CISADM schema. The following table lists the number of objects that are created when you install ORMB:

Object Type	Count
FUNCTION	16
INDEX	2604
LOB	146
PACKAGE	4

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Object Type	Count
PACKAGE BODY	4
PROCEDURE	1
SEQUENCE	26
TABLE	1755
TRIGGER	1
TYPE	8
TYPE BODY	1
VIEW	154

Ideally, the Oracle Revenue Management and Billing Version 2.5.0.1.0 installation should approximately finish in 15 minutes. The execution time can vary to great extent depending on network speed between local machine and server location.

2.3.1.5 Post Installation Tasks

Once you install the Oracle Revenue Management and Billing Version 2.5.0.1.0 database, you need to do the following:

If you…	Then
Want to use the Transaction Feed Management feature…	1. Enable USER_LOCK Package 2. Grant Permissions to the DBMS_LOCK Package and Recompile Database Objects 3. Generate Database Statistics
Do not want to use the Transaction Feed Management feature…	1. Enable USER_LOCK Package 2. Increase INITRANS Values 3. Grant Permissions to the DBMS_LOCK Package and Recompile Database Objects 4. Generate Database Statistics

Enable USER_LOCK Package

To enable inbound web services, you must grant permissions to the USER_LOCK package. This is a one-time activity. To grant permissions to the USER_LOCK package:

1. Login as `SYS` user.
2. On SQL prompt, execute the following SQL:

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

3. Grant permission using the following SQL command:

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

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Note: You can also grant permission to a specific database user (for example, CISADM or CISUSER) instead of granting permissions to all database users.

Increase INITRANS Values

To increase the INITRANS values of some indexes and tables:

1. Connect to the ORMB database using any SQL client (such as Oracle SQL Developer or PL/SQL Developer) and the `cisadm` credentials.
2. Execute the following statements:

```
ALTER TABLE CISADM.CI_BCHG_SQ INITRANS 20;
ALTER INDEX CISADM.XT081P0 INITRANS 40;
ALTER INDEX CISADM.IDX_SQ INITRANS 40;
ALTER TABLE CISADM.CI_BILL_CHG INITRANS 20;
ALTER INDEX CISADM.XT035P0 INITRANS 40;
ALTER INDEX CISADM.XT035S1 INITRANS 40;
ALTER INDEX CISADM.XT035S2 INITRANS 40;
ALTER INDEX CISADM.XT035S3 INITRANS 40;
ALTER INDEX CISADM.XT035S4 INITRANS 40;
```

Note: The INITRANS values can be set as per the client's data volume.

Grant Permissions to the DBMS_LOCK Package and Recompile Database Objects

To grant permissions to the DBMS_LOCK package, execute the following commands:

UNIX:

```
export ORACLE_SID=[DB_NAME]
sqlplus /nolog
conn sys as sysdba
```

Note: On executing the above command, you will be prompted to enter the `SYS` user password.

```
grant EXECUTE, DEBUG on DBMS_LOCK to <DB_USER/[CISADM]>;
```

Note:
These commands should be executed using Oracle SQL Developer.
If you have created the database using any user other than CISADM, you need to specify the respective user name in the above grant statement.

After executing the above `grant` statement, recompile the invalid objects, if any, in the database. You can recompile all invalid objects at once using the following commands:

```
export ORACLE_SID=[DB_NAME]
sqlplus /nolog
conn sys as sysdba
SQL> @?/rdbms/admin/utlrp.sql;
```


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Windows:

```
set ORACLE_SID=[DB_NAME]
sqlplus /nolog
conn sys as sysdba
```

Note: On executing the above command, you will be prompted to enter the `SYS` user password.

```
grant EXECUTE, DEBUG on DBMS_LOCK to <DB_USER/[CISADM]>;
```

Note:
These commands should be executed using Oracle SQL Developer.
If you have created the database using any user other than CISADM, you need to specify the respective user name in the above alter and grant statements.

After executing the above `grant` statement, recompile the invalid objects, if any, in the database. You can recompile all invalid objects at once using the following commands:

```
export ORACLE_SID=[DB_NAME]
sqlplus /nolog
conn sys as sysdba
SQL> @?/rdbms/admin/utlrp.sql;
```

Generate Database Statistics

During the installation process, new database objects may be added to the target database. Before you use the target database, we recommend you to gather statistics for the database objects. You can gather schema level statistics using the following statement:

```
BEGIN
DBMS_STATS.GATHER_SCHEMA_STATS(OWNNAME=>'CISADM', METHOD_OPT=>'FOR ALL COLUMNS SIZE AUTO', GRANULARITY=>'ALL', CASCADE=>TRUE, DEGREE=>16);
END;
```

You can also gather the statistics for individual tables using the following statement:

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

We strongly recommend you to schedule batch jobs to gather the schema level statistics on the daily basis in the non peak hours. Please note that the statistics should not be gathered while the application batches are running because this will degrade the application batch performance.

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2.3.2 Demo Install

This section describes how to install the demo database components of Oracle Revenue Management and Billing. It includes the following topics:

- Copying and Decompressing Install Media
- Creating the Database
- Importing the Demo Dump File
- Post Demo Database Creation Tasks
- Configuring Security

2.3.2.1 Copying and Decompressing Install Media

To download and decompress the ORMB Database package:

1. Download the RMB V2.5.0.1.0 - <Domain> patch from My Oracle Support using the following patch number:

Domain	Patch Number
Banking	22480614
Insurance	22480621

   A zip file is downloaded.

2. Unzip the downloaded file in your local folder. The contents include the following zip files:

Domain	Patch Number	Contents Include
Banking	22480614	• FW-V4.3.0.1.0-MultiPlatform • RMB-V2.5.0.1.0-MultiPlatform • RMB-V2.5.0.1.0-FW-PREREQ-MultiPlatform • RMB-V2.5.0.1.0-Oracle-Database-MultiPlatform
Insurance	22480621	• FW-V4.3.0.1.0-MultiPlatform • RMB-V2.5.0.1.0-MultiPlatform • RMB-V2.5.0.1.0-FW-PREREQ-MultiPlatform • RMB-V2.5.0.1.0-Oracle-Database-MultiPlatform

3. Create a temporary directory named `TEMPDIR` on your local machine.
4. Unzip the `RMB-V2.5.0.1.0-Oracle-Database-MultiPlatform` file in the `TEMPDIR` directory. The contents include the following sub-folders:
   - `Demo_dump`
   - `FW`
   - `RMB`

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2.3.2.2 Creating the Database

Note: You must have Oracle Database Server 12.1.0.2 installed on your machine in order to create the database.

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. Ensure that you set the database character set to AL32UTF8.

For more information on how to create the database, refer to the Creating the Database section.

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.

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. Ensure that you set the database character set to AL32UTF8.

For more information on how to create the database, refer to the Creating the Database section.

2.3.2.3 Importing the Demo Dump File

Once you create the database, you can import the `demo_dump.dmp` file. To import the demo dump file:

1. Create a database directory named `data_pump_dir` (If not available) and copy the dump file to this location.
2. Set the ORACLE_SID and ORACLE_HOME environment variables.
3. If the target schema is `CISADM`, then use the following command to import demo dump:

```
impdp system/<pwd>@<dbname>  NOLOGFILE=N DIRECTORY=DATA_PUMP_DIR
DUMPFILE=<dumpFilename>.dmp  SCHEMAS=CISADM
```

4. If the target schema is other than `CISADM` (for example, `TRGSCHEM`), then use the following command to import demo dump:

```
impdp system/<pwd>@<dbname>  NOLOGFILE=N DIRECTORY=DATA_PUMP_DIR
DUMPFILE=<dumpFilename>.dmp  REMAP_SCHEMA=CISADM:TRGSCHEMA
```

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2.3.2.4 Post Demo Database Creation Tasks

Once you import the demo dump file, you need to do the following:

1. Install Oracle Revenue Management and Billing Version 2.5.0.1.0
2. Enable USER_LOCK Package
3. Grant Permissions to the DBMS_LOCK Package and Recompile Database Objects
4. Generate Database Statistics

Installing Oracle Revenue Management and Billing Version 2.5.0.1.0

To install Oracle Revenue Management and Billing Version 2.5.0.1.0:

1. Execute the `CdxDBI.exe` utility from `..\TEMPDIR\RMB\Upgrade\Oracle\Install-Upgrade\` directory.

Note:
The `TEMPDIR` folder is the location where you have extracted the contents of the `RMB-V2.5.0.1.0-Oracle-Database-MultiPlatform.zip` file.
Ensure that you execute the `CdxDBI` utility from the Window 32-bit or 64-bit desktop that has Oracle Database Client 12.1.0.2 (32-bit) and Java Development Kit Version 7.0 installed. The database must be listed in the `tnsnames.ora` file on your local machine.

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

Parameter	Value
Enter the name of the target database	`<DB_NAME>`
Enter the name of the owner of Database Schema	`<DB_USER>` Example: `CISADM`
Enter the location for Java Home (e.g. C:\Java\jdk1.6.0_18)	`..\jdk1.7.0_21`
Enter the TUGBU jarfiles location (e.g. C:\Database-Install\Jarfiles)	`..\RMB\jarfiles`
Enter the password for <DB_USER> schema (or hit ENTER to quit)	`<DB_USER_PASSWORD>`
Re-enter the password	`<DB_USER_PASSWORD>`
Enter the Oracle user with read-write privileges to Database Schema	`<DB_USER>` Example: `CISUSER`
Enter the Oracle user with read-only privileges to Database Schema	`<DB_USER>` Example: `CISREAD`
Enter the database role with read-write privileges to Database Schema	`<DB_USER_ROLE>` Example: `CIS_USER`
Enter the database role with read-only privileges to Database Schema	`<DB_USER_ROLE>` Example: `CIS_READ`

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2. Enter the required parameter values. The following message appears in the command line:

   ```
   Ready to upgrade the target database from V2.5.0.0.1 to V2.5.0.1.0 do you want to continue (Y/N)?
   ```

3. Type **Y** and then press **Enter**. The following message appears in the command line:

   ```
   Ready to upgrade the target database, Do you want to continue? (Y/N)
   ```

4. Type **Y** and then press **Enter**. The utility upgrades the schema and system data definitions, and thereby reflects the metadata changes in the database. If an error occurs while executing the utility, it logs and displays the error message and allows you to re-execute the current step.

On installing Oracle Revenue Management and Billing Version 2.5.0.1.0, various objects are created in the database under CISADM schema. The following table lists the number of objects that are created when you install ORMB:

Object Type	Count
FUNCTION	16
INDEX	2618
INDEX PARTITION	33
LOB	151
PACKAGE	4
PACKAGE BODY	4
PROCEDURE	2
SEQUENCE	41
TABLE	1778
TABLE PARTITION	2
TRIGGER	11
TYPE	11
TYPE BODY	1
VIEW	154

Ideally, the Oracle Revenue Management and Billing Version 2.5.0.1.0 installation should approximately finish in 15 minutes. The execution time can vary to great extent depending on network speed between local machine and server location.

Enable USER_LOCK Package

To enable inbound web services, you must grant permissions to the USER_LOCK package. This is a one-time activity. To grant permissions to the USER_LOCK package:

1. Login as `SYS` user.

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2. On SQL prompt, execute the following SQL:

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

3. Grant permission using the following SQL command:

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

Note: You can also grant permission to a specific database user (for example, CISADM or CISUSER) instead of granting permissions to all database users.

Grant Permissions to the DBMS_LOCK Package and Recompile Database Objects

To grant permissions to the DBMS_LOCK package, execute the following commands:

UNIX:

```
export ORACLE_SID=[DB_NAME]
sqlplus /nolog
conn sys as sysdba
```

Note: On executing the above command, you will be prompted to enter the `SYS` user password.

```
grant EXECUTE, DEBUG on DBMS_LOCK to <DB_USER/[CISADM]>;
```

Note:
These commands should be executed using Oracle SQL Developer.
If you have created the database using any user other than CISADM, you need to specify the respective user name in the above alter and grant statements.

After executing the above `grant` statement, recompile the invalid objects, if any, in the database. You can recompile all invalid objects at once using the following commands:

```
export ORACLE_SID=[DB_NAME]
sqlplus /nolog
conn sys as sysdba
SQL> @?/rdbms/admin/utlrp.sql;
```

Windows:

```
set ORACLE_SID=[DB_NAME]
sqlplus /nolog
conn sys as sysdba
```

Note: On executing the above command, you will be prompted to enter the `SYS` user password.

```
grant EXECUTE, DEBUG on DBMS_LOCK to <DB_USER/[CISADM]>;
```

Note:
These commands should be executed using Oracle SQL Developer.
If you have created the database using any user other than CISADM, you need to specify the respective user name in the above alter and grant statements.

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After executing the above grant statement, recompile the invalid objects, if any, in the database. You can recompile all invalid objects at once using the following commands:

```
export ORACLE_SID=[DB_NAME]
sqlplus /nolog
conn sys as sysdba
SQL> @?/rdbms/admin/utlrp.sql;
```

Generate Database Statistics

During the installation process, new database objects may be added to the target database. Before you use the target database, we recommend you to gather statistics for the database objects. You can gather schema level statistics using the following statement:

```
BEGIN
DBMS_STATS.GATHER_SCHEMA_STATS(OWNNAME=>'CISADM', METHOD_OPT=>'FOR ALL COLUMNS SIZE AUTO', GRANULARITY=>'ALL', CASCADE=>TRUE, DEGREE=>16);
END;
```

You can also gather the statistics for individual tables using the following statement:

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

We strongly recommend you to schedule batch jobs to gather the schema level statistics on the daily basis in the non peak hours. Please note that the statistics should not be gathered while the application batches are running because this will degrade the application batch performance.

2.3.2.5 Configuring Security

The configuration utility and scripts are located in the ..\TEMPDIR\RMB\Security folder. The TEMPDIR folder is the location where you have extracted the contents of the RMB-V2.5.0.1.0-Oracle-Database-MultiPlatform.zip file. To configure security, follow these steps:

1. Execute the OraGenSec.exe utility.

Note:
Database vault must be disabled before running.
Ensure that you execute the OraGenSec utility from the Window 32-bit or 64-bit desktop that has Oracle Database Client 12.1.0.2 (32-bit) and Java Development Kit Version 7.0 installed. The database must be listed in the tnsnames.ora file on your local machine.

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

Parameter	Value
Enter the application read-only user or Schema Owner in the database	<DB_USER> Example: CISADM

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Parameter	Value
Enter the password for the <DB_USER> user	<DB_USER_PASSWORD> Example: CISADM
Enter the name of the Oracle database	<DB_NAME>
Enter a comma-separated list of Oracle users in which synonyms need to be created (e.g. cisuser, cisread)	<DB_USER> Example: CISUSER,CISREAD

2. Enter the required parameter values. The following message appears in the command line:

   (A/a): Generate security for All objects in the Database?

   (O/o): Generate security for specific Objects inputted in this terminal?

   (F/f): Generate security for specific objects generated from an input File?

3. Type **A** to generate security for all objects in the database, and then press **Enter**. A message appears indicating that the database connection is established and security is defined for all objects in the database.

Note:
This utility configures security for the application owner schema objects.
If you run Oragensec in the Interactive Mode (i.e. 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]
```


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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

3.1 Database Object Standard

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

3.1.1 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 the Indexes section for more information.

3.1.2 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.

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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. For customer modification, CM must be prefixed in the column name. 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. The standard is to use the two characters of the product's owner flag. Note that there may be some older indexes that use only the first character of the owner flag. For client specific implementation of index, use CM for Owner Flag. If implementation creates a CM Index on table-columns for which the base product already provides an index, then the CM Index will be overridden by the base index.
- Application specific prefix could be C, F, T or another letter.

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- 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.

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We recommend you to create CLOBs and store them in SECUREFILE with medium compression and cache enabled. Note that, by default, medium compression is turned-off and must be enabled only if you have the Advanced Compression license.

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 must be updated 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 an initial install, information for each object should be reviewed by a DBA. For each upgrade, 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, F1 stands for Framework. 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, F1 stands for framework. 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.

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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, F1 stands for framework. Other examples are M1, C1, D1, D2, etc. For Example: F1FKVALID_SEQ
   - For a customer modification, CM must be prefixed in 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.

3.2 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.

3.2.1 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.

3.2.2 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.

3.2.3 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.

3.2.4 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.

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3.2.5 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.

3.2.6 Null Column Support

The product supports 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 behaviour when using that metadata. The upgrade script fixes the metadata to make sure that the existing tables will not be affected.

This new feature only supports tables maintained by Java, and not by Java program converted from COBOL. 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 by Java converted COBOL programs.

3.2.7 XML Type Support

The product 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.

3.2.8 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.

3.2.9 Table Classification and Table Volume Flags

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

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

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3.2.10 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.

3.2.11 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.

3.3 Standard Columns

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

3.3.1 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.

3.3.2 Version

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

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4. Exadata Database Settings

If you are using the Oracle Exadata Database machine as the database server, ensure that you do the following:

- Use the Write-Back Flash Cache feature to leverage the Exadata Flash hardware
- Use the Exadata Smart Flash Logging feature

Note: By default, 512 MB of the Exadata flash is allocated to Smart Flash Logging. This is sufficient enough to handle the load of 300 million transactions daily in TFM.

- Set the temporary tablespace size to at least 600 GB
- Create `CISTS_01` tablepsace to store the `cisadm` objects using the BIGFILE and EXTENT MANAGEMENT LOCAL AUTOALLOCATE clauses. For example:

```
CREATE BIGFILE TABLESPACE CISTS_01 DATAFILE
'+DATAC1/DBNAME/datafile/cists01.dbf' SIZE 800G AUTOEXTEND ON
EXTENT MANAGEMENT LOCAL AUTOALLOCATE;
```

Note: Exadata servers can have two types of disks – High Capacity and High Performance. The Exadata throughput may vary depending on the disk type.

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5. Database Implementation Guidelines

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

- Configuration Guidelines
- Oracle Database Implementation Guidelines

5.1 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 the following topics:

5.1.1 Index

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

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

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

5.1.2 Temporary and Undo Tablespace

To begin with, we recommend you to set the temporary tablespace to at least 100GB auto extendable till 200GB and the undo tablespace to at least 100GB auto extendable till 300GB. The upper limit of both the tablespaces will vary as per the volume of the data and preferred chunk size of the batch.

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5.1.3 Transparent Data Encryption Recommendations

Oracle Utilities supports Oracle Transparent Data Encryption (TDE). Oracle 12c 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.

5.1.4 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.

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5.1.4.1 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.

5.1.4.2 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.

5.1.4.3 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.

5.1.5 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.

5.1.6 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.

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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

/
```

5.1.7 Storage Recommendations

This section specifies recommended options for storing the database objects.

5.1.7.1 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 Oracle Database.
If you are using Oracle Database Enterprise Edition, you must ensure that the **COMPRESS** flag is set to **Y** in the `Storage.xml` file. See the Database Syntax section for more information on SecureFiles.

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5.1.8 Database Configuration Recommendations

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

5.1.8.1 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.

We recommend you to set the redo log file size to at least 4GB or more depending on the volume of transactions. This will help you to ensure that there are not more than 5 to 6 log switches per hour.

5.1.9 Database Syntax

5.1.9.1 SecureFile

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


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

5.1.10 Database Initialization Parameters

This section recommends value for each parameter in the `init.ora` file. These parameters are a starting point for database tuning. The actual or optimal value for a production environment may differ from one deployment to another.

The following recommendations must be treated as guidelines and not as the actual values:

Parameter	Recommended Value
MEMORY_MAX_TARGET	40-50% of total available RAM on the node
MEMORY_TARGET	Value should be less than or equal to the value set for the MEMORY_MAX_TARGET parameter and at the same time it should be greater than or equal to the sum of SGA_TARGET and PGA_AGGREGATE_TARGET

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Parameter	Recommended Value
SGA_TARGET	50-70% of the value defined for the MEMORY_TARGET parameter
SGA_MAX_SIZE	70-80% of the value defined for the MEMORY_MAX_TARGET parameter
DB_CACHE_SIZE	4GB
PGA_AGGREGATE_TARGET	2GB
STATISTICS_LEVEL	TYPICAL or ALL **Note:** This parameter is mandatory when you want to use automatic memory management.
OPTIMIZER_INDEX_COST_ADJ	100 **Note:** The value for this parameter should not be changed because it can drastically degrade the batch performance.
OPTIMIZER_INDEX_CACHING	0 **Note:** The value for this parameter should not be changed because it can drastically degrade the batch performance.
DB_BLOCK_SIZE	8192
LOG_CHECKPOINT_INTERVAL	0
DB_FILE_MULTIBLOCK_READ_COUNT	8
TRANSACTIONS	3000
OPEN_CURSORS	30000
DB_WRITER_PROCESSES	10 **Note:** The value for this parameter must be within the range of 1 to 20. Ideally, it must be set to 1 or CPU_COUNT/8, whichever is greater.
DB_FILES	1024
DBWR_IO_SLAVES	10 **Note:** You must set this parameter to a nonzero value only when the system does not support asynchronous IO.
SESSIONS	4500
PROCESSES	3000
DML_LOCKS	48600
_B_TREE_BITMAP_PLANS	FALSE

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Parameter	Recommended Value
SESSION_CACHED_CURSORS	500

For example, we recommend you to specify the following values when 100GB of RAM is available on the node:

MEMORY_MAX_TARGET = 50G

MEMORY_TARGET = 40G

SGA_TARGET = 30G

SGA_MAX_SIZE = 40G

DB_CACHE_SIZE = 4G

PGA_AGGREGATE_TARGET = 2G

STATISTICS_LEVEL=TYPICAL

5.1.11 Shrink Tables

A large number of rows are inserted and then deleted from the following three tables:

- CI_TXN_DTL_PRITM_SUMMARY
- CI_TXN_DETAIL_STG
- CI_ROLLBACK_TXN_DETAIL

Therefore, these tables need to be shrunk periodically. This activity should be carried out when no other transactions are active on the database.

1. Extract and keep the DDL scripts for all the existing indexes on the above tables from the data dictionary.
2. Drop all the indexes on the above tables.
3. Shrink the tables by executing following statements using SQL client:

```
ALTER TABLE CI_TXN_DTL_PRITM_SUMMARY ENABLE ROW MOVEMENT;
ALTER TABLE CI_TXN_DTL_PRITM_SUMMARY SHRINK SPACE CASCADE;
ALTER TABLE CI_TXN_DETAIL_STG ENABLE ROW MOVEMENT;
ALTER TABLE CI_TXN_DETAIL_STG SHRINK SPACE CASCADE;
ALTER TABLE CI_ROLLBACK_TXN_DETAIL ENABLE ROW MOVEMENT;
ALTER TABLE CI_ROLLBACK_TXN_DETAIL SHRINK SPACE CASCADE;
```

4. Recreate all the indexes using scripts generated in step 1 above.

You can execute these statements either manually or through a batch process which is configured to run at regular interval.

Note: Shrink operations can be performed only on segments in locally managed tablespaces with Automatic Segment Space Management (ASSM).

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Once the above statements are executed, you must gather statistics using the following statements:

```
BEGIN

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

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

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

END;
```

5.2 Oracle Database Implementation Guidelines

This section provides specific guidelines for implementing the Oracle database.

5.2.1 Oracle Partitioning

If you use a base index as 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.

5.2.2 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 dta 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 follows:

```
BEGIN

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

END;

/
```


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5.2.3 Materialized View

Oracle Database Enterprise Edition supports query rewrite using Materialized View. If you use Oracle Database Enterprise Edition, you can create the following Materialized View to improve performance of the C1- TRMDD batch:

```
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
/
```

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Appendix A : New Objects in the Oracle Revenue Management and Billing V2.5.0.1.0 Database

This section lists the objects that are newly added in the Oracle Revenue Management and Billing V2.5.0.1.0 database. These objects are classified under the following two sections:

- Schema Changes
- New System Data

A.1 Schema Changes

This section lists schema related changes made in the Oracle Revenue Management and Billing V2.5.0.1.0 database.

A.1.1 New Tables

The following tables are newly added in the Oracle Revenue Management and Billing V2.5.0.1.0 database:

Table	Description
C1_REF_WO_REQ	Refund/Write Off Request
C1_REF_WO_REQ_CHAR	Refund/Write Off Request Characteristics
C1_REF_WO_REQ_DTLS	Refund/Write Off Request Details
C1_REF_WO_REQ_K	Refund/Write Off Request Key
C1_REF_WO_REQ_LOG	Refund/Write Off Request Log
C1_REF_WO_REQ_LOG_PARM	Refund/Write Off Request Log Message Parameter
C1_REF_WO_REQ_TYPE	Refund/Write Off Request Type
C1_REF_WO_REQ_TYPE_CHAR	Refund/Write Off Request Type Characteristics
C1_REF_WO_REQ_TYPE_L	Refund/Write Off Request Type Language
CI_BATCH_MAPPING	Batch Run Mapping
CI_PRICEITEM_REL_CHAR	Bundle-Specific Product Characteristics
CI_PROFILE_CHAR	Profile Characteristics

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A.1.2 Added Columns

The following columns are newly added in the Oracle Revenue Management and Billing V2.5.0.1.0 database:

Table	Column	Required (Yes or No)
C1_PAY_DISTRIBUTION	VERSION	No
CI_TXN_REC_TYPE_L	UDF_AMT_10_DESC	No
	UDF_AMT_6_DESC	No
	UDF_AMT_7_DESC	No
	UDF_AMT_8_DESC	No
	UDF_AMT_9_DESC	No
	UDF_CUR_10_DESC	No
	UDF_CUR_6_DESC	No
	UDF_CUR_7_DESC	No
	UDF_CUR_8_DESC	No
	UDF_CUR_9_DESC	No
	UDF_NBR_11_DESC	No
	UDF_NBR_12_DESC	No
	UDF_NBR_13_DESC	No
	UDF_NBR_14_DESC	No
	UDF_NBR_15_DESC	No
	UDF_NBR_16_DESC	No
	UDF_NBR_17_DESC	No
	UDF_NBR_18_DESC	No
	UDF_NBR_19_DESC	No
	UDF_NBR_20_DESC	No
CI_BATCH_RUN_CNTRL	CM_BATCH_CD	No
	PREV_RUN_GRP_ID	No
CI_TXN_DETAIL_STG	UDF_AMT_10	No
	UDF_AMT_6	No
	UDF_AMT_7	No
	UDF_AMT_8	No

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Table	Column	Required (Yes or No)
	UDF_AMT_9	No
	UDF_CURRENCY_CD_10	No
	UDF_CURRENCY_CD_6	No
	UDF_CURRENCY_CD_7	No
	UDF_CURRENCY_CD_8	No
	UDF_CURRENCY_CD_9	No
	UDF_NBR_11	No
	UDF_NBR_12	No
	UDF_NBR_13	No
	UDF_NBR_14	No
	UDF_NBR_15	No
	UDF_NBR_16	No
	UDF_NBR_17	No
	UDF_NBR_18	No
	UDF_NBR_19	No
	UDF_NBR_20	No
F1_EXT_LOOKUP_VAL	BASE_BO_DATA_AREA	No
CI_NAV_OPT	MULTI_QUERY_ZONE_CD	No
	SUB_QUERY_ZONE_CD	No
CI_TXN_DETAIL	UDF_AMT_10	No
	UDF_AMT_6	No
	UDF_AMT_7	No
	UDF_AMT_8	No
	UDF_AMT_9	No
	UDF_CURRENCY_CD_10	No
	UDF_CURRENCY_CD_6	No
	UDF_CURRENCY_CD_7	No
	UDF_CURRENCY_CD_8	No
	UDF_CURRENCY_CD_9	No
	UDF_NBR_11	No
	UDF_NBR_12	No

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Table	Column	Required (Yes or No)
	UDF_NBR_13	No
	UDF_NBR_14	No
	UDF_NBR_15	No
	UDF_NBR_16	No
	UDF_NBR_17	No
	UDF_NBR_18	No
	UDF_NBR_19	No
	UDF_NBR_20	No
CI_SCR_L	DESCR4000	No
C1_PAY_MATCH_TYPE	VERSION	No
CI_TXN_CALC_LN_CHAR	CHAR_ENTITY_FLG	No
C1_PAY_DETAILS	VERSION	No
CI_BATCH_CTRL_P	TEXT_SECURITY_FLG	No
CI_PAY_CAN_RSN	TRANSFER_SW	Yes
CI_TXN_DTL_PRITM_STG	UDF_AMT_10	No
	UDF_AMT_6	No
	UDF_AMT_7	No
	UDF_AMT_8	No
	UDF_AMT_9	No
	UDF_CURRENCY_CD_10	No
	UDF_CURRENCY_CD_6	No
	UDF_CURRENCY_CD_7	No
	UDF_CURRENCY_CD_8	No
	UDF_CURRENCY_CD_9	No
	UDF_NBR_11	No
	UDF_NBR_12	No
	UDF_NBR_13	No
	UDF_NBR_14	No
	UDF_NBR_15	No
	UDF_NBR_16	No
	UDF_NBR_17	No

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Table	Column	Required (Yes or No)
	UDF_NBR_18	No
	UDF_NBR_19	No
	UDF_NBR_20	No
CI_TXN_DTL_PRITM	UDF_AMT_10	No
	UDF_AMT_6	No
	UDF_AMT_7	No
	UDF_AMT_8	No
	UDF_AMT_9	No
	UDF_CURRENCY_CD_10	No
	UDF_CURRENCY_CD_6	No
	UDF_CURRENCY_CD_7	No
	UDF_CURRENCY_CD_8	No
	UDF_CURRENCY_CD_9	No
	UDF_NBR_11	No
	UDF_NBR_12	No
	UDF_NBR_13	No
	UDF_NBR_14	No
	UDF_NBR_15	No
	UDF_NBR_16	No
	UDF_NBR_17	No
	UDF_NBR_18	No
	UDF_NBR_19	No
	UDF_NBR_20	No
CI_ZONE_L	DESCR_OVRD	No

A.1.3 Dropped Tables

None

A.1.4 Dropped Columns

None

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A.1.5 Column Format Change

None

A.2 New System Data

The system data is used to configure various features in Oracle Revenue Management and Billing. This section lists the system data that is newly added in the Oracle Revenue Management and Billing V2.5.0.1.0 database.

A.2.1 Algorithm Type

The following algorithm types are newly added in the Oracle Revenue Management and Billing V2.5.0.1.0 database:

Algorithm Type	Description
ADJT-REV	Payoff Amt = Adj / Current Amt = Adj, Revenue Reversal for Write Off Adjustments
C1-DAPO	Transaction Feed Management – Disaggregation Post-Processing
C1-FRZ-VALID	Payment Request – Validate Payments of a Payment Event Before Freezing
C1-MDBYBILL	Payment Request – Manual Distribution When Match Type is Bill
C1-PAY-FRZ	Payment Request – Freeze Payments of a Payment Event
C1-PAY-RJT	Payment Request – Enter Status Algorithm for Rejected
C1-REF-DFT	Refund Request – Enter Status Algorithm for Draft
C1-REFADJCRI	Refund Request – Create Refund/Write Up Adjustments
C1-REFAPPRVD	Refund Request – Enter Status Algorithm for Approved
C1-REFREQINF	Refund/Write Off Request - Information
C1-REFUNDAPP	Refund Request – Create To Do for Approver
C1-REFUNDSUB	Refund Request – Validate Refund Request Before Submission
C1-REFUNDVAL	Refund Request - Validation
C1-REFWOPOSP	Refund Request – Post-Processing
C1-REFWPEP	Refund/Write Off Request Type – Pre-Processing
C1-UDPO	Transaction Feed Management – Update Disaggregation Request Post-Processing
C1-WOADJCRT	Write Off Request – Create Write Off Adjustments
C1-WOAPPROVD	Write Off Request – Enter Status Algorithm for Approved
C1-WOAPPROVL	Write Off Request - Create To Do for Approver

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Algorithm Type	Description
C1-WOBOVAL	Write Off Request - Validation
C1-WOCANCEL	Write Off Request – Enter Status Algorithm for Canceled
C1-WODRAFT	Write Off Request - Enter Status Algorithm for Draft
C1-WOPOSP	Write Off Request – Post-Processing
C1-WOSUBMIT	Write Off Request – Validate Write Off Request Before Submission
C1_BCHG_POPC	Transaction Feed Management - Billable Charge Post-Processing
C1_CNCL_PRPC	Transaction Feed Management - Cancellation Pre-Processing
C1_DSAG_PRPC	Transaction Feed Management- Disaggregation Pre-Processing
C1_PRDR_POPC	Transaction Feed Management - Product Derivation Post-Processing
C1_ROBK_PRPC	Transaction Feed Management - Rollback Pre-Processing
C1_RTCL_POPC	Transaction Feed Management - Rate Calculation Post-Processing
C1_RTCL_PRPC	Transaction Feed Management - Rate Calculation Pre-Processing
C1-VRPR_POPC	Transaction Feed Management - Product Pricing Verification Post-Processing
CR-DSTRBTN	Distribute Credit from the Excess Contract against the Bill
DUE DT OVRD2	Override Due Date Using Account Characteristic(s) (Add Business Days)

A.2.2 Algorithm

The following algorithms are newly added in the Oracle Revenue Management and Billing V2.5.0.1.0 database:

Algorithm	Description
ADJT-REV	Payoff Amt = Adj / Current Amt = Adj, Revenue Reversal for Write Off Adjustments
C1-DAPO	Transaction Feed Management - Disaggregation Post-Processing
C1-FRZ-VALID	Payment Request – Validate Payments of a Payment Event Before Freezing
C1-MDBYBILL	Payment Request - Manual Distribution When Match Type is Bill
C1-PAY-FRZ	Payment Request – Freeze Payments of a Payment Event
C1-PAY-RJT	Payment Request – Enter Status Algorithm for Rejected
C1-REF-DFT	Refund Request - Enter Status Algorithm for Draft
C1-REFADJCRI	Refund Request – Create Refund/Write Up Adjustments
C1-REFAPPRVD	Refund Request – Enter Status Algorithm for Approved
C1-REFREQINF	Refund/Write Off Request - Information
C1-REFUNDAPP	Refund Request - Create To Do for Approver

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Algorithm	Description
C1-REFUNDSUB	Refund Request – Validate Refund Request Before Submission
C1-REFUNDVAL	Refund Request - Validation
C1-REFWOPOSP	Refund Request – Post-Processing
C1-REFWPEP	Refund/Write Off Request Type – Pre-Processing
C1-UDPO	Transaction Feed Management - Update Disaggregation Request Post-Processing
C1-WOADJCRT	Write Off Request – Create Write Off Adjustments
C1-WOAPPROVD	Write Off Request – Enter Status Algorithm for Approved
C1-WOAPPROVL	Write Off Request - Create To Do for Approver
C1-WOBOVAL	Write Off Request - Validation
C1-WOCANCEL	Write Off Request – Enter Status Algorithm for Cancelled
C1-WODRAFT	Write Off Request - Enter Status Algorithm for Draft
C1-WOPOSP	Write Off Request – Post-Processing
C1-WOSUBMIT	Write Off Request – Validate Write Off Request Before Submission
C1_RATEVALUE	Rate Value Algorithm
C1_BCHG_POPC	Transaction Feed Management - Billable Charge Post-Processing
C1_CNCL_PRPC	Transaction Feed Management - Cancellation Pre-Processing
C1_DSAG_PRPC	Transaction Feed Management- Disaggregation Pre-Processing
C1_PRDR_POPC	Transaction Feed Management - Product Derivation Post-Processing
C1_ROBK_PRPC	Transaction Feed Management - Rollback Pre-Processing
C1_RTCL_POPC	Transaction Feed Management - Rate Calculation Post-Processing
C1_RTCL_PRPC	Transaction Feed Management - Rate Calculation Pre-Processing
C1-VRPR_POPC	Transaction Feed Management - Product Pricing Verification Post-Processing
CR-DSTRBTN	Distribute Credit from the Excess Contract against the Bill
DUE DT OVRD2	Override Due Date Using Account Characteristic(s) (Add Business Days)
DY	Number of Days in the Billing Period

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A.2.3 Business Service

The following business services are newly added in the Oracle Revenue Management and Billing V2.5.0.1.0 database:

Business Service	Description
C1-AddUserRefundLog	Refund/Write Off Request - Add User Log Entry
C1-BILLADDACTION	Add Bills to Refund Request
C1-BillLineItemAddActionRefund	Add Bill Line Items to Refund Request
C1-BillLineItemAddActionWO	Add Bill Line Items to Write Off Request
C1-BillWOAddAction	Add Bills to Write Off Request
C1-CalculateRefundedAmtPayEvnt	Calculate Amount Refunded for Payment Event
C1-CalculateRefundedAmtPayment	Calculate Amount Refunded for Payment
C1-FetchRefReqStatus	Fetch Refund/Write Off Request Status
C1-FetchSAIdForAcct	Fetch Suspense/Excess Credit Contract for Account
C1-GETCOMMENTS	Fetch Comments for Refund Reject Reason
C1-GetAdjustmentType	Fetch Adjustment Type for Refund/Write Off Request Type
C1-GetPaymentCancelReason	Get Payment Transfer Reason with Description
C1-PaySegRedistribution	View/Update Payment Segment Redistribution
C1-PaymentAddAction	Add Payment/Payment Event for Refund
C1-RefundCount	Retrieve Count of Unprocessed Refund Requests
C1-RefundCount1	Check if any Refund Request Already Processed
C1-RefundEligPayAmt	Calculate Eligible Payment Amount for Refund
C1-RefundReqButton	Retrieve Buttons Based on the Refund Request Status
C1-RetrieveChildProd	Get All Child Products for a Parent Product
C1-RetrieveRefundReqTypes	Retrieve Refund/Write Off Request Types
C1-SATypeCheck	Fetch Count of Contracts with specific Contract Types
C1-WOReqButton	Retrieve Buttons Based on the Write Off Request Status

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A.2.4 Application Service

The following application services are newly added in the Oracle Revenue Management and Billing V2.5.0.1.0 database:

Application Service	Description
C1-REFWOREQ	Refund Request
C1-WRITEOFFREQ	Write Off Request
C1REFSTP	Refund Request
C1REFUND	Refund/Write Off Request
C1RFWORT	Refund/Write Off Request Type
C1WODET	Write Off Request
C1_PRDREL	Product Relationship View
CILCPLAS	Assign Price List

A.2.5 Batch Control

None

A.2.6 Foreign Key Reference

The following foreign key references are newly added in the Oracle Revenue Management and Billing V2.5.0.1.0 database:

Foreign Key Reference	Description
C1-PAYSG	Edit Payment Segment Amount in Payment Request Entity
C1-REFWO	Refund/Write Off Request
C1-RFWOR	Refund/Write Off Request Type

A.2.7 Maintenance Object

The following maintenance objects are newly added in the Oracle Revenue Management and Billing V2.5.0.1.0 database:

Maintenance Object	Description
C1-REFWOREQ	Refund/Write Off Request
C1-RFWORQTY	Refund/Write Off Request Type

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A.2.8 Business Object

The following business objects are newly added in the Oracle Revenue Management and Billing V2.5.0.1.0 database:

Business Object	Description
C1-RefWoReqType	Refund/Write Off Request Type
C1-RefundReq	Refund Request
C1-WORequest	Write Off Request

A.2.9 Script

The following scripts are newly added in the Oracle Revenue Management and Billing V2.5.0.1.0 database:

Script	Description
C1-AddBSAdjR	Add Bill Line Items to Refund Request
C1-AddBSAdjW	Add Bill Line Items to Write Off Request
C1-AddRefLog	Refund/Write Off Request - Add User Log Entry
C1-AppSec	Check User Access to Application Service Based on Access Mode
C1-BSAdjDisp	Zone Visibility Based on Refund Request Status and Bill ID
C1-DETAILBUT	Payment Request - Show/Hide Detail Button in the Payment Distribution Zone
C1-HandleErr	Refund Request - Error Handling
C1-IsRefInt	Displays Zone If the Refund Request is in the Draft Status
C1-MainProcV	Refund/Write Off Request - Main BO Maintenance Processing
C1-PayRqRef	Validate Refund Request Initiated from Payment Event Summary
C1-PySgRedst	View/Update Payment Segment Redistribution
C1-REFPAYPTL	Refund Request - Validate Search Parameters for Payment Search
C1-RefAddPay	Add Payment Events/Payments to Refund Request
C1-RefReqInf	Refund/Write Off Request - Generate Information String
C1-RefReqTyV	Refund/Write Off Request - Validate Refund/Write Off Request Type
C1-RefRqMain	Refund/Write Off Request Type - Maintain
C1-RefRqTyLi	Refund/Write Off Request - Fetch Active Refund Request Types
C1-RefWoMain	Refund/Write Off Request - Maintain

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Script	Description
C1-RefWoTYM	Refund/Write Off Request Type - Maintain
C1-RfAddBill	Add Bills to Refund Request
C1-SelRfdReq	Refund/Write Off Request - Select Refund/Write Off Request Type
C1-ShldShwPy	Zone Visibility Based on Refund Request Status and Payment Event ID
C1-WOAddBill	Add Bills to Write Off Request
C1_RefReqTyV	Refund Request - Validate Refund Request Type

A.2.10 To Do Type

The following To Do types are newly added in the Oracle Revenue Management and Billing V2.5.0.1.0 database:

To Do Type	Description
C1-REFRQ	Refund Request Approval
C1-WOREQ	Write Off Request Approval

A.2.11 Portal

The following portals are newly added in the Oracle Revenue Management and Billing V2.5.0.1.0 database:

Portal	Description
C1REFBLTAB	Refund Request - Bills Tab
C1REFLGTB	Refund Request - Log Tab
C1REFPYTAB	Refund Request - Payments Tab
C1REFSTP	Refund Request
C1REFUND	Refund/Write Off Request
C1RFWORT	Refund/Write Off Request Type
C1WOBILLTB	Write Off Request - Bills Tab
C1WODET	Write Off Request
C1WOLOGTAB	Write Off Request - Log Tab

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A.2.12 Zone

The following zones are newly added in the Oracle Revenue Management and Billing V2.5.0.1.0 database:

Zone	Description
C1-ADJTYSRC	Adjustment Type Search
C1-BILLREQ	Bill Details
C1-GETADJTYP	Get Adjustment Type for Refund/Write Off Request Type
C1-GETCMT	Get Comments While Rejecting Refund/Write Off Request
C1-PARMSRCH	Parameter Search
C1-PAYCAN	Fetch Payment Cancel Reasons
C1-REFAMTPE	Fetch Amount Refunded for Payment Event
C1-REFAMTPY	Fetch Amount Refunded for Payment
C1-REFBILSRC	C1-REFBILSRC
C1-REFBLSRCH	Search Bills
C1-REFCNT	Retrieve Count of Unprocessed Refund Requests
C1-REFCNT1	Check if any Refund Request Already Processed
C1-REFPAYAMT	Refund Payment Amount
C1-REFPAYSEG	Payment Segments
C1-REFRQTYPE	Active Refund Request Types
C1-REFUND	Refund Request
C1-REFUNDDTL	Refund Details
C1-REFUNDLOG	Refund Request Log
C1-REFUNDS1	Request Details
C1-REFUNDS2	Payment Details
C1-REFUNDSRC	Search Refund/Write Off Request
C1-REFWORTY	Refund/Write Off Request Type List
C1-RFBILLITM	Bill Line Items
C1-RFPAYMENT	Payments
C1-RFPAYSRCH	Search Payment Event
C1-RFPAYSRH1	Payment Details
C1-RFPAYSRH2	Tender Details

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Zone	Description
C1-RFPAYSRH3	Suspense/Excess Credit Contract
C1-RFRQSTAS	Retrieve BO Status For Refund/Write Off Request
C1-RFWORQTYD	Refund/Write Off Request Type
C1-SACNT	Payment Count
C1-SAFORACC	Retrieve Suspense/Excess Credit Contracts for an Account
C1-WOBILLITM	Bill Line Items
C1-WOBILSRC	Bill Details
C1-WOBILSRCH	Search Bills
C1-WODETAIL	Write Off Details
C1-WOLOG	Write Off Request Log
C1-WOREQUEST	Write Off Request
C1SASRC	Contract search
C1_ACCTSETT	Account-Settlement Hierarchy
C1_CRTINVC	Criteria
C1_CRTSETL	Criteria
C1_CRTUSAG	Criteria
C1_CRTUSIV	Criteria
C1_CUSTSETT	Customer-Settlement Hierarchy
C1_HIERACCT	Account-Billing Hierarchy
C1_HIERCUST	Customer-Billing Hierarchy
C1_LNKDACCT	Linked Accounts
C1_PROD_REL	Search Product
CI_BILL	Bill Search
DD-TXNERORSH	Error

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A.2.13 UI Map

The following UI maps are newly added in the Oracle Revenue Management and Billing V2.5.0.1.0 database:

UI Map	Description
C1-ADJ_TYP_SRCH	Adjustment Type Search
C1-AddUserRefundLog	Refund Request - Add User Log Entry
C1-CONTRACTSRC	Suspense/Excess Credit Contract Search
C1-EditPaySegmentDistribution	Payment Segment Distribution - View/Edit Payment Amount
C1-MessagePopUp	Message Pop-up
C1-PARMSRCH	Parameter Search
C1-REFPAYPTLSRC	Refund Request - Search Payment Event
C1-REFWOBILLSRC	Refund/Write Off Request - Search Bills
C1-REFWOBILLSRCH	Search Refund/Write Off Request Using Bill Details
C1-RefWOReqAddrDisFrag	Refund Request Address - Display Fragment
C1-RefWOReqTypeCharsDispFrag	Refund Write Request Type Characteristics - Display Fragment
C1-RefWoReqAddrFrag	Refund Request Address - Maintenance Fragment
C1-RefWoReqTyBOFragDis	Refund/Write Off Request Type BO Area Data - Display
C1-RefWoReqTypBOFrag	Refund/Write Off Request Type BO Area Data - Maintenance
C1-RefWoReqTypeCharsMaintFrag	Refund /Write Off Request Type Characteristics -Maintenance
C1-RefundBOJScriptFrag	Refund Request - Show/Hide Business Object Status Action
C1-RefundMaintFrag	Refund Request - Maintenance Fragment
C1-RefundReqCharsDispFrag	Refund Request Characteristics - Display Fragment
C1-RefundReqCharsMaintFrag	Refund Request Characteristics - Maintenance Fragment
C1-RefundReqInput	Refund/Write Off Request - Select Request Type
C1-RefundReqSearch	Search Refund/Write Off Request
C1-RefundReqSearch1	Search Refund Request Using Payment Details
C1-RefundRequestRejectConfM	Refund Request - Enter Reject Reason
C1-RefundVoidReason	Refund Request - Enter Void Reason
C1-RefundWOBillItemFilterMap	Refund/Write Off Request - Bill Line Items User Filter Map
C1-WOMaintFrag	Write Off Request - Maintenance Fragment
C1-WOReqCharsDispFrag	Write Off Request Characteristics - Display Fragment

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UI Map	Description
C1-WOReqCharsMaintFrag	Write Off Request Characteristics - Maintenance Fragment
C1-WriteOffBOJScriptFrag	Write Off Request - Show/Hide Business Object Status Action
C1-WriteOffCancelReason	Write Off Request - Enter Cancel Reason
C1-WriteOffRequestRejectConfM	Write Off Request - Enter Reject Reason
C1_PROD_REL_F	Search Product While Defining / Editing Product Relationship
C1_ViewBillHier_Acct	Account Search for Billing Hierarchy
C1_ViewHier_Cust	Customer Search for Billing and Settlement Hierarchy

A.2.14 Lookup

The following lookups are newly added in the Oracle Revenue Management and Billing V2.5.0.1.0 database:

Field	Field Value	Description
PRIC_OPT_TYP_FLG	PLDF	Default Price List Priority
REF_WO_ACTION_FLG	REF	Refund
	WO	Write Off
REF_WO_ENTITY_FLG	ADID	Adjustment
	BLID	Bill
	BSID	Bill Segment
	PEID	Payment Event
	PYID	Payment

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Appendix B : New Objects in the Oracle Utilities Application Framework V4.3.0.1.0 Database

This section lists the objects that are newly added in the Oracle Utilities Application Framework V4.3.0.1.0 database. These objects are classified under the following two sections:

- Schema Changes
- New System Data

B.1 Schema Changes

This section lists schema related changes made in the Oracle Utilities Application Framework V4.3.0.1.0 database.

B.1.1 New Tables

The following tables are newly added in the Oracle Utilities Application Framework V4.3.0.1.0 database:

Table	Description
F1_EXT_LOOKUP_VAL_CHAR	Extendable Lookup Characteristics

B.1.2 New Views

None

B.1.3 Dropped Tables

None

B.1.4 Unsupported Tables

None

B.1.5 Added Columns

The following table columns are newly added to Oracle Utilities Application Framework V4.3.0.1.0 database:

Table	Column	Required (Yes or No)
F1_EXT_LOOKUP_VAL	BASE_BO_DATA_AREA	N
CI_BATCH_CTRL_P	TEXT_SECURITY_FLG	N

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B.1.6 Dropped Columns

None

B.1.7 Unsupported Table Columns

None

B.1.8 Column Format Change

The format of the following columns is changed in the Oracle Utilities Application Framework V4.3.0.1.0 database:

Table	Column	From	To
CI_BATCH_CTRL	EMAILID	VARCHAR(70)	VARCHAR2(254)
CI_BATCH_JOB	EMAILID	VARCHAR(70)	VARCHAR2(254)
SC_USER	EMAILID	VARCHAR(70)	VARCHAR2(254)

B.2 New System Data

The system data is used to configure various features in Oracle Revenue Management and Billing. No new system data is added in the Oracle Utilities Application Framework V4.3.0.1.0 database.

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Appendix C : Changing the DB User Password

If you have changed the database user password, you need to execute the following steps before installing the rollup pack for Oracle Utilities Application Framework Version 4.3.0.1.0:

1. Download and apply the single fix available for Bug 22505470 - PATCHES APPEND EXTRA SPACE TO STRINGS AND ADD DB SERVICE CONNECTION SUPPORT on the application and database environments.
2. Perform the following steps on the application environment:
    a. Change the DB Name using the `configureEnv` command.
    b. Execute the `initialSetup` utility using the following command:

    AIX, Linux:

    ```
    $SPLEBASE/bin/initialSetup.sh
    ```

    Windows:

    ```
    %SPLEBASE%\bin\initialSetup.cmd
    ```

    c. Execute the `invokeDBUpdatePatch` utility to change the database user name and password using the following command:

    AIX, Linux:

    ```
    $SPLEBASE/bin/invokeDBUpdatePatch.sh -b
    ```

    Windows:

    ```
    %SPLEBASE%\bin\invokeDBUpdatePatch.cmd -b
    ```


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Appendix D : Oracle Application Framework System Table Guide

This section lists the system tables owned by the Oracle Utilities Application Framework V4.3.0.1.0 and explains the data standards of the system tables. The data standards are required for the installation of Oracle Utilities Application Framework, development within the Oracle Utilities Application Framework, and the configuration and customization of Oracle Utilities products. Adhering to the data standards is a prerequisite for seamless upgrade to future releases.

This section includes:

- About the Application Framework System Tables
- System Table Standards
- Guidelines for System Table Updates
- System Table List

D.1 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.

D.2 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.

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D.3 Guidelines for System Table Updates

This section describes guidelines regarding the updating of the system table properties.

D.3.1 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.

D.3.1.1 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.

D.3.1.2 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).

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D.3.1.3 DB Process

Properties	Description
Tables	CI_DB_PROC, CI_DB_PROC_L, CI_DB_INSTR, CI_DB_INSTR_L, L, CI_DB_INSTR_OVRD
Initial Data	Copy DB Process (CL-COPDB). This DB process allows users to copy a DB process from one database to another using Config Lab utility.

D.3.1.4 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), HIJRI Format (HIJRI) and Europe (EURO).

Configuration Note: In order to use HIJRI Format display profile, additional configuration is needed to define the mappings between Hijri and Gregorian dates. Refer to the Display Profile documentation for more information.

D.3.1.5 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.

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D.3.1.6 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).

D.3.1.7 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

D.3.2 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.

D.3.2.1 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 <Product Name> environment, C1 should prefix the new Algorithm Type code. The fields that are subject to this rule are listed in Standard Data Fields property.

The data that is already in these tables cannot be modified if the data owner is different than the environment owner. This prevents the developers from accidentally modifying system data that belongs to the Oracle Utilities Application Framework or the base products. However, some fields are exempt from this rule and can be modified by Customer Modification. These fields are listed in the Customer Modification Fields property.

Note that the system supports a system upgrade rule called Override Owner flag. If duplicate data rows (data row with same primary key values) are found at the time of upgrade, the owner flag values will get overridden. The lower level application system data will override the upper level system data. For example, F1 overrides C1, F1&C1 override CM, and so on. This rule will be applied to the following tables: CI_CHAR_ENTITY, CI_MD_MO_ALG, C1_PORTAL_OPT, F1_BUS_OBJ_ALG, F1_BUS_OBJ_STATUS_ALG, CI_MD_MO_OPT, F1_BUS_OBJ_OPT, F1_BUS_OBJ_STATUS_OPT, F1_BUS_OBJ_STATUS, and F1_BUS_OBJ_STATUS_L.

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D.3.2.2 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

D.3.2.3 Algorithm

Properties	Description
Tables	CI_ALG, CI_ALG_L, CI_ALG_PARM, CI_ALG_VER
Standard Data Fields	Algorithm (ALG_CD)
Customer Modification	None

D.3.2.4 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). Revenue Management and Billing products prior to version 2.0 will continue to use CI as a prefix for the application service.
Customer Modification	None

D.3.2.5 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)

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Properties	Description
Customer Modification	Next Batch Number (NEXT_BATCH_NBR), Last Update Instance (LAST_UPDATE_INST), Last Update Date time (LAST_UPDATE_DTTM) and the batch process update these columns. Time Interval (TIMER_INTERVAL), Thread Count (BATCH_THREAD_CNT), Maximum Commit Records (MAX_COMMIT_RECS), User (USER_ID), Language (LANGUAGE_CD), Email Address (EMAILID), Start program debug tracing (TRC_PGM_STRT_SW), End Program Debug trace (TRC_PGM_END_SW), SQL debug tracing (TRC_SQL_SW) and Standard debug tracing (TRC_STD_SW) on CI_BATCH_CTRL Table. Batch Parameter Value (BATCH_PARM_VAL) and Security flag (TEXT_SECURITY_FLG) on Batch Control Parameters Table (CI_BATCH_CTRL_P)

D.3.2.6 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).

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D.3.2.7 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)

D.3.2.8 Characteristics

Properties	Description
Tables	CI_CHAR_TYPE, CI_CHAR_TYPE_L, CI_CHAR_ENTITY, CI_CHAR_VAL, CI_CHAR_VAL_L
Standard Data Fields	Characteristic Type (CHAR_TYPE_CD), Characteristic Value (CHAR_VAL) on CI_CHAR_VAL **Note:** If the characteristic type is customizable, the customer can insert a new characteristic value. CM must be prefixed when the implementation team introduces a new characteristic value.
Customer Modification	Adhoc Characteristic Value Validation Rule (ADHOC_VAL_ALG_CD), Allow Search by Characteristic Value (SEARCH_FLG)

D.3.2.9 Configuration Migration Assistant

Properties	Description
Tables	F1_MIGR_PLAN, F1_MIGR_PLAN_L, F1_MIGR_PLAN_INSTR, F1_MIGR_PLAN_INSTR_L, F1_MIGR_PLAN_INSTR_ALG, F1_MIGR_REQ, F1_MIGR_REQ_L, F1_MIGR_REQ_INSTR, F1_MIGR_REQ_INST R_L, F1_MIGR_REQ_INSTR_ENTITY
Standard Data Fields	Migration Plan Code (MIGR_PLAN_CD), Migration Request Code (MIGR_REQ_CD)
Customer Modification	None

D.3.2.10 Data Area

Properties	Description
Tables	F1_DATA_AREA, F1_DATA_AREA_L
Standard Data Fields	Data Area Code (DATA_AREA_CD)
Customer Modification	None

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D.3.2.11 Display Icon

Properties	Description
Tables	CI_DISP_ICON, CI_DISP_ICON_L
Standard Data Fields	Display Icon Code (DISP_ICON_CD)
Customer Modification	None

D.3.2.12 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	Business Object Data Area (BO_DATA_AREA) Override Description (DESCR_OVRD) on Extendable Lookup Field Value Language Table (F1_EXT_LOOKUP_VAL_L) **Note:** When the product releases base owned records in Extendable Lookup, if there are additional elements the business object will map the element to the BO_DATA_AREA if the value is allowed to be modified by the implementation team.

D.3.2.13 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)

D.3.2.14 Inbound Web Service

Properties	Description
Tables	F1_IWS_SVC_L, F1_IWS_SVC, F1_IWS_SVC_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_ANN_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)

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D.3.2.15 Lookup

Properties	Description
Tables	CI_LOOKUP_FIELD, CI_LOOKUP_VAL, CI_LOOKUP_VAL_L
Standard Data Fields	**Field Name (FIELD_NAME)** • A lookup field name must have corresponding field metadata. The name of the lookup field column must be assigned to avoid conflicts among different products. If you follow the standards for database field names, a Customer Modification lookup field name will be automatically Customer Modification prefixed. **Field Value (FIELD_VALUE)** • If a lookup field is customizable, Customer Modification can insert new lookup values. X or Y must prefix when implementers introduce a new lookup value. • Product development may add lookup values to the Oracle Utilities Application Framework owned lookup field's value. When extended new value is added, the Owner Flag is used to prefix the value. For example, when the Oracle Revenue Management and Billing product adds a new value to the algorithm entity flag (ALG_ENTITY_FLG), it is prefixed with C1.
Customer Modification	Override Description (DESCR_OVRD) on Lookup Field Value Language Table (CI_LOOKUP_VAL_L)

D.3.2.16 Map

Properties	Description
Tables	F1_MAP, F1_MAP_L
Standard Data Fields	UI Map (MAP_CD)
Customer Modification	None

D.3.2.17 Managed Content

Properties	Description
Tables	F1_MANAG_CONTENT, F1_MANAG_CONTENT_L
Standard Data Fields	Managed Content (MANAG_CONTENT_CD)
Customer Modification	None

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D.3.2.18 Messages

Properties	Description
Tables	CI_MSG_CATEGORY, CI_MSG_CATEGORY_L, CI_MSG, CI_MSG_L
Standard Data Fields	**Message Category (MESSAGE_CAT_NBR)** • Messages are grouped in categories and each category has message numbers between 1 and 99999. A range of message categories is assigned to a product. An implementation may only use categories assigned for customization use. • Implementer Message Categories are 80000 and 90000 • Reserved for Tests – 99999 **Message Number (MESSAGE_NBR) for COBOL message categories** • Message numbers below 1000 are reserved for common messages. Implementers must not use message numbers below 1000. **Message Number (MESSAGE_NBR) for Java message categories** • Subsystem Standard Messages - 00001 thru 02000 • Reserved - 02001 thru 09999 • Published Messages - 10001 thru 11000 • Package Messages - 10001 thru 90000 • Reserved - 90001 thru 99999 • Each package is allocated 100 message numbers, each starting from 101. • Published Messages are messages that are special-interest messages that implementations need to know about and are therefore published in the user docs. Examples of these include messages that are highly likely to be changed for an implementation or messages that are embedded into other texts/messages and therefore the message number is never shown. • Reserved message number ranges are for future use and therefore must not be used by all products.
Customer Modification	Override Description (DESCRLONG_OVRD), Message Text Override (MESSAGE_TEXT_OVRD)

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D.3.2.19 Meta Data - Table and Field

Properties	Description
Tables	CI_MD_TBL, CI_MD_TBL_FLD, CI_MD_TBL_L, CI_MD_TBL_FLD_L, CI_MD_FLD, CI_MD_FLD_L, F1_DB_OBJECTS_REPO
Standard Data Fields	**Table Name (TBL_NAME)** • Table names must match with the physical table name or view name in the database. • Field Name (FLD_NAME) Field name must match with the physical column name in the database unless the field is a work field. Field name does not have to follow the prefixing standard unless the field is a work field or customer modification field. • F1_DB_OBJECTS_REPO Table stores information about Indexes, Sequences, Triggers and other database objects excluding Tables and Fields (as they are already stored in the other Metadata tables)
Customer Modification	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.

D.3.2.20 Meta Data – Constraints

Properties	Description
Tables	CI_MD_CONST, CI_MD_CONST_FLD
Standard Data Fields	Constraint Id (CONST_ID) • Index Name for Primary Constraints • <Index Name>Rnn for Foreign Key Constraints Where • nn: integer, 01 through 99
Customer Modification	None

D.3.2.21 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.

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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)

D.3.2.22 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),

D.3.2.23 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

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D.3.2.24 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

D.3.2.25 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

D.3.2.26 Migration Plan

Properties	Description
Tables	F1_MIGR_PLAN, F1_MIGR_PLAN_L, F1_MIGR_PLAN_INSTR, F1_MIGR_PLAN_INSTR_L, F1_MIGR_PLAN_INSTR_ALG
Standard Data Fields	Migration Plan (MIGR_PLAN_CD)
Customer Modification	None

D.3.2.27 Migration Request

Properties	Description
Tables	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 Request (MIGR_REQ_CD)
Customer Modification	None

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D.3.2.28 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

D.3.2.29 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	Portal Code (PORTAL_CD), Zone Code (ZONE_CD), Zone Type Code (ZONE_HDL_CD) • A new Zone can be added to the Product owned Portal Pages. • The existing Zones cannot be removed from the Product owned Portal Pages.
Customer Modification	Sort Sequence (SORT_SEQ) on Context Sensitive Zone Table (CI_UI_ZONE). Show on Portal Preferences (USER_CONFIG_FLG) on Portal Table (CI_PORTAL). Override Sequence (SORT_SEQ_OVRD) on Portal Zone Table (CI_PORTAL_ZONE). Customer Specific Description (DESCRLONG_OVRD) on Zone Language Table (CI_ZONE_L). Override Parameter Value (ZONE_HDL_PARM_OVRD) on Zone Type Parameters Table (CI_ZONE_HDL_PRM). Override Parameter Value (ZONE_PARM_VAL_OVRD) on Zone Parameters Table (CI_ZONE_PRM).

D.3.2.30 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.

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D.3.2.31 Schema

Properties	Description
Tables	F1_SCHEMA
Standard Data Fields	Schema Name (SCHEMA_NAME)
Customer Modification	None

D.3.2.32 Script

Properties	Description
Tables	CI_SCR, CI_SCR_L, CI_SCR_CRT, CI_SCR_CRT_GRP, CI_SCR_CRT_GRP_L, CI_SCR_DA, CI_SCR_FLD_MAP, CI_SCR_PRMPT, CI_SCR_PRMPT_L, CI_SCR_STEP, CI_SCR_STEP_L
Standard Data Fields	Script (SCR_CD)
Customer Modification	None

D.3.2.33 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)

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D.3.2.34 XAI Configuration

Properties	Description
Tables	CI_XAI_ADAPTER, CI_XAI_ADAPTER_L, CI_XAI_CLASS, CI_XAI_CLASS_L, CI_XAI_ENV_HNDL, CI_XAI_ENV_HNDL_L, CI_XAI_FORMAT, CI_XAI_FORMAT_L, CI_XAI_RCVR, CI_XAI_RCVR_L, CI_XAI_RCVR_CTX, CI_XAI_RCVR_RSP, CI_XAI_RCVR_RGRP, CI_XAI_SENDER, CI_XAI_SERNDER_L, CI_XAI_SNDR_CTX, CI_XAI_OPTION
Standard Data Fields	Adapter Id (XAI_ADAPTER_ID), Class Id (XAI_CLASS_ID), Envelope Handler Id (XAI_ENV_HNDL_ID), XAI Format Id (XAI_FORMAT_ID), Receiver Id (XAI_RCVR_ID), Sender Id (XAI_SENDER_ID)
Customer Modification	Option Value (OPTION_VALUE) on Message Option Table (CI_XAI_OPTION)

The following XAI tables might have system data installed upon the initial installation but a subsequence 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.

D.3.2.35 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)

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D.3.3 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_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

D.4 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.

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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
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

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Table Name	Upgrade Action	Description
CI_MD_FLD_L	MG	Field Language
CI_MD_MENU	MG	Menu Information
CI_MD_MENU_IMOD	MG	Menu Item Module Maint
CI_MD_MENU_ITEM	MG	Menu Item
CI_MD_MENU_ITEM_L	MG	Menu Item Language
CI_MD_MENU_L	MG	Menu Language
CI_MD_MENU_LINE	MG	Menu Line
CI_MD_MENU_LINE_L	MG	Menu Line Language
CI_MD_MENU_MOD	MG	Menu Product Components
CI_MD_MO	MG	Maintenance Object
CI_MD_MO_ALG	MG	Maintenance Object Algorithm
CI_MD_MO_L	MG	Maintenance Object Language
CI_MD_MO_OPT	MG	Maintenance Object Option
CI_MD_MO_TBL	MG	Maintenance Object Table
CI_MD_MO_WRK	MG	Maintenance Object Work Tables
CI_MD_NAV	MG	Navigation Key
CI_MD_PRG_COM	MG	Program Components
CI_MD_PRG_ELEM	MG	UI Page Elements
CI_MD_PRG_EL_AT	MG	UI Page Element Attributes
CI_MD_PRG_LOC	MG	Program Location
CI_MD_PRG_MOD	MG	Program Module
CI_MD_PRG_SEC	MG	UI Page Sections
CI_MD_PRG_SQL	MG	MD SQL Meta Data
CI_MD_PRG_TAB	MG	UI Tab Meta Data
CI_MD_PRG_VAR	MG	Program Variable
CI_MD_SO	MG	Search Object
CI_MD_SOCG	MG	Search Object Criteria Group
CI_MD_SOCG_FLD	MG	Search Object Criteria Group Field
CI_MD_SOCG_FLDAT	MG	Search Criteria Group Field Attribute
CI_MD_SOCG_L	MG	Search Object Criteria Group Language
CI_MD_SOCG_SORT	MG	Search Criteria Group Result Sort Order

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Table Name	Upgrade Action	Description
CI_MD_SO_L	MG	Search Object Language
CI_MD_SO_RSFLD	MG	Search Object Result Field
CI_MD_SO_RSFLDAT	MG	Search Object Result Field Attribute
CI_MD_SVC	MG	MD Service
CI_MD_SVC_L	MG	MD Service Language
CI_MD_SVC_PRG	MG	MD Service Program
CI_MD_TAB_MOD	MG	UI Tab Module
CI_MD_TBL	MG	MD Table
CI_MD_TBL_FLD	MG	MD Table Field
CI_MD_TBL_FLD_L	MG	MD Table Field Language
CI_MD_TBL_L	MG	MD Table Language
CI_MD_WRK_TBL	MG	Work Table
CI_MD_WRK_TBLFLD	MG	Work Table Field
CI_MD_WRK_TBL_L	MG	Work Table Language
CI_MSG	MG	Message
CI_MSG_CATEGORY	MG	Message Category
CI_MSG_CATEGORY_L	MG	Message Category Language
CI_MSG_L	MG	Message Language
CI_NAV_OPT	MG	Navigation Option
CI_NAV_OPT_CTXT	MG	Navigation Option Context
CI_NAV_OPT_L	MG	Navigation Option Language
CI_NAV_OPT_USG	MG	Navigation Option Usage
CI_PORTAL	MG	Portal
CI_PORTAL_L	MG	Portal Language
C1_PORTAL_OPT	MG	Portal Option
CI_PORTAL_ZONE	MG	Portal Zone
CI_SCR	MG	Script
CI_SCR_CRT	MG	Script Criteria
CI_SCR_CRT_GRP	MG	Script Criteria Group
CI_SCR_CRT_GRP_L	MG	Script Criteria Group Language
CI_SCR_DA	MG	Script Data Area

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Table Name	Upgrade Action	Description
CI_SCR_FLD_MAP	MG	Script Field Mapping
CI_SCR_L	MG	Script Language
CI_SCR_PRMPT	MG	Script Prompt
CI_SCR_PRMPT_L	MG	Script Prompt Language
CI_SCR_STEP	MG	Script Step
CI_SCR_STEP_L	MG	Script Step Language
CI_SEQ	MG	Sequence
CI_TD_DRLKEY_TY	MG	To Do Type Drill Key
CI_TD_SRTKEY_TY	MG	To Do Type Sort Key
CI_TD_SRTKEY_TY_L	MG	To Do Type Sort Key Language
CI_TD_TYPE	MG	To Do Type
CI_TD_TYPE_L	MG	To Do Type Language
CI_UI_ZONE	MG	Context Sensitive Zone
CI_USR_NAV_LINK	MG	User Favorite Links
CI_XAI_ADAPTER	MG	XAI Adapter
CI_XAI_ADAPTER_L	MG	XAI Adapter Lang
CI_XAI_CLASS	MG	Message Class
CI_XAI_CLASS_L	MG	Message Class Language
CI_XAI_ENV_HNDL	MG	XAI Envelope Handler
CI_XAI_ENV_HNDL_L	MG	XAI Envelope Handler Language
CI_XAI_IN_SVC	MG	XAI Inbound Service
CI_XAI_IN_SVC_L	MG	XAI Inbound Service Language
CI_XAI_SVC_PARM	MG	XAI Inbound Service Parameters
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

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Table Name	Upgrade Action	Description
F1_BUS_OBJ_ALG	MG	Business Object Algorithm
F1_BUS_OBJ_L	MG	Business Object Language
F1_BUS_OBJ_OPT	MG	Business Object Option
F1_BUS_OBJ_STATUS	MG	Business Object Status
F1_BUS_OBJ_STATUS_ALG	MG	Business Object Status Algorithm
F1_BUS_OBJ_STATUS_L	MG	Business Object Status Language
F1_BUS_OBJ_STATUS_OPT	MG	Business Object Status Option
F1_BUS_OBJ_STATUS_RSN	MG	Status Reason
F1_BUS_OBJ_STATUS_RSN_L	MG	Status Reason Language
F1_BUS_OBJ_TR_RULE	MG	Business Object Transition Rule
F1_BUS_OBJ_TR_RULE_L	MG	Business Object Transition Rule Language
F1_BUS_SVC	MG	Business Service
F1_BUS_SVC_L	MG	Business Service Language
F1_DATA_AREA	MG	Data Area
F1_DATA_AREA_L	MG	Data Area Language
F1_DB_OBJECTS_REPO	MG	Database Objects Repository
F1_EXT_LOOKUP_VAL	MG	Extendable Lookup
F1_EXT_LOOKUP_VAL_L	MG	Extendable Lookup Language
F1_EXT_LOOKUP_VAL_CHAR	MG	Extendable Lookup Characteristics
F1_IWS_ANN	MG	–Web Service Annotation
F1_IWS_ANN_L	MG	Web Service Annotation Language
F1_IWS_ANN_PARM	MG	Web Service Annotation Parameter
F1_IWS_ANN_TYPE	MG	Web Service Annotation Type
F1_IWS_ANN_TYPE_L	MG	Web Service Annotation Type Language
F1_IWS_ANN_TYPE_PARM	MG	Web Service Annotation Type Parm
F1_IWS_ANN_TYPE_PARM_L	MG	Web Service Annotation Type Parameter Language
F1_IWS_SVC	MG	Inbound Web Service
F1_IWS_SVC_L	MG	Inbound Web Service Language
F1_IWS_SVC_OPER	MG	Inbound Web Service Operations
F1_IWS_SVC_OPER_L	MG	Inbound Web Service Operations Language

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Table Name	Upgrade Action	Description
F1_MANAG_CONTENT	MG	Managed Content
F1_MANAG_CONTENT_L	MG	Managed Content Language
F1_MAP	MG	UI Map
F1_MAP_L	MG	UI Map Language
F1_MIGR_PLAN	MG	Migration Plan
F1_MIGR_PLAN_INSTR	MG	Migration Plan Instruction
F1_MIGR_PLAN_INSTR_ ALG	MG	Migration Plan Instruction Algorithm
F1_MIGR_PLAN_INSTR_ L	MG	Migration Plan Instruction Language
F1_MIGR_PLAN_L	MG	Migration Plan Language
F1_MIGR_REQ	MG	Migration Request
F1_MIGR_REQ_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

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Table Name	Upgrade Action	Description
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
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

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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_BOOKMARK	KP	User Bookmarks
CI_USR_PORTAL	KP	User Portal
CI_USR_SCR	KP	User Scripts
CI_USR_ZONE	KP	User Zone
CI_USR_ZONE_SAVE	KP	User Zone Save
CI_WFM	KP	Feature Configuration

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Table Name	Upgrade Action	Description
CI_WFM_L	KP	Feature Configuration Language
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	Message Option
CI_XAI_RCVR	KP	XAI Receiver
CI_XAI_RCVR_CTX	KP	XAI Receiver Context
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

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Table Name	Upgrade Action	Description
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	Message Sender
CI_XAI_SENDER_L	KP	Message Sender Language
CI_XAI_SNDR_CTX	KP	Message 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_PROF	KP	External System Outbound Message Type
F1_INSTALLATION	KP	Installation Option - Framework
F1_IWS_ANN_CHAR	KP	Web Service Annotation Characteristics
F1_IWS_ANN_TYPE_CHAR	KP	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
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

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Table Name	Upgrade Action	Description
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
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

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Table Name	Upgrade Action	Description
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

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