

Oracle Utilities Customer Care and Billing

Database Administrator's Guide

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Preface

This guide provides instructions for installing and maintaining the database for Oracle Utilities Customer Care and Billing.

This preface contains these topics:

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

Audience

Oracle Utilities Customer Care and Billing Database Administrator's Guide is intended for database administrators who will be installing and maintaining the database for Oracle Utilities Customer Care and Billing.

Related Documents

For more information, see these Oracle documents:

- *Oracle Utilities Customer Care and Billing Quick Install Guide*
- *Oracle Utilities Customer Care and Billing Installation Guide*
- *Oracle Utilities Customer Care and Billing Optional Products Installation Guide*

Updates to this Documentation

Refer to article 1191393.1 on My Oracle Support for up-to-date additional information.

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Chapter 1

Database Overview

This section provides an overview of the Oracle Utilities Customer Care and Billing database, including:

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

Supported Database Platforms

This section defines the platforms on which Oracle Utilities Customer Care and Billing is verified to operate.

Supported Platforms Summary Table

Oracle Utilities Customer Care and Billing is supported on the following platforms:

Platform	Database Version
AIX 5.3 TL11 (POWER 64-bit)	Oracle Database Server 11.1.0.7 (64 bit) Oracle Database Server 11.2.0.1 (64-bit)
AIX 6.1 TL4 (POWER 64-bit)	Oracle Database Server 11.1.0.7 (64 bit) Oracle Database Server 11.2.0.1 (64-bit)
HP-UX 11.31 (Itanium 64-bit)	Oracle Database Server 11.1.0.7 (64 bit) Oracle Database Server 11.2.0.1 (64-bit)
Oracle Enterprise Linux 5.5 (64-bit) x86_64 (64-bit)	Oracle Database Server 11.1.0.7 (64 bit) Oracle Database Server 11.2.0.1 (64-bit)
Red Hat Enterprise Linux 5.5 (64-bit) x86_64 (64-bit)	Oracle Database Server 11.1.0.7 (64 bit) Oracle Database Server 11.2.0.1 (64-bit)
Solaris 10 (SPARC 64-bit)	Oracle Database Server 11.1.0.7 (64 bit) Oracle Database Server 11.2.0.1 (64-bit)
Windows Server 2008 SP2 (x86_64 64-bit)	Oracle Database Server 11.1.0.7 (64 bit) Oracle Database Server 11.2.0.1 (64-bit)
Windows 2008 Server R2 (x86_64 64-bit)	Oracle Database Server 11.1.0.7 (64 bit) Oracle Database Server 11.2.0.1 (64-bit)

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 Utilities Customer Care and Billing has been tested with.

If it is necessary to apply an upgrade, please do that in a test environment prior to updating the Oracle Utilities Customer Care and Billing production environment.

The only exceptions from this rule are Hibernate and C3PO software. For these the exact versions mentioned in this guide must be installed. Please always check with Oracle Utilities Customer Care and Billing support prior to installing Hibernate and C3PO updates.

Always contact Oracle Utilities Customer Care and Billing support prior to applying vendor updates that do not guarantee backward compatibility.

Database Maintenance Rules

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

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

The installation of these components is outlined in the installation section of this document.

What is Permitted to Be Changed

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 to 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.
- 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, datafile 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 to site standards unless otherwise advised by Oracle Support or outlined in this document.

What is Not Permitted to Be Changed

In order to maintain the operations of the product and upgradability, during and after installation of the product the following changes may *not* be performed by the database administrator personnel on site:

- Roles provided must not be altered in any way.
- 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 indexes must not be removed.

Chapter 2

Database Installation

This section provides the steps required to install or upgrade the Oracle Utilities Customer Care and Billing database, including:

- **Installation Overview**
- **Oracle Database Installation**

Installation Overview

Note. Refer to the *Oracle Utilities Customer Care and Billing Installation Guide* for the hardware and software versions required for the installation on the Unix Server or Windows Server. This installation is for Oracle Utilities Customer Care and Billing V2.3.1 and the upgrade of Oracle Utilities Customer Care and Billing V2.2.0.6 or V2.3.0.2.

There are three types of installations to be considered.

- **Initial Install** - a database with no demo data.
- **Upgrade Install** - a database upgrade from V2.2.0.6 or V2.3.0.2 to V2.3.1.
- **Demo Install** - a database populated with demo data.

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

Review the `Storage.par` file before prior to Initial Install or Upgrade Install. Information in this file is used by CDXDBI while installing and upgrading the Oracle Utilities Customer Care and Billing database objects.

For optimum storage allocation, DBAs should create multiple tablespaces with extents sized to store different types of tables/indexes. They can then edit this file before each upgrade and install process, to spread the tables and indexes across these tablespaces. Tables and indexes can be created in parallel by editing degree of parallelism. The default value is 1.

To provide additional information, the table names are included for each index as a comment.

Tablespace and parallel information for only the new objects is used. Therefore, for initial installs, information for each object should be reviewed and for the upgrades, tablespace information for only the objects added in the current release needs to be reviewed. 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.

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.

Oracle Database Installation

The following section outlines the instructions for installing the Oracle Database for Oracle Utilities Customer Care and Billing.

Note: The installation tools outlined in this guide run on Windows and UNIX/Linux only. If the database server is installed on a platform not supported by the utilities then the site should use the Windows utilities to execute the installation.

Database Creation

This step is not required if you are performing a database upgrade from a previous version of the application.

Note. The Unix and Windows installs will create an empty database with at least one tablespace for storing the application objects before running the install. The default name of the application tablespace is CISTS_01. If you do not use the default name or want to spread the application objects across multiple tablespaces, you must edit the Storage.par file, supplied with the install package, before the installation process.

Unix

The files are located in the Unix folder within the Database Creation folder.

1. FTP the contents of the Database Creation folder to a temporary directory on the UNIX server.
2. To create the database set the ORACLE_HOME and ORACLE_BASE variables.
3. Execute the utility cdxdba.plx by entering following command:

```
perl cdxdba.plx
```

4. The script will prompt for parameter values:
 - Enter the instance name (DEMO): DEMO
 - Enter ORACLE_BASE: the directory where the setup files for the database will be created (/orasw/app/oracle):
 - Enter ORACLE_HOME: the folder where the current version of Oracle software is installed (/orasw/app/oracle/product/):
 - Enter ORACLE_DATA: the directory where the data files for the database will be created (/db05/oradata):
 - Enter the character set for the database (UTF8):
5. Enter the values based on the settings of your database server. You can also accept the default values displayed if they match your database server settings. You will be prompted to confirm the settings and select Y or N to create the database.

```
ORACLE_SID: DEMO
ORACLE_HOME: /orasw/app/oracle/product/
ORACLE_BASE: /orasw/app/oracle
ORACLE_DATA: /db05/oradata
Character Set: UTF8
Do you want to continue (Y/N)?
```

6. Once the database has been created, you will be prompted with the questions:

```
Do you want to import a demo database dump into this database (Y/N)?
```

- Select N to exit the database utility.
- Select Y to import the Demo Install data.

For the Demo Install use the dump file exp_demo.dmp.

```
Do you want to import a demo database dump into this database (Y/N) ? Y
```

- Enter the name of the dump file (exp_demo.dmp):
- Enter the name of the log file (exp_demo.log):

```
Ready to import the CISADM schema into the database, do you want to continue (Y/N) ? Y
```

Note. Update the oratab, tnsnames.ora and listener.ora files for the new database and check the connectivity to this database from another server and from your desktop.

Windows

The files are located in the Windows folder within the Database Creation folder. You should be logged in as a user who is a member of local ORA_DBA group on that server. The ORA_DBA group should have "administrator" privileges assigned to it.

1. To create a database, run the utility CDXDBA.exe located in the Windows folder.

The utility will display a list with the following options:

E - Export a schema from the database

R - Refresh a schema with a database dump.

C - Create/Recreate a local database.

H - See help for the command line options.

2. Select option C to create an empty database on your machine.

Follow the prompts to complete the install.

3. Once the database has been created you can exit the utility or select the R - Refresh a schema with a database dump file to load the Demo Install data.

Option R causes the utility to drop all the objects from the schema and import the schema from a database dump file.

For the Demo Install use the dump file exp_demo.dmp.

Note. Update the oratab, tnsnames.ora and listener.ora files for the new database and check the connectivity to this database from another server and from your desktop.

Security Configuration

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

Execute the OraGenSec.exe utility.

The script will prompt for parameter values:

```
Enter the Oracle user that owns the schema (e.g. CISADM): cisadm
Enter the password for the CISADM user: cisadm
Enter the name of the Oracle Database: database name
Enter a comma-separated list of Oracle users in which synonyms need
to be created (e.g. cisuser,cisread): cisuser,cisread
```

The utility configures security for the CISADM schema objects.

Populating Language Data

At this point, the Oracle Utilities Customer Care and Billing demo database is ready for usage. Please note that this database contains data in ENGLISH language only. If you use any other supported language, you must first run the NEWLANG batch program to duplicate the data entries for that language. For more information on running this batch program, refer to the User Documentation, Defining Background Processes.

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

Initial Installation

This section describes the initial installation of the Database.

Database Script and Utilities Installation

Unzip the database.zip file to your desktop.

The database folder contains several files that will be referred to in the installation process.

Setup a Microsoft Windows desktop with the Oracle Client installed.

Create Database

The Initial installation requires the following to be installed before the installation can be started:

- A database must be created. Site standard techniques or tools may be used to create the database. The templates for creating the database are located under the relevant database version subdirectory of the "Database Creation" directory under:
 - ocreatedb.sql - Create Database
 - ocreatedbcatalog.sql - Build database catalog tables.
 - ocreatedbfiles.sql - Create data files for tablespaces
 - oinit.ora - Sample initialization parameters for the database
- The users and roles for the product. Templates for this activity are located under the relevant database version subdirectory of the "Database Creation" directory as createdcdxusers.sql.

Note. Please alter a copy of the above files for site specific changes.

Note. The CDXDBA utility provided in the Database Creation folder may be used to automate the process. See "Database Creation" for more details.

Install

Install the Oracle Utilities Framework V2.2.0.8 database prior to Installing Oracle Customer Care and Billing V2.3.1. The files for the Oracle Utilities Framework database install are located in the FW folder.

To install the Oracle Utilities Framework V2.2.0.8 database:

1. Install Base FW V2.2.0 from FW22_INI_INSTALL by running CdxDBI.exe from the Install-Upgrade folder under FW22_INI_INSTALL.
2. Apply FW V2.2.0 Service Pack 1 from FW22_SP1 by running CdxDBI.exe from the Install-upgrade folder under FW22_SP1.
3. Apply FW V2.2.0 Service Pack 8 from FW22_SP8 by running CDXPatch.exe from the FW22_SP8\Oracle\cdxdbi folder.

The files for the Initial Install of CCB V2.3.1 are located in the Install-Upgrade folder. To install the CCB database:

Under the CCB folder, run CdxDBI.exe:

The process prompts you for the names of three database users:

- A user that will own the application schema (for example, CISADM).
- A user that has select/update/insert/delete (read-write) privileges to the objects in the application schema. The application will access the database as this user. (for example, CISUSER).
- A user with read-only privileges to the objects in the application schema. (for example, CISREAD).

Perform the following steps:

1. Run CDXDBI.exe. The utility prompts you to enter values for the following parameters:
 - The name of the target database.
 - The password for the SYSTEM user account in the database (in silent mode).
 - The name of the owner of the Database Schema.
 - The password for the user (in silent mode).
 - The Oracle user with read-write privileges to the Database Schema
 - The Oracle user with read-only privileges to the Database Schema
2. The utility at this point is ready to perform the initial install and prompts you for permission to start the process.
3. If you chose to continue, CDXDBI first checks for the existence of each of the users specified and prompts for their password, default tablespace, and temporary tablespace, if they do not exist.
4. After setting up the roles and users, the utility continues upgrading schema and system data definitions. If an error occurs while executing an SQL or another utility, it logs and displays the error message and allows you to re-execute the current step.

CDXDBI performs the following tasks:

1. 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, password of the SYSTEM account in the database, 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).
2. Connects to the database as SYSTEM account, checks whether the user already has the application schema installed to verify whether this is an initial installation.
3. Verifies whether the tablespace names already exist in Storage.par file (the process aborts, if not).
4. Installs the schema, installs the system data, and configures security.
5. Maintains upgrade log tables in the database.
6. Updates release id when the upgrade is completed successfully.
7. 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 CDXDBI###.log are created in the same folder as CDXDBI 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, CDXDBI 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.

Post-Install Tasks:

Refer to the **Populating Language Data** on page 2-5 if the application is to run in another language other than English.

Database Statistics Generation

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

Upgrade Install

Note. For a database upgrade the database must be at the release level V2.2.0 Service Pack 6 or V2.3.0 Service Pack 2.

Install the Oracle Utilities Framework V2.2.0.8 database prior to Installing Oracle Customer Care and Billing V2.3.1. The files for the Oracle Utilities Framework database install are located in the FW folder.

To install the Oracle Utilities Framework V2.2.0.8 database:

1. Install Base FW V2.2.0 from FW22_INI_INSTALL by running CdxDBI.exe from the Install-Upgrade folder under FW22_INI_INSTALL.
2. Apply FW V2.2.0 Service Pack 1 from FW22_SP1 by running CdxDBI.exe from the Install-upgrade folder under FW22_SP1.
3. Apply FW V2.2.0 Service Pack 8 from FW22_SP8 by running CDXPatch.exe from the FW22_SP8\Oracle\cdxdbi folder.

The files for the Upgrade Install of CCB V2.3.1 are located in the Install-Upgrade folder under CCB.

The above folder contains the scripts and utilities that the user has to run in order to complete the installation process.

Before running an Upgrade Install, it is very important that you make a full backup of the target database or schema.

Install

The steps included in this process will upgrade the rest of the system data to V2.3.1.

Run CdxDBI.exe.

The process prompts for the names of three database users during this process:

- A user that will own the application schema (for example, CISADM).
- A user that has read-write privileges to the objects in the application schema. The application will access the database as this user. (for example, CISUSER).
- A user with read-only privileges to the objects in the application schema. (for example, CISREAD).

Following are the steps involved:

1. Review and edit the Storage.par file to set the tablespace names. The instructions for editing the file are included in the file itself.
2. Run CDXDBI.exe. The utility prompts you to enter values for the following parameters:
 - The name of the target database.
 - The password for the SYSTEM user account in the database (in silent mode).
 - The name of the owner of the Database Schema.
 - The password for the user (in silent mode)

- The Oracle user with read-write privileges to the Database Schema
 - The Oracle user with read-only privileges to the Database Schema
3. The utility at this point is ready to perform the upgrade install and prompts you for permission to start the process.
 4. If you chose to continue, CDXDBI first checks for the existence of each of the users specified earlier and prompts for their password, default tablespace, and temporary tablespace, if they do not exist.
 5. After setting up the roles and users, the utility continues upgrading schema and system data definitions. If an error occurs while executing an SQL or another utility, it logs and displays the error message and allows you to re-execute the current step.

CDXDBI performs the following tasks:

1. 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, password of the SYSTEM account in the database, 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).
2. Connects to the database as SYSTEM account, checks whether the user already has the application schema installed to verify whether this is an upgrade installation.
3. Verifies whether the upgrade path from the current release id to the target release id is supported by the upgrade.
4. Verifies whether the tablespace names already exist in Storage.par file (the process aborts, if not).
5. Upgrades the schema, upgrades the system data, and configures security.
6. Maintains upgrade log tables in the database.
7. Updates release id when the upgrade is completed successfully.
8. 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 CDXDBI###.log are created in the same folder as CDXDBI 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, CDXDBI 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.

Post-Install

Refer to the **Populating Language Data** on page 2-5 if the application is to run in another language other than English.

Database Statistics Generation

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

Environment Registration

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

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

Demo Install

Before the installation can be started:

- A database must be created. Site standard techniques or tools may be used to create the database. The templates for creating the database are located under the relevant database version subdirectory of the "Database Creation" directory under :
 - ocreatedb.sql - Create Database
 - ocreatedbcatalog.sql - Build database catalog tables.
 - ocreatedbfiles.sql - Create data files for tablespaces
 - oinit.ora - Sample initialization parameters for the database
- The users and roles for the product. Templates for this activity are located under the relevant database version subdirectory of the "Database Creation" directory as createcdxusers.sql.

Note: Please alter a copy of the above files for site specific changes.

Note: The CDXDBA utility provided in the "Database Creation" folder may be used to automate the process.

Install

Complete the application **Database Creation** on page 2-3 to create the database and import the Demo Install data into the database.

The Database Creation contains the instructions for the import of the Demo Install data.

Post-Install

Configure the security for the database. Refer to **Security Configuration** on page 2-4.

Refer to the **Populating Language Data** on page 2-5 if the application is to run in another language other than English.

Chapter 3

Database Design

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

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

Database Object Standard

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

Categories of Data

A table can belong to one of the three categories:

- Control (admin)
- Master
- Transaction

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

Example of tables in each category:

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

All tables have the category information in their index name. The second letter of the index carries this information. See **Indexes** on page 3-3 for more information.

Naming Standards

The following naming standards must be applied to database objects.

Table

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

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

Some examples are:

- CI_ADJ_TYPE
- CI_ADJ_TYPE_L

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

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

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

Columns

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

- Use the suffix **FLG** to define a lookup table field. Flag columns must be CHAR(4). Choose lookup field names carefully as these column names are defined in the lookup table (CL_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:

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

- **X** - letter X is used as a leading character of all base index names prior to Version 2.0.0. Now the first character of product owner flag value should be used instead of letter X. For client specific implementation index in Oracle, use CM.
- Application specific prefix could be C, F, T or another letter.
- **C/M/T** - The second character can be either C or M or T. C is used for control tables (Admin tables). M is for the master tables. T is reserved for the transaction tables.
- **NNN** - A three-digit number that uniquely identifies the table on which the index is defined.
- **P/S/C** - P indicates that this index is the primary key index. S is used for indexes other than primary keys. Use C to indicate a client specific implementation index in DB2 implementation.
- **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:

- XC001P0
- XT206S1
- XT206C2
- CM206S2

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

Oracle Implementations

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

Format: Object Type:Object Name:Tablespace name:Parallel:Comments.

Where Parallel defines the number of threads, that Oracle DB Server will use to access a table or create an index . Default value is 1.

For instance, if a DBA decided to allocate table CI_ACCT in a tablespace MyTablespace, then they would have to change line 2 below to TABLE:CI_ACCT:MyTablespace:1

TABLE:C0_INSTALLATION:CISTS_01:1

TABLE:CI_ACCT:CISTS_01:1

...

etc.,

INDEX:XC001P0:CISTS_01:1 :prompt # CI_DV_TEST_TYPE_L

INDEX:XC002P0:CISTS_01:1 :prompt # CI_BANK_ACCOUNT

INDEX:XC003P0:CISTS_01:1 :prompt # CI_BANK

...

etc.

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

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

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

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

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

Sequence

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

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. For example, Index names in base product are prefixed by X; the Implementer's index name must not be prefixed with X.

Column Data Type and Constraints

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

User Defined Code

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

System Assigned Identifier

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

Date/Time/Timestamp

Date, Time and Timestamp columns are defined physically as DATE in Oracle. In DB2 the DATE, TIME and TIMESTAMP column types, respectively, are used to implement them. Non-null constraints are implemented only for the required columns.

Number

Numeric columns are implemented as NUMBER type in Oracle and DECIMAL type in DB2. The precision of the number should always be defined. The scale of the number might be defined. Non-null constraints are implemented for all number columns.

Fixed Length/Variable Length Character Columns

When a character column is a part of the primary key of a table define the column in CHAR type. For the non-key character columns, the length should be the defining factor. If the column length should be greater than 10, use VARCHAR2 type in Oracle and VARCHAR type in DB2.

Null Constraints

The Non-null constraints are implemented for all columns except optional DATE, TIME or TIMESTAMP columns.

Default Value Setting

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

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

Foreign Key Constraints

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

Standard Columns

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

Owner Flag

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

Version

The Version column is used to for optimistic concurrency control in the application code. Add the Version column to all tables that are maintained by a Row Maintenance program irrespective of the language used (COBOL or JAVA).

Chapter 4

Database Implementation Guidelines

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

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

Note: Refer to My Oracle Support article 560367.1 for more information.

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.

Index

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

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

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

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

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

Table Partitioning Recommendations

Oracle Utilities has two recommendations for partitioning tables.

1. No partitioning for non-RAC environments.
2. Minimum of 'n' partitions for selective database objects, where 'n' is number of RAC nodes.

Transparent Data Encryption Recommendations

Oracle Utilities supports Oracle Transparent Data Encryption (TDE) with the AES128 Encryption Algorithm. Oracle 11gR1 supports tablespace level encryption. The application supports tablespace level encryption for all Application data. Make sure that the hardware resources are sufficiently sized for this as it involves additional hardware utilization from the system.

Advanced Data Compression Recommendations

Oracle Utilities supports Advanced Data Compression. This is available from Oracle 11gR1 onwards. It reduces the database storage by 40%. As the compressed data goes into SGA the potential IO is also reduced. Make sure that the hardware resources are sufficiently sized for this as it involves additional hardware utilization from the system.

Storage Recommendations

This section specifies recommended options for storing the database objects.

SecureFile for Storing LOBs

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

- The storage options with SecureFiles for Heap Tables should be `ENABLE STORAGE IN ROW, CACHE and COMPRESS`.
- For the IOT Table the `PCTTHRESHOLD 50 OVERFLOW` clause should be specified and the storage options with SecureFiles should be `ENABLE STORAGE IN ROW, CACHE and COMPRESS`.

- The PCTTHRESHOLD should be specified as a percentage of the block size. This value defines the maximum size of the portion of the row that is stored in the Index block when an overflow segment is used.
- The CHUNK option for storage, which is the data size used when accessing or modifying LOB values, can be set to higher than one database block size if big LOBs are used in the IO Operation.
- For SecureFiles, make sure that the initialization parameter db_securefile is set to PERMITTED (the default).
- 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 Oracle Advanced Compression in addition to Oracle Database Server Enterprise Edition. This feature is not available for the standard edition of the Oracle database.

See **Database Syntax** on page 4-3 for more information on SecurFiles.

Database Configuration Recommendations

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

Large Redo Log File Sizes

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

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

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

Database Syntax

SecureFile

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

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

Database Initialization Parameters

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

```
db_block_size=8192
log_checkpoint_interval=10000
db_file_multiblock_read_count=8
transactions=3000
open_cursors=1200
optimizer_index_cost_adj=1
optimizer_index_caching=100
session_cached_cursors=50
trace_enabled=FALSE
db_files=1024
dbwr_io_slaves=10 (Only if Asynchronous IO is not Supported)
sessions=1528
sec_case_sensitive_logon=FALSE
processes=1000
dml_locks=4860
```


Oracle Database Implementation Guidelines

This section provides guidelines for implementing the Oracle database.

Index Organized Tables (IOT)

Consider creating the following tables as IOT in the production size databases.

CI_FT (Financial Transactions) - Index on the FT_ID.

CI_TREND (Trend Table) - Index on the primary key. Create additional indexes.

Note. There is a slight chance that the upgrade will fail on IOT tables when the primary key structure is changed in the base tables.

Oracle Partitioning

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

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

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

The upgrade on the partitioned table will work the 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.

Tables to Consider for Partitioning

The following is the list of the tables we suggest are candidates for partitioning. The partitioning key is the primary key of the table.

Table Name	Reason for Partitioning
CI_ACCT	Volume of data
CI_ACCT_MSG	Volume of data
CI_ADJ	Payment process
CI_ADJ_K	Payment process
CI_ADM_RVW_SCH	Billing process
CI_APAY_CLR_STG	Billing process
CI_BILL	Volume of data
CI_BILL_EXCP	Volume of data
CI_BILL_K	Volume of data
CI_BILL_MSG_PRM	Billing process
CI_BILL_MSGS	Volume of data
CI_BILL_ROUTING	Volume of data
CI_BILL_SA	Billing process
CI_BSEG	Volume of data
CI_BSEG_K	Volume of data

Table Name	Reason for Partitioning
CI_BSEG_CALC	Volume of data
CI_BSEG_CALC_LN	Volume of data
CI_BSEG_EXCP	Billing process
CI_BSEG_ITEM	Billing process
CI_BSEG_MSG	Billing process
CI_BSEG_READ	Volume of data
CI_BSEG_SQ	Volume of data
CI_COLL_EVT	ADM process
CI_COLL_EVT_K	ADM process
CI_COLL_EVT_CC	ADM process
CI_COLL_PROC	ADM process
CI_COLL_PROC_K	ADM process
CI_COLL_PROC_SA	ADM process
CI_FA	Activation process
CI_FA_K	Activation process
CI_FA_STEP	Activation process
CI_FT	Volume of data
CI_FT_K	Volume of data
CI_FT_GL	Volume of data
CI_FT_PROC	Billing process
CI_MR	Volume of data
CI_MR_K	Volume of data
CI_MR_REM	MR upload process
CI_MTR	Volume of data
CI_MTR_CONFIG	Volume of data
CI_MTR_CONFIG_K	Volume of data
CI_PAY_EVENT	Payments process
CI_PAY_EVENT_K	Payments process
CI_PAY_SEG	Payments process
CI_PAY_SEG_K	Payments process
CI_PAY_TNDR	Payments process
CI_PAY_TNDR_K	Payments process
CI_PER	Volume of data

Table Name	Reason for Partitioning
CI_PREM	Volume of data
CI_REG	Volume of data
CI_REG_K	Volume of data
CI_SA	Volume of data
CI_SA_REL	Volume of data
CI_SA_SP	Volume of data
CI_SA_SP_FA	Activation process
CI_SEV_EVT	Severance process
CI_SEV_EVT_CC	Severance process
CI_SEV_EVT_DEP	Severance process
CI_SEV_EVT_FA	Severance process
CI_SEV_PROC	Severance process
CI_SEV_PROC_K	Severance process
CI_SP	Volume of data
CI_WO_EVT	Write off process
CI_WO_EVT_CC	Write off process
CI_WO_PROC	Write off process
CI_WO_PROC_K	Write off process
CI_WO_PROC_SA	Write off process

Chapter 5

Conversion Tools

This section describes the following database conversion tools:

- **Oracle Conversion Tool**

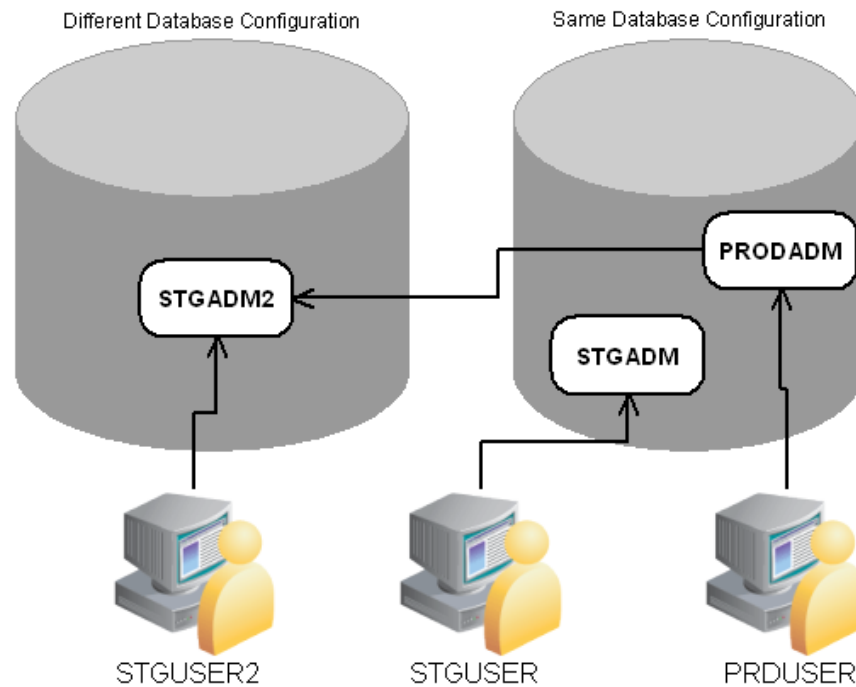
Oracle Conversion Tool

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

Database Configuration

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

The following schematic diagram shows a sample configuration of both the production and staging environments in which the Conversion Tool Kit operates. There is no limit to how many staging databases can be configured for one production database. However, the production and staging databases must be the same release level.



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

Script Installation

With Oracle Customer Care and Billing V2.3.1 a new Conversion Setup Utility, ConvSetup.exe, is provided to set up conversion schemas.

1. Install the Oracle client V11g or later on Windows desktop and configure SQLNet to connect to the target database.

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

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

Preparing the Production Database

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

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

Preparing the Staging Database

Multiple staging databases can be set up to facilitate the conversion process if the customer data can be moved to the application in phases or concurrently by different project groups.

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

ConvSetup.exe creates the database objects in staging schema. It prompts for Database Platform: Oracle (O) or MSQl (M), Database connection info, Database Name, System Password, Production Schema Name, Staging Schema Name, and Read-Write user for Staging Schema.

ConvSetup.exe performs following tasks:

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

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

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

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

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

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

Note: All database-related single fixes/service packs need to apply against production schema. Staging schema should not be updated with database single fixes or service packs. Staging schema need to be rebuilt for any fixes that contain DDL to create new database objects in production schema.

Appendix A

Upgrades to the Oracle Utilities Customer Care and Billing Database

This section describes the database upgrade process for the Oracle Utilities Customer Care and Billing database. Unless noted otherwise, information is relevant for upgrades from 2.3.0. It highlights changes made to the administrative tables and how those changes should be applied to the data in order for a database to be upgraded to a V2.3.1 database, and how to preserve the business logic implemented in the previous version of the application. The changes that do not require data upgrade are not described in this section. The tasks that need to be performed after running the upgrade scripts are included.

The added functionality is not covered in this section. The upgrade scripts do not turn on the newly added functionality by default. For new functionality, refer to the Release Notes. In the last section of this section you will find a list of the new tables that are added.

This section includes:

- **Automatic Data Upgrade**
- **After Upgrade System Configuration**
- **Schema Change**
- **New System Data**

Automatic Data Upgrade

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

Update Adjustment Audit Calc Amount field (C1-ADAMT)

This upgrade batch program populates the new adjustment calc line column Audit Calculated Amount (AUDIT_CALC_AMT) with the adjustment calculated amount for calculated adjustments.

Characteristics Tables

```
UPDATE CI_DV_TEST_CHAR SET SEQ_NUM=1;
UPDATE CI_DV_TTYP_CHAR SET SEQ_NUM=1;
UPDATE CI_CHTY_DV_TTYP SET DEFAULT_SW='N';
UPDATE CI_CHTY_DV_TTYP SET SORT_SEQ = 10 WHERE SORT_SEQ=0;
UPDATE CI_ITEM_TYP_CHA SET SEQ_NUM=1;
UPDATE CI_CHTY_ITTY SET DEFAULT_SW='N';
UPDATE CI_CHTY_ITTY SET SORT_SEQ = 10 WHERE SORT_SEQ=0;
UPDATE CI_MTR_TYP_CHAR SET SEQ_NUM=1;
UPDATE CI_CHTY_MTTY SET DEFAULT_SW='N';
UPDATE CI_CHTY_MTTY SET SORT_SEQ = 10 WHERE SORT_SEQ=0;
UPDATE CI_SA_TYPE_CHAR SET SEQ_NUM=1;
UPDATE CI_SP_TYPE_CHAR SET SEQ_NUM=1;
UPDATE CI_CHTY_SPTY SET DEFAULT_SW='N';
UPDATE CI_CHTY_SPTY SET SORT_SEQ = 10 WHERE SORT_SEQ=0;
```

Control Table

```
Update CI_FA_CMPL_CTRL Set SEQNO = 1
```

After Upgrade System Configuration

The upgrade batch processes described in this section are only applicable to upgrades from database versions prior to V2.3.0.

Payment Tender Amount Defaulting

Run the batch process **Update Payment Tender** (C1-UPDPT) in multiple threads (thread by payment tender id) to upgrade the existing payment tender records to support alternate currency payment. The batch process can run to upgrade all records or only from a given start date.

Note. The total tender amounts inquiry for any Tender Control or Deposit Control with payment tenders that were not upgraded will return zero.

Taxes on Bill Amount

Run the batch process **Update Payment Tender** (C1-UPDPT) to populate the new column `AUDIT_CALC_AMT` on Bill Segment Calculation Line table (`CI_BSEG_CALC_LN`). The batch program will automatically detect the upgrade condition and will only update the table when it is necessary. This batch process is required to run for CCB 2.3.0 upgrade.

Rate component sequence column size

Due to the increase of Rate component sequence column size, the following Cobol constants are changed (in the copybook `CICZ0000`).

- `CI-CONST-MAX-RTVC-COLL` - Maximum Number of Rate Components for a Rate Version
- `CI-CONST-BI-MAX-CALC-LINE-COLL` - Maximum Number of Bill Calc Lines
- `CI-CONST-RRTVC-RC-DATA` - Rate Component Caching Limit Size

All CM Cobol programs referencing these constants must be analyzed and increase the field length for working variables.

Schema Change

New Tables

The following new tables are added to Oracle Utilities Customer Care and Billing V2.3.1.

Table Name	Description
F1_SVC_TASK	Service Task
F1_SVC_TASK_K	Service Task Key
F1_SVC_TASK_LOG	Service Task Log
F1_SVC_TASK_LOG_PARM	Service Task Log Message Parameters
F1_SVC_TASK_REL_OBJ	Service Task Related Objects
F1_SVC_TASK_TYPE	Service Task Type
F1_SVC_TASK_TYPE_CHAR	Service Task Type Characteristics
F1_SVC_TASK_TYPE_L	Service Task Type Language
F1_SYNC_REQ	Sync Request
F1_SYNC_REQ_CHAR	Sync Request Characteristic
F1_SYNC_REQ_K	Sync Request Key
F1_SYNC_REQ_LOG	Sync Request Log
F1_SYNC_REQ_LOG_PARM	Sync Request Log Parameter

Deprecated Tables

None

Unsupported Tables

None

Added Columns

The following Table Columns are added to Oracle Utilities Customer Care and Billing V2.3.1.

Table Name	Field Name	Required	Upgrade Note
C1_USAGE	BSEG_ID	N	Bill Segment ID
C1_USAGE	CRE_DTTM	Y	Create Date/Time
C1_USAGE	END_DTTM	N	End Date/Time
C1_USAGE	START_DTTM	N	Start Date/Time
C1_USAGE	USER_ID	N	User

Table Name	Field Name	Required	Upgrade Note
CI_ADJ_CALC_LN	AUDIT_CALC_AMOUNT	N	Audit Calculated Amount
CI_B_LN_CHAR	CHAR_VAL_FK1	N	Characteristic Value FK 1
CI_B_LN_CHAR	CHAR_VAL_FK2	N	Characteristic Value FK 2
CI_B_LN_CHAR	CHAR_VAL_FK3	N	Characteristic Value FK 3
CI_B_LN_CHAR	CHAR_VAL_FK4	N	Characteristic Value FK 4
CI_B_LN_CHAR	CHAR_VAL_FK5	N	Characteristic Value FK 5
CI_B_LN_UP_CHAR	CHAR_VAL_FK1	N	Characteristic Value FK 1
CI_B_LN_UP_CHAR	CHAR_VAL_FK2	N	Characteristic Value FK 2
CI_B_LN_UP_CHAR	CHAR_VAL_FK3	N	Characteristic Value FK 3
CI_B_LN_UP_CHAR	CHAR_VAL_FK4	N	Characteristic Value FK 4
CI_B_LN_UP_CHAR	CHAR_VAL_FK5	N	Characteristic Value FK 5
CI_B_TM_LN_CHA	CHAR_VAL_FK1	N	Characteristic Value FK 1
CI_B_TM_LN_CHA	CHAR_VAL_FK2	N	Characteristic Value FK 2
CI_B_TM_LN_CHA	CHAR_VAL_FK3	N	Characteristic Value FK 3
CI_B_TM_LN_CHA	CHAR_VAL_FK4	N	Characteristic Value FK 4
CI_B_TM_LN_CHA	CHAR_VAL_FK5	N	Characteristic Value FK 5
CI_BILL_SEG_TYP	BS_INFO_ALG_CD	N	Bill Segment Information Algorithm
CI_BSEG	MDM_END_DTM	N	MDM End Date/Time
CI_BSEG	MDM_START_DTM	N	MDM Start Date/Time
CI_CHTY_DV_TTYP	ADHOC_CHAR_VAL	N	Adhoc Characteristic Value
CI_CHTY_DV_TTYP	CHAR_VAL	N	Characteristic Value
CI_CHTY_DV_TTYP	CHAR_VAL_FK1	N	Characteristic Value FK 1
CI_CHTY_DV_TTYP	CHAR_VAL_FK2	N	Characteristic Value FK 2
CI_CHTY_DV_TTYP	CHAR_VAL_FK3	N	Characteristic Value FK 3
CI_CHTY_DV_TTYP	CHAR_VAL_FK4	N	Characteristic Value FK 4
CI_CHTY_DV_TTYP	CHAR_VAL_FK5	N	Characteristic Value FK 5
CI_CHTY_DV_TTYP	DEFAULT_SW	N	Default
CI_CHTY_ITTY	ADHOC_CHAR_VAL	N	Adhoc Characteristic Value
CI_CHTY_ITTY	CHAR_VAL	N	Characteristic Value

Table Name	Field Name	Required	Upgrade Note
CI_CHTY_ITTY	CHAR_VAL_FK1	N	Characteristic Value FK 1
CI_CHTY_ITTY	CHAR_VAL_FK2	N	Characteristic Value FK 2
CI_CHTY_ITTY	CHAR_VAL_FK3	N	Characteristic Value FK 3
CI_CHTY_ITTY	CHAR_VAL_FK4	N	Characteristic Value FK 4
CI_CHTY_ITTY	CHAR_VAL_FK5	N	Characteristic Value FK 5
CI_CHTY_ITTY	DEFAULT_SW	N	Default
CI_CHTY_MTTY	ADHOC_CHAR_VAL	N	Adhoc Characteristic Value
CI_CHTY_MTTY	CHAR_VAL	N	Characteristic Value
CI_CHTY_MTTY	CHAR_VAL_FK1	N	Characteristic Value FK 1
CI_CHTY_MTTY	CHAR_VAL_FK2	N	Characteristic Value FK 2
CI_CHTY_MTTY	CHAR_VAL_FK3	N	Characteristic Value FK 3
CI_CHTY_MTTY	CHAR_VAL_FK4	N	Characteristic Value FK 4
CI_CHTY_MTTY	CHAR_VAL_FK5	N	Characteristic Value FK 5
CI_CHTY_MTTY	DEFAULT_SW	N	Default
CI_CHTY_SPTY	ADHOC_CHAR_VAL	N	Adhoc Characteristic Value
CI_CHTY_SPTY	CHAR_VAL	N	Characteristic Value
CI_CHTY_SPTY	CHAR_VAL_FK1	N	Characteristic Value FK 1
CI_CHTY_SPTY	CHAR_VAL_FK2	N	Characteristic Value FK 2
CI_CHTY_SPTY	CHAR_VAL_FK3	N	Characteristic Value FK 3
CI_CHTY_SPTY	CHAR_VAL_FK4	N	Characteristic Value FK 4
CI_CHTY_SPTY	CHAR_VAL_FK5	N	Characteristic Value FK 5
CI_CHTY_SPTY	DEFAULT_SW	N	Default
CI_DST_CD_CHAR	CHAR_VAL_FK1	N	Characteristic Value FK 1
CI_DST_CD_CHAR	CHAR_VAL_FK2	N	Characteristic Value FK 2
CI_DST_CD_CHAR	CHAR_VAL_FK3	N	Characteristic Value FK 3
CI_DST_CD_CHAR	CHAR_VAL_FK4	N	Characteristic Value FK 4
CI_DST_CD_CHAR	CHAR_VAL_FK5	N	Characteristic Value FK 5
CI_DV_TEST_CHAR	CHAR_VAL_FK1	N	Characteristic Value FK 1
CI_DV_TEST_CHAR	CHAR_VAL_FK2	N	Characteristic Value FK 2
CI_DV_TEST_CHAR	CHAR_VAL_FK3	N	Characteristic Value FK 3
CI_DV_TEST_CHAR	CHAR_VAL_FK4	N	Characteristic Value FK 4

Table Name	Field Name	Required	Upgrade Note
CI_DV_TEST_CHAR	CHAR_VAL_FK5	N	Characteristic Value FK 5
CI_DV_TEST_CHAR	SEQ_NUM	Y	Sequence
CI_DV_TTYP_CHAR	ADHOC_CHAR_VAL	N	Adhoc Characteristic Value
CI_DV_TTYP_CHAR	CHAR_VAL_FK1	N	Characteristic Value FK 1
CI_DV_TTYP_CHAR	CHAR_VAL_FK2	N	Characteristic Value FK 2
CI_DV_TTYP_CHAR	CHAR_VAL_FK3	N	Characteristic Value FK 3
CI_DV_TTYP_CHAR	CHAR_VAL_FK4	N	Characteristic Value FK 4
CI_DV_TTYP_CHAR	CHAR_VAL_FK5	N	Characteristic Value FK 5
CI_DV_TTYP_CHAR	SEQ_NUM	Y	Sequence
CI_FA_CMPL_CTRL	SEQNO	Y	Sequence
CI_ITEM_TYP_CHA	ADHOC_CHAR_VAL	N	Adhoc Characteristic Value
CI_ITEM_TYP_CHA	CHAR_VAL_FK1	N	Characteristic Value FK 1
CI_ITEM_TYP_CHA	CHAR_VAL_FK2	N	Characteristic Value FK 2
CI_ITEM_TYP_CHA	CHAR_VAL_FK3	N	Characteristic Value FK 3
CI_ITEM_TYP_CHA	CHAR_VAL_FK4	N	Characteristic Value FK 4
CI_ITEM_TYP_CHA	CHAR_VAL_FK5	N	Characteristic Value FK 5
CI_ITEM_TYP_CHA	SEQ_NUM	Y	Sequence
CI_MTR_TYP_CHAR	ADHOC_CHAR_VAL	N	Adhoc Characteristic Value
CI_MTR_TYP_CHAR	CHAR_VAL_FK1	N	Characteristic Value FK 1
CI_MTR_TYP_CHAR	CHAR_VAL_FK2	N	Characteristic Value FK 2
CI_MTR_TYP_CHAR	CHAR_VAL_FK3	N	Characteristic Value FK 3
CI_MTR_TYP_CHAR	CHAR_VAL_FK4	N	Characteristic Value FK 4
CI_MTR_TYP_CHAR	CHAR_VAL_FK5	N	Characteristic Value FK 5
CI_MTR_TYP_CHAR	SEQ_NUM	Y	Sequence
CI_SA_TYPE	STOP_OPTION_FLG	N	Stop Option
CI_SA_TYPE_CHAR	ADHOC_CHAR_VAL	N	Adhoc Characteristic Value
CI_SA_TYPE_CHAR	CHAR_VAL_FK1	N	Characteristic Value FK 1
CI_SA_TYPE_CHAR	CHAR_VAL_FK2	N	Characteristic Value FK 2
CI_SA_TYPE_CHAR	CHAR_VAL_FK3	N	Characteristic Value FK 3
CI_SA_TYPE_CHAR	CHAR_VAL_FK4	N	Characteristic Value FK 4

Table Name	Field Name	Required	Upgrade Note
CI_SA_TYPE_CHAR	CHAR_VAL_FK5	N	Characteristic Value FK 5
CI_SA_TYPE_CHAR	SEQ_NUM	Y	Sequence
CI_SP_TYPE_CHAR	ADHOC_CHAR_VAL	N	Adhoc Characteristic Value
CI_SP_TYPE_CHAR	CHAR_VAL_FK1	N	Characteristic Value FK 1
CI_SP_TYPE_CHAR	CHAR_VAL_FK2	N	Characteristic Value FK 2
CI_SP_TYPE_CHAR	CHAR_VAL_FK3	N	Characteristic Value FK 3
CI_SP_TYPE_CHAR	CHAR_VAL_FK4	N	Characteristic Value FK 4
CI_SP_TYPE_CHAR	CHAR_VAL_FK5	N	Characteristic Value FK 5
CI_SP_TYPE_CHAR	SEQ_NUM	Y	Sequence

Dropped Columns

None

Unsupported Table Columns

These columns will be deprecated in a future release.

- C1_USAGE_LOG: BATCH_CD column is not used.
- C1_USAGE_LOG: BATCH_NBR column is not used.

Column Format Change

The formats of the following Table Columns are modified in Oracle Utilities Customer Care and Billing V2.3.1.

Table Name	Column Name	From	To
CI_ACCT	ALERT_INFO	VARCHAR2(250)	VARCHAR2(4000)
CI_ALERT_TYPE	ALERT_DAYS1	NUMBER(3)	NUMBER(4)
CI_CONT_QTY_TMP	CONT_QTY	NUMBER(13,2)	NUMBER(17,6)
CI_FA	INSTRUCTIONS	VARCHAR2(64)	VARCHAR2(254)
CI_FA_TYPE_L	ALERT_TEXT	VARCHAR2(254)	VARCHAR2(4000)
CI_SA_CONT_QTY	CONT_QTY	NUMBER(13,2)	NUMBER(17,6)
CI_SA_TYPE_L	ALERT_TEXT	VARCHAR2(50)	VARCHAR2(80)
CI_ZONE_HDL_PRM	ZONE_HDL_PARM_OVRD	VARCHAR2(4000)	VARCHAR2(2000)
CI_ZONE_HDL_PRM	ZONE_HDL_PARM_VAL	VARCHAR2(4000)	VARCHAR2(2000)

New System Data

This section lists the new system data that are added for business process configuration.

Algorithm Types

The following algorithm types are new to V2.3.1.

Algorithm Type	Description
C1-VALIBAN	Validate International Bank Account Number
C1-BST-INFO	Bill Segment Information
C1-OTC-OUTMS	Send Outage Call Outbound Message to External System
C1-CRE-OTCFA	Create Outage Call FA
C1-OUTM-BOAD	Create Outage Outbound Message
C1-CMPL-OUTC	Complete Outage Call After x Days
C1-OCLLPRINF	Outage Call With Premise - Information
C1-OCLLNPIF	Outage Call Without Premise - Information
C1-OCNOPRVAL	Outage Call Without Premise Validation
C1-OCBG-VAL	Off Cycle Bill Generator Validation
C1-BSGC-USG	Bill Segment Get Consumption Usage
C1-BSBS-UR	Create Bill Segment from Usage Request
C1-USGR-INFO	Usage Information
C1-CHK-DTSY	Check For Pending Data Synch
C1-MDM-TMOT	Check for Response Time Out
C1-GEN-USBS	Generate Usage Bill Segment
C1-COMP-BILL	Complete Bill
C1-PROC-BSEX	Process Bill Segment Exception
C1-CR-OUTMSG	Create Outbound Message
C1-USG-STAT	Check Usage Status
F1-GCHG-CDCP	Generic Change Data Capture
C1-PERCDCSA	Person Change Data Capture(SA-Based)
C1-ACCTCDCSA	Account Change Data Capture (SA-Based)
C1-PREMCDCSP	Premise Change Data Capture (SP-Based)
F1-SYNC-INFO	Sync Information
C1-CAPMDMSAI	Capture MDM1 SA-Based Initial Snapshot

Algorithm Type	Description
C1-CAPMDMSPI	Capture MDM1 SP-Based Initial Snapshot
C1-CAPMDMSAF	Capture MDM1 SA-Based Final Snapshot
C1-CAPMDMSPF	Capture MDM1 SP-based Final Snapshot
F1-COMPSNAPS	Compare Initial and Final Snapshots
C1-TRANUSGSP	Transition Related Usage Requests from SP Sync
C1-TRANUSGSA	Transition Related Usage Requests from SA Sync
F1-WAITRELSR	Wait for Related Sync to Complete
F1-GEN-BOMON	Generic Business Object Status Monitor
C1-CLEAREXCP	Clear Exception
F1-SYNRQALRT	Retrieve Outstanding Sync Request
C1-OCTYP-VAL	Outage Call Type Validation
C1-PERCDCSP	Person Change Data Capture (SP-Based)
C1-ACCTCDCSP	Account Change Data Capture (SP-Based)
C1-SACDCSP	SA Change Data Capture (SP-Based)
C1-PREMCDCSP	Premise Change Data Capture (SP-Based)
C1-MTRCDCSP	Meter Change Data Capture (SP-Based)
C1-SPMCDCSP	SP/Meter Change Data Capture (SP-Based)
C1-ITEMCDCSP	Item Change Data Capture (SP-Based)
C1-SPICDCSP	SP/Item Change Data Capture (SP-Based)
C1-CAPNMSSPI	Capture NMS SP-Based Initial Snapshot
C1-CAPNMSPF	Capture NMS SP-based Final Snapshot

Application Services

The following Application Services are new to V2.3.1.

Application Service	Description	Access Mode
C1OUTMGT	Outage Management Information	Inquire
C1-OUTAGECALLBOAS	Outage Call Parent BO	
C1OCALLQ	Outage Call Query	
C1OUTCLL	Outage Call Maintenance	

Application Service	Description	Access Mode
C1-USGRBOAS	Usage BO	
C1USGQRY	Usage Query	
C1USGRM	Usage Maintenance	
F1- UPDATESYNCREQUEST	Update and Transition Master Data Sync Request	
F1-SYNCREQ	Sync Request MO	
F1-SYNCREQUESTBOAS	Sync Request BO	
F1SYNCRM	Sync Request Maintenance	
F1SYNCRQ	Sync Request Query Portal	
C1- OUTGECALLTYPEBOAS	Outage Call Type BO	
C1OCLLTY	Outage Call Type Maintenance	

Background Processes

The following Background Processes are new to V2.3.1.

Background Process	Description
C1-MDMIL	Sync Request Initial Load for MDM
F1-SYNRQ	Sync Request Monitor

Batch Codes

The following Batch Processes are new to V2.3.1

Batch Code	Description
F1-STKTR	Service Task Periodic Monitor
F1-STKDF	Service Task Deferred Monitor
C1-MDMIL	Sync Request Initial Load for MDM
F1-SYNRQ	Sync Request Monitor
C1-NMSIL	Sync Request Initial Load for NMS

Business Objects

The following Business Objects are new to V2.3.1.

BO	Description
F1-ServiceTaskTypeBundlingAdd	Service Task Type Bundling Add BO
F1-ServiceTaskTypePhysical	Service Task Type Physical BO
C1- OutageJobHistory	Outage Outbound Message - Job History Query
C1- OutageCallHistory	Outage Outbound Message - Call History Query
C1- PlannedOutages	Outage Outbound Message - Planned Outages Query
C1-SPDetails	Service Point Details
C1-OutageJobHistory	NMS - Job History Query
C1-OutageCallHistory	NMS - Call History Query
C1-PlannedOutages	NMS - Planned Outages Query
C1-SPDetails	Service Point
C1-OutageCallOutboundMsg	Outage Call Outbound Message
C1-OutageCall	Outage Call Parent BO
C1-OutageCallWithPremise	Outage Call With Premise
C1-OutageCallWithoutPremise	Outage Call without Premise
C1-UsageRequest	Usage Request
C1-UsageRequestCyclicalBilling	Cyclical Billing Usage Request
C1-UsageRequestNonCyclical	Non-Cyclical Billing Usage Request
C1-CyclicalUsgReqOutMsg	Cyclical Billing Usage Request Outbound Message
C1-NonCyclicalUsgReqOutMsg	Non-Cyclical Billing Usage Request Outbound Message
C1-MDM1Person	MDM1 Person
C1-MDM1Account	MDM1 Account
C1-MDM1SA	MDM1 SA
C1-MDM1SP	MDM1 SP
C1-MDM1Premise	MDM1 Premise
C1-MDM1SASyncReqOutMsg	MDM1 SA Sync Request Outbound Message
C1-MDM1SPSyncReqOutMsg	MDM1 SP Sync Request Outbound Message
F1-SyncRequest	Sync Request

BO	Description
C1-MDM1SASyncRequest	MDM1 SA Sync Request
C1-MDM1SPSyncRequest	MDM1 SP Sync Request
C1-OutageCallType	Outage Call Type
C1-NMSPerson	NMS Person
C1-NMSAccount	NMS Account
C1-NMSSA	NMS SA
C1-NMSSP	NMS SP
C1-NMSSPType	NMS SP Type
C1-NMSPremise	NMS Premise
C1-NMSMeter	NMS Meter
C1-NMSItem	NMS Item
C1-NMSSPSyncReqOutMsg	NMS SP Sync Request Outbound Message
C1-NMSSPSyncRequest	NMS SP Sync Request

Business Services

The following Business Services are new to V2.3.1.

Business Service Code	Description
C1-GETPERSASP	Get Account - Main Person Linked to SP
C1-GETPREMSP	Get Service Points for a Premise
C1-AddServiceTaskRelatedObject	Add Service Task Related Object
C1-GetOutageCallPremise	Retrieve Outage Call Premise
C1-GETOCLLT	Retrieve Active Outage Call Types
C1-UpdUsageRequestTransition	Update Usage Request and Transition
C1-ValOCBGSA	Validate Off Cycle Bill Generator SA
C1-GETPERACC	Get Person Accounts
C1-GETACCTSA	Get Account Active SAs
C1-GETPREMSP	Get Premise SPs
C1-GETUSGRAW	Get Usage Requests in Awaiting Data Sync Status by SP Id or SA Id
F1-GETINITSR	Get Initial Sync Requests
F1-GETNONFSR	Get Non-Final Sync Requests
F1-UpdateSyncRequest	Update Sync Request

Business Service Code	Description
F1-RetrieveStringMatch	Retrieve String Match
C1-RetrieveTransactionalBoList	Retrieve Transactional BO List
C1-RetrieveOutageGroupList	Retrieve Outage Group Code List
C1-RetrieveOutageGroupValList	Retrieve Outage Group Code Values List
C1-GETPERACC	Get Person Accounts
C1-GETAPSSA	Get Account's Active and Pending Stop SA
C1-GETSASPS	Get SPs linked to SA
F1-GETINITSR	Get Initial Sync Requests

Data Areas

The following Data Areas are new to V2.3.1.

Data Area	Description
C1-NMSSPBasedSnapshot	NMS SP Snapshot
C1-MDM1SABasedSnapshot	MDM1 SA Snapshot
C1-MDM1SPBasedSnapshot	MDM1 SP Snapshot

Foreign Key References

The following Foreign Key References are new to V2.3.1.

FK Reference Code	Name
F1-STKTY	Service Task Type
F1-STASK	Service Task
C1-USAGE	Usage
F1-SYNRQ	Sync Request
F1SB-MO	MO Option - Sync Request BO

Lookup Fields

The following Lookup Fields are new to V2.3.1

Lookup Field	Description	Value	Description
F1_STASK_TYPE_STATU S_FLG	Service Task Type Status	F1AC	Active

Lookup Field	Description	Value	Description
F1_STASK_TYPE_STATU S_FLG	Service Task Type Status	F1IN	Inactive
CHAR_ENTITY_FLG	Characteristic Entity	F1SK	Service Task
CHAR_ENTITY_FLG	Characteristic Entity	F1ST	Service Task Type
CHAR_ENTITY_FLG	Characteristic Entity	F1TL	Service Task Log
F1_SVC_TASK_CL_FLG	Service Task Class		No Value / Customizable
STOP_OPTION_FLG	Stop Option Flag	C1AU	Automatically Stop SA
ALG_ENTITY_FLG	Algorithm Entity	C1BS	Bill Segment Type - Bill Segment Information
F1CN_OPT_TYP_FLG	Feature Configuration Option	C1AC	Account ID Characteristic Type
F1CN_OPT_TYP_FLG	Feature Configuration Option	C1CD	Callback Date/Time Characteristic Type
F1CN_OPT_TYP_FLG	Feature Configuration Option	C1AC	Account ID Characteristic Type
F1CN_OPT_TYP_FLG	Feature Configuration Option	C1CR	Callback Requested Characteristic Type
F1CN_OPT_TYP_FLG	Feature Configuration Option	C1CT	City Characteristic Type
F1CN_OPT_TYP_FLG	Feature Configuration Option	C1DV	Device Geographic Type
F1CN_OPT_TYP_FLG	Feature Configuration Option	C1L1	Location 1 Characteristic Type
F1CN_OPT_TYP_FLG	Feature Configuration Option	C1L2	Location 2 Characteristic Type
F1CN_OPT_TYP_FLG	Feature Configuration Option	C1NP	Premise ID for Outage Calls without a Premise
F1CN_OPT_TYP_FLG	Feature Configuration Option	C1OP	Outage Code Group Prefix
F1CN_OPT_TYP_FLG	Feature Configuration Option	C1NC	Number of Outage Codes
F1CN_OPT_TYP_FLG	Feature Configuration Option	C1CM	Contact Name Characteristic Type
F1CN_OPT_TYP_FLG	Feature Configuration Option	C1CP	Contact Number Characteristic Type
F1CN_OPT_TYP_FLG	Feature Configuration Option	C1ES	NMS External System
F1CN_OPT_TYP_FLG	Feature Configuration Option	C1OT	Outbound message type

Lookup Field	Description	Value	Description
F1CN_OPT_TYP_FLG	Feature Configuration Option	C1MT	Meet Type Characteristic Type
F1CN_OPT_TYP_FLG	Feature Configuration Option	C1SP	Service Point Id Characteristic Type
F1CN_OPT_TYP_FLG	Feature Configuration Option	C1AD	Appointment Date/ Time Characteristic Type
F1CN_OPT_TYP_FLG	Feature Configuration Option	C1CI	Call Identifier Characteristic Type
F1CN_OPT_TYP_FLG	Feature Configuration Option	C1LT	Location Type Characteristic Type
F1CN_OPT_TYP_FLG	Feature Configuration Option	C1BL	Block Number Characteristic Type
F1CN_OPT_TYP_FLG	Feature Configuration Option	C1ST	State Characteristic Type
FA_LOG_TYP_FLG	FA Log Type	C1OE	Outage call in error
EXT_SYS_TYP_FLG	External System Type	NMS	NMS Outage Management
NMS_OPT_TYP_FLG	NMS Option Type	C1ES	NMS External System
NMS_OPT_TYP_FLG	NMS Option Type	C1OC	NMS Outbound Message Type - Call History
NMS_OPT_TYP_FLG	NMS Option Type	C1OJ	NMS Outbound Message Type - Job History
NMS_OPT_TYP_FLG	NMS Option Type	C1OO	NMS Outbound Message Type - Planned Outages
C1_ETR_SOURCE_FLG	ETR Source	NONE	None
C1_ETR_SOURCE_FLG	ETR Source	NSMC	NMS Storm Management calculated
C1_ETR_SOURCE_FLG	ETR Source	SMNP	NMS Storm Management non-published global ERT set by user
C1_ETR_SOURCE_FLG	ETR Source	UNSM	Updated by NMS Storm Management when crew onsite
C1_ETR_SOURCE_FLG	ETR Source	NSMP	NMS Storm Management published global ERT set by user

Lookup Field	Description	Value	Description
C1_ETR_SOURCE_FLG	ETR Source	MEU	Manually entered by user, assume provided by crew
C1_ETR_SOURCE_FLG	ETR Source	DETR	Initial default ETR (from NMS, not from Storm Management)
C1_ALARM_STATE_FLG	Alarm Status Codes	ASN	Crew is assigned to the event
C1_ALARM_STATE_FLG	Alarm Status Codes	CCNL	Event has been cancelled by a "cancel call" trouble code, but a crew is still associated with the event. (You must then use the Cancel Event button to transition the event to CNL status.)
C1_ALARM_STATE_FLG	Alarm Status Codes	CMP	Event has been completed (job and event details are complete)
C1_ALARM_STATE_FLG	Alarm Status Codes	CNL	Event has been cancelled by a user (using the Cancel Event button in the Work Agenda window)
C1_ALARM_STATE_FLG	Alarm Status Codes	CRT	Acknowledged critical meet
C1_ALARM_STATE_FLG	Alarm Status Codes	ENR	Crew is en route to the event
C1_ALARM_STATE_FLG	Alarm Status Codes	FASN	Crew is assigned to the fault current event
C1_ALARM_STATE_FLG	Alarm Status Codes	FCMP	Fault current event has been completed (job and event details are complete)
C1_ALARM_STATE_FLG	Alarm Status Codes	FCNL	Fault current event has been cancelled
C1_ALARM_STATE_FLG	Alarm Status Codes	FENR	Crew is enroute to the fault current event
C1_ALARM_STATE_FLG	Alarm Status Codes	FNEW	Crew is assigned to the fault current event
C1_ALARM_STATE_FLG	Alarm Status Codes	FONS	Crew is onsite at the fault current event

Lookup Field	Description	Value	Description
C1_ALARM_STATE_FLG	Alarm Status Codes	INC	Event has been completed, but information needs to be entered in the Event Details window
C1_ALARM_STATE_FLG	Alarm Status Codes	MCMP	Momentary event has been completed (job and event details are complete)
C1_ALARM_STATE_FLG	Alarm Status Codes	MINC	Momentary event has been restored, but information needs to be entered in the Event Details window
C1_ALARM_STATE_FLG	Alarm Status Codes	MNEW	New unacknowledged momentary event
C1_ALARM_STATE_FLG	Alarm Status Codes	MNP	Maintenance pending
C1_ALARM_STATE_FLG	Alarm Status Codes	MRCV	Momentary event was received by mobile system and receipt was acknowledged by the MQ adapter
C1_ALARM_STATE_FLG	Alarm Status Codes	MSNT	Unassigned (acknowledged) momentary event manually sent to the mobile system
C1_ALARM_STATE_FLG	Alarm Status Codes	MUAS	Unassigned (acknowledged) momentary event
C1_ALARM_STATE_FLG	Alarm Status Codes	NEW	New unacknowledged event
C1_ALARM_STATE_FLG	Alarm Status Codes	NFY	Notify alarm
C1_ALARM_STATE_FLG	Alarm Status Codes	ONS	Crew is onsite at the event
C1_ALARM_STATE_FLG	Alarm Status Codes	PCMP	Planned event has been completed (job and event details are complete)
C1_ALARM_STATE_FLG	Alarm Status Codes	P-INC	Planned job has been completed, but information needs to be entered in the Event Details window

Lookup Field	Description	Value	Description
C1_ALARM_STATE_FLG	Alarm Status Codes	PNEW	New unacknowledged planned event
C1_ALARM_STATE_FLG	Alarm Status Codes	PRCV	Planned event was received by mobile system and receipt was acknowledged by the MQ adapter
C1_ALARM_STATE_FLG	Alarm Status Codes	PSNT	Unassigned (acknowledged) planned event manually sent to the mobile system
C1_ALARM_STATE_FLG	Alarm Status Codes	PUAS	(acknowledged) planned event
C1_ALARM_STATE_FLG	Alarm Status Codes	RCVD	Order was received by mobile system and receipt was acknowledged by the MQ adapter
C1_ALARM_STATE_FLG	Alarm Status Codes	RED	New critical meet
C1_ALARM_STATE_FLG	Alarm Status Codes	RSCH	Rescheduled meet
C1_ALARM_STATE_FLG	Alarm Status Codes	RST	has been restored and a crew is still associated with the event
C1_ALARM_STATE_FLG	Alarm Status Codes	SASN	Crew is assigned to the SCADA event
C1_ALARM_STATE_FLG	Alarm Status Codes	SCMP	SCADA event has been completed (job and event details are complete)
C1_ALARM_STATE_FLG	Alarm Status Codes	SENR	Crew is en route to the SCADA event
C1_ALARM_STATE_FLG	Alarm Status Codes	SINC	SCADA event has been completed, but information needs to be entered in the Event Details window
C1_ALARM_STATE_FLG	Alarm Status Codes	SMNP	Maintenance pending (SCADA event)
C1_ALARM_STATE_FLG	Alarm Status Codes	SNEW	New unacknowledged SCADA event
C1_ALARM_STATE_FLG	Alarm Status Codes	SNT	Unassigned (acknowledged) event manually sent to the mobile System

Lookup Field	Description	Value	Description
C1_ALARM_STATE_FLG	Alarm Status Codes	SONS	Crew is onsite at the SCADA event
C1_ALARM_STATE_FLG	Alarm Status Codes	SRCV	SCADA event was received by mobile system and receipt was acknowledged by the MQ adapter
C1_ALARM_STATE_FLG	Alarm Status Codes	SRST	SCADA event has been restored and a crew is still associated with the event
C1_ALARM_STATE_FLG	Alarm Status Codes	SSNT	Unassigned (acknowledged) SCADA event manually sent to the mobile system
C1_ALARM_STATE_FLG	Alarm Status Codes	SSUS	Crew has been re-dispatched to another event, but is still assigned to this SCADA event
C1_ALARM_STATE_FLG	Alarm Status Codes	SUAS	(acknowledged) SCADA event
C1_ALARM_STATE_FLG	Alarm Status Codes	SUS	Crew has been re-dispatched to another event, but is still assigned to this one
C1_ALARM_STATE_FLG	Alarm Status Codes	UAS	Unassigned (acknowledged) event
C1_ALARM_STATE_FLG	Alarm Status Codes	VFY	A probable service outage is in this state if the AMR system reports that the meter at the outage location has power. This state provides an indication for the operator to verify that the customer indeed is out of power
C1_ALARM_STATE_FLG	Alarm Status Codes	WASN	Crew is assigned to the switching job
C1_ALARM_STATE_FLG	Alarm Status Codes	WCMP	Switching job has been completed (the corresponding switching plan has been completed)

Lookup Field	Description	Value	Description
C1_ALARM_STATE_FLG	Alarm Status Codes	WCNL	Switching job has been cancelled (the corresponding switching plan has been rescheduled)
C1_ALARM_STATE_FLG	Alarm Status Codes	WENR	Crew is en route to the switching job
C1_ALARM_STATE_FLG	Alarm Status Codes	WONS	Crew is onsite at the switching job
C1_ALARM_STATE_FLG	Alarm Status Codes	WRCV	Switching job was received by mobile system and receipt was acknowledged by the MQ adapter
C1_ALARM_STATE_FLG	Alarm Status Codes	WSNT	Unassigned (acknowledged) switching job manually sent to the mobile system
C1_ALARM_STATE_FLG	Alarm Status Codes	WSUS	Crew has been re-dispatched to another event, but is still assigned to this switching job
C1_ALARM_STATE_FLG	Alarm Status Codes	WUAS	Unassigned (acknowledged) switching job
C1_CALL_STATUS_FLG	Call Status	YACT	Yes (active call)
C1_CALL_STATUS_FLG	Call Status	NACT	No (restored call)
C1_CALL_STATUS_FLG	Call Status	CCAN	Call cancelled
C1_CALL_STATUS_FLG	Call Status	ECAN	Event cancelled
C1_OUTAGE_QUERY_OPTION_FLG	Outage Query Option	C1PS	Premise/SP
C1_OUTAGE_QUERY_OPTION_FLG	Outage Query Option	C1AC	Account
C1_OUTAGE_QUERY_OPTION_FLG	Outage Query Option	C1CI	Other Identifier
C1_OUTAGE_QUERY_OPTION_FLG	Outage Query Option	C1LC	Location
C1_LOCATION_TYPE_FLG	Location Type	C1IS	Intersection
C1_LOCATION_TYPE_FLG	Location Type	C1SS	Street Segment

Lookup Field	Description	Value	Description
C1_EVENT_STATUS_FLG	Event Status Codes	FUZZ	Fuzzy event
C1_EVENT_STATUS_FLG	Event Status Codes	PSO	Probable service outage
C1_EVENT_STATUS_FLG	Event Status Codes	PDO	Probable device outage
C1_EVENT_STATUS_FLG	Event Status Codes	RSO	Real service outage
C1_EVENT_STATUS_FLG	Event Status Codes	RDO	Real device outage
C1_EVENT_STATUS_FLG	Event Status Codes	NON	Non-outage
C1_EVENT_STATUS_FLG	Event Status Codes	CMT	Critical meet
C1_EVENT_STATUS_FLG	Event Status Codes	FMT	Future meet
C1_EVENT_STATUS_FLG	Event Status Codes	CSCO	Confirmed service outage
C1_EVENT_STATUS_FLG	Event Status Codes	CSVO	Confirmed secondary outage
C1_EVENT_STATUS_FLG	Event Status Codes	NFY	Notify alarm
C1_EVENT_STATUS_FLG	Event Status Codes	PMO	Probable momentary outage
C1_EVENT_STATUS_FLG	Event Status Codes	RMO	Real momentary outage
C1_EVENT_STATUS_FLG	Event Status Codes	PLAN	Planned outage
C1_EVENT_STATUS_FLG	Event Status Codes	SWPM	Switching plan master event
C1_EVENT_STATUS_FLG	Event Status Codes	FCE	Fault current event
C1_PRIMARY_CAUSE_FLG	Primary Cause	C1TC	This event is caused by trouble call
C1_PRIMARY_CAUSE_FLG	Primary Cause	C1MA	This event is caused by device being manually operated in the model
C1_PRIMARY_CAUSE_FLG	Primary Cause	C1CF	This event is a confirmed service or secondary outage
C1_PRIMARY_CAUSE_FLG	Primary Cause	C1NO	This event is a non-outage
C1_OUTCALL_ACT_FLG		C1AD	Add
C1_OUTCALL_ACT_FLG		C1CH	Change
C1_OUTCALL_ACT_FLG		C1CN	Cancel
C1_MEET_TYPE_FLG		C1NO	None (=> NMS '0')
C1_MEET_TYPE_FLG		C1CR	Create (=> NMS '1')
C1_MEET_TYPE_FLG		C1RS	Reschedule (=> NMS '2')

Lookup Field	Description	Value	Description
C1_MEET_TYPE_FLG		C1CN	Cancel (=> NMS '3')
C1_OUTCALL_CAN_RSN _FLG			
F1CN_OPT_TYP_FLG		C1BN	Outage Call Block Number Characteristic Type
F1CN_OPT_TYP_FLG		C1CI	Outage Call Identifier Characteristic Type
F1CN_OPT_TYP_FLG		C1CN	Outage Call Contact name Characteristic Type
F1CN_OPT_TYP_FLG		C1CS	Outage Call Cross Street Name Characteristic Type
F1CN_OPT_TYP_FLG		C1CT	Outage Call City Characteristic Type
F1CN_OPT_TYP_FLG		C1NR	Outage Call Contact Number Characteristic Type
F1CN_OPT_TYP_FLG		C1SN	Outage Call Street name Characteristic Type
F1CN_OPT_TYP_FLG		C1ST	Outage Call State Characteristic Type
NMS_OPT_TYP_FLG		C1CH	Outage Group Code Characteristic Type Prefix
F1_SVC_TASK_CL_FLG		C1OC	Outage Call
C1_OUTCALL_ACT_FLG		C1AD	Add
C1_OUTCALL_ACT_FLG		C1CH	Change
C1_OUTCALL_ACT_FLG		C1CN	Canceled
C1_MEET_TYPE_FLG		C1NO	None
C1_MEET_TYPE_FLG		C1CR	Create
C1_MEET_TYPE_FLG		C1RS	Reschedule
C1_MEET_TYPE_FLG		C1CN	Cancel
C1_OUTCALL_CAN_RSN _FLG			
SPECIAL_ROLE_FLG		BD	Bill Determinants Required
BSEG_USAGE_FLG		S	Service Quantity

Lookup Field	Description	Value	Description
USAGE_FLG		S	Service Quantity
C1_USG_CANCEL_RSN_FLG		C1DL	Related bill segment deleted
C1_USG_CANCEL_RSN_FLG		C1RG	Related bill segment regenerated
C1_BILL_MODE_FLG		C1BB	batch billing
C1_BILL_MODE_FLG		C1OB	online billing
F1_STATE_CONDITION_FLG		C1BD	Bill Determinants Received
F1_STATE_CONDITION_FLG		C1AW	Awaiting Bill Determinants
F1_STATE_CONDITION_FLG		C1AS	Awaiting Data Synch
F1_STATE_CONDITION_FLG		C1PE	Pending
F1_STATE_CONDITION_FLG		C1BP	Bill Determinants Processed
C1_BILL_COND_FLG		C1IN	Initial
C1_BILL_COND_FLG		C1IT	Interim
C1_BILL_COND_FLG		C1CL	Closing
C1_USAGE_TYPE_FLG		C1IN	Interval
C1_USAGE_TYPE_FLG		C1SC	Scalar
F1_SYNC_REQUIRED_FLG		F1RQ	Synchronization required.
F1_SYNC_REQUIRED_FLG		F1NQ	Synchronization not required.
SKIP_SA_RSN_FLG		15	SA is linked to a usage request Detailed Description: SA is already linked to a Usage Request in non-final state.
SKIP_SA_RSN_FLG		16	OCBG is linked to Bill Determinants Required SA
F1_FORCE_SYNC_FLG		F1FS	Force Synchronization.
F1_INITIAL_LOAD_SYNC_FLG		F1IL	Initial Load Synchronization.
F1_INITIAL_LOAD_SYNC_FLG		F1IC	Incremental Synchronization.

Lookup Field	Description	Value	Description
F1_SYNC_REQ_DISCARD_RSN_FLG		F1SA	Synchronization not required for SA Type.
F1_SYNC_REQ_DISCARD_RSN_FLG		F1SP	Synchronization not required for SP Type.
F1_SYNC_REQ_DISCARD_RSN_FLG		F1NC	No changes detected.
F1_SYNC_REQ_CANCEL_RSN_FLG			
ACCESS_MODE		F1DS	Determine If Sync Needed
ACCESS_MODE		F1DC	Discarded
ACCESS_MODE		F1AA	Awaiting Acknowledgement
ACCESS_MODE		F1SY	Synchronized
ACCESS_MODE		F1ER	Error
MAINT_OBJ_OPT_FLG		C1UB	Usage Request BO (Batch Billing)
MAINT_OBJ_OPT_FLG		C1UO	Usage Request BO (Online Billing)
MAINT_OBJ_OPT_FLG		C1MV	MDM Version
MAINT_OBJ_OPT_FLG		F1SB	Sync Request BO
BUS_OBJ_OPT_FLG		C1EX	External System
BUS_OBJ_OPT_FLG		C1OM	Outbound Message Type
BUS_OBJ_OPT_FLG			
F1_SVC_TASK_CL_FLG		C1OC	Outage Call
NMS_OPT_TYP_FLG		C1CH	Outage Group Code Characteristic Type Prefix
F1_SVC_TASK_CL_FLG		C1OC	Outage Call
NMS_OPT_TYP_FLG		C1CH	Outage Group Code Characteristic Type Prefix
F1CN_OPT_TYP_FLG	Feature Configuration Option	C1HP	Home Phone
F1CN_OPT_TYP_FLG	Feature Configuration Option	C1BP	Business Phone
F1CN_OPT_TYP_FLG	Feature Configuration Option	C1DV	Device Id Geo Type

Lookup Field	Description	Value	Description
F1CN_OPT_TYP_FLG	Feature Configuration Option	C1IP	Critical Priority Characteristic Type
F1CN_OPT_TYP_FLG	Feature Configuration Option	C1MP	Medical Priority Characteristic Type
F1CN_OPT_TYP_FLG	Feature Configuration Option	C1KP	Key Priority Characteristic Type
F1CN_OPT_TYP_FLG	Feature Configuration Option	C1HP	Home Phone
F1_SYNC_REQ_DISCARD_RSN_FLG	Sync Request Discard Reason	F1NS	SP not linked to active service.

Maintenance Objects

The following Maintenance Objects are new to V2.3.1.

MO	Description
F1-STASKTYPE	Service Task Type
F1-SVCTASK	Service Task
F1-SYNC REQ	Sync Request

Menus

The following Menus are new to V2.3.1.

Menu	Item
Field Order Submenu	Outage Management Information
Outage Information	Navigates to Outage Management Information
SP Context Menu	Outage Management Information
Premise Context Menu	Outage Management Information
Field Order menu	Outage Call
Field Order menu	Outage Call +
Account Context menu	Go To Outage Call Context Menu
Account Context menu	+ Go To Outage Call Context Menu
Premise Context Menu	Go To Outage Call
Premise Context Menu	+ Go To Outage Call
Outage Call Type Menu	Outage Call Type

Menu	Item
Outage Call Type Menu	Outage Call Type +
Meter Menu	Usage Search
Sync Request submenu (Main Menu)	Sync Request Search

Navigation Options

The following Navigation Options are new to V2.3.1.

Navigation Option	Description	Usage
c1outmgtTabMenu	Outage Management Query	Menu
c1OutageInfoMgtGoTo	Outage Management Query	Menu
c1ocallqTabMenu	Outage Call Query	Menu, Script
c1outellTabMenu	Outage Call	Menu, Context Field: F1_SVC_TASK_ID
c1outellTabMenuAdd	Outage Call Add	Menu, FK Reference
c1usgqryTabMenu	Usage Query	
c1usageGoTo	Usage	
c1usgrmTabMenu	Usage Maintenance	
c1SAMDMDGoTo	Go To MDM From SA	
c1SPMDMDGoTo	Go To MDM From SP	
f1syncrmTabMenu	Sync Request	
f1syncrqTabMenu	Sync Request Query Portal	
c1oclltyTabMenu	Outage Call Type	Menu
c1oclltyTabMenuAdd	Outage Call Type +	Menu, FK Reference

Plug-in Spots

The following Plug-in Spots are new to V2.3.1.

Plug-in Spot	Description
F1MA	Maintenance Object - Audit

Portals

The following Portals are new to V2.3.1.

Portal Code	Description
C1OUTMGT	Job History Query Portal
C1CALLQY	Call History Query Portal
C1PLANOQ	Planned Outages Query Portal
C1OCLLQ	Outage Call Query
C1OUTCLL	Outage Call Maintenance
C1-OUTCLLDET	Outage Call Display
C1-OUTCLLACT	Outage Call Action
C1-OUTCLLLOG	Outage Call Log Display
C1OCLLTY	Outage Call Type
Bill Segment Usage Portal Tab Page	New tab portal to the bill segment page to display all usage requests linked to the bill segment
C1USGQRY	Usage Query
C1USGRM	Usage Portal
F1SYNCRM	Sync Request Maintenance
F1SYNCRQ	Sync Request Query

Scripts

The following Scripts are new to V2.3.1.

Script Code	Script Type	Description
C1-RetJobHst	SS	Retrieve Job History
C1-RetCalHst	SS	Retrieve Call History
C1-RetPlnOut	SS	Retrieve Planned Outages
C1-RetSPInfo	SS	Retrieve Service Information
C1-MainOCall	BPA	Outage Call - Maintain
C1-EntrOCTyp	BPA	Outage Call - Select Outage Call Type
C1-CreOutMsg	SS	Create Outage Outbound Message
C1-DiffPrcDt	SS	Difference Between Given Date and Process Date
C1-ValOClITy	SS	Outage Call - Validate Selected Outage Call Type

Script Code	Script Type	Description
C1-PreOCINP	SS	Outage Call Without Premise Pre-Processing
C1-PreOCINP	SS	Outage Call With Premise Pre-Processing
C1-QRYFILVAL	SS	Query Zone Single Filter Validation
C1-OCINPQVI	SS	Outag Call Without Premise - Validate Query Filters
C1-SvcTskTyM	BPA	Service Task Type - Maintain
C1-MainUsage	BPA	Usage Maintenance
C1-UsageLog	BPA	Add Usage Log Entry
C1-SPGoToMDM	BPA	Usage MDM Link from SP Context
C1-SAGoToMDM	BPA	Usage MDM Link from SA Context
C1-UsageDerv	SS	Retrieve Display Service Script from BO optionsUsage Display Derivation
C1-UsageActDv	SS	Usage Actions Map Derivation
C1-UsageActn	SS	Usage - Retrieve Action Details
C1-UsageDisp	SS	Retrieve Usage Request Details for Display
F1-MainSynRq	BPA	Sync Request Maintenance
C1-SReqQryV	SS	Validate Sync Request Query Filters
F1-SynRActDv	SS	Sync Request Actions Map Derivation
F1-SyncRActn	SS	Sync Request - Retrieve Action Details
C1-SyncRDisp	SS	Retrieve Sync Request Details for Display
C1-ConMDMSA	SS	Construct MDM1 SA Snapshot
C1-ConMDMSP	SS	Construct MDM1 SP Snapshot
C1-GetCDCPmV	SS	Get CDC Algorithm Parm Mnemonic Values
C1-ConNMSSP	SS	Construct NMS SP Snapshot

Service Programs

The following Service Programs are new to V2.3.1.

Service Program	Description
F1-SVCTASKRELOBJ	Service Task Related Object
C1USGQRY	Usage Search
C1LUSGTP	Update Usage Request

Service Program	Description
C1USGRM	Usage
F1-SYNCREQ	Sync Request Maintenance
F1LSYNTP	Update and Transition Master Data Sync Request

To Do Types

The following To Do Types are new to V2.3.1.

To Do Type	Description
F1-SYNRQ	Sync Request Error

UI Maps

The following UI Maps are new to V2.3.1.

UI Map Code	Description
C1-JobHistory	Job History
C1-CallHistory	Call History
C1-PlannedOutages	Planned Outages
C1-OutCallQ1QueryFilter	Customer Name Filters
C1-OutCallQ2QueryFilter	Address Filters
C1-OutCallQ3QueryFilter	Account Id Filters
C1-OutCallQ4QueryFilter	Location
C1-OutCallQ5QueryFilter	Other Identifier Filters
C1-outageCallWithPremiseDisplay	Outage Call with Premise Display
C1-OutageCallNoPremDisplay	Outage Call without Premise Display
C1-OutageCallActions	Outage Call Actions
C1-OutageCallTypeInput	Select Outage Call BO
C1-OutageCallWithPremiseMaint	Outage Call with Premise - Maintenance
C1-OutageCallNoPremiseMaint	Outage Call without Premise
C1-OutCallCancelReasonInput	Outage Call - Enter Cancel Reason
C1-OutageCallTypeDisplay	Outage Call Type Display
C1-OutageCallTypeMaint)	Outage Call Type Maintenance
C1-SyncRequestDisplay	Sync Request - Display

UI Map Code	Description
F1-SyncRequestActions	Sync Request - Actions
F1-SyncReqCancelReasonInput	Sync Request - Enter Cancel Reason
C1-UsageRequestQueryFilter	Usage - Query Filters UI Map
C1-UsageRequestActions	Usage Actions
C1-UsageRequestDisplay	Usage Display
C1-AddUsageRequestLog	Usage - Add Log Entry
C1-MDMLink	MDM Info UI Map

XAI Inbound Services

The following XAI Inbound Services are new to V2.3.1.

XAI Inbound Service	Description
Update Usage Request	
F1-UpdateAndTransitionSyncRequest	Update and Transition Sync Request

Zones

The following Zones are new to V2.3.1.

Zone Code	Description
C1-JOBHIST	Job History Query
C1-CALLHIST	Call History Query
C1-PLANOUT	Planned Outages Query
C1-OCALLQRY	Outage Call Search
C1-OUTCALLQ1	Customer Name Search
C1-OUTCALLQ2	Address Search
C1-OUTCALLQ3	Account Id Search
C1-OUTCALLQ4	Location Search
C1-OUTCALLQ5	Other Identifier Search
C1-OCALLTYPE	Outage Call Type
C1-OCLLTYPST	Outage Call Type List
C1-USAGEACTN	Usage Actions
C1-USGQUERY	Usage Search
C1-SCHHDR-BS	Bill Segment Info

Zone Code	Description
C1-BILLUSG	Bill Segment Usage
C1-USAGEDISP	Usage Display
C1-USAGELOG	Usage Log
C1-ValOCBGSA	Validate Off Cycle Bill Generator SA
F1-SYNCRQSTA	Sync Request Actions
F1-SYNCRQSTD	Sync Request
C1-SYNCRQSTR	Related Sync Request
F1-SYNCRQSTL	Sync Request Log
F1-SYNREQQRY	Sync Request Multi-Query Zone
C1-SYNREQQ1	Sync Request Name Query Zone
C1-SYNREQQ2	Sync Request Address Query Zone
F1-SYNREQQ3	Sync Request MO Query Zone

Appendix B

Oracle Customer Care and Billing System Table Guide

This chapter lists the system tables owned by Oracle Utilities Customer Care and Billing V2.3.0 and explains the data standards of the system tables. The data standards are required for Oracle Utilities Customer Care and Billing installation, development within Oracle Utilities Customer Care and Billing, configuration of Oracle Utilities products, and customization of the Oracle Utilities products. Adhering to the data standards is a prerequisite for a seamless upgrade to the next release of the product. For the general discussion of System Tables, refer to the System Table Guide for the Oracle Utilities Application Framework.

This section includes:

- **Business Configuration Tables**

Business Configuration Tables

Installation Options

The installation option has only one row that is shipped with the initial installation of Oracle Utilities Customer Care and Billing. The updateable columns in these tables are customer data and will not be overridden by the upgrade process unless a special script is written and included in the upgrade process.

Properties	Description
Tables	CO_INSTALLATION
Initial Data	Create Field Activity Str Stop: Yes Premise Geo Type Usage: Required Alternate Representation: None CTI Integration : No Person ID Usage: Required Start Stop Detail Threshold : 30 Bill Segment Freeze Option: Freeze At Will Accounting Date Freeze Option: Change If Period Is Closed Rollover Threshold Factor : 0.7 User Can Override Bill Date : Yes Use High/Low Failures on Bill : Yes Base Time : 01/01/1900 02:00:00 AM Start Day Option: Current Day Use Alternative Bill ID : No (Yes, for upgrading customers that use Sequential Numbers) Alternative Bill ID Option : None ('Sequential Numbers', for upgrading customers that use Sequential Numbers) Use Credit Notes: No Autopay Creation Option: Create At Bill Completion Fund Accounting: Not Practiced Alternate Currency : Not Allowed

Appendix C

Oracle Application Framework System Table Guide

This section lists the system tables owned by the Oracle Utilities Application Framework V2.2.0 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**

About the Application Framework System Tables

System tables are a subset of the tables that must be populated at the time the product is installed. They include Metadata and configuration tables. The data stored in the system tables are the information that Oracle Utilities Application Framework product operations are based on.

As the product adds more functionality, the list of system tables can grow. The complete list of the system tables can be found in the **System Table List** section.

System Table Standards

System table standards must be observed for the following reasons:

- The product installation and upgrade process and customer modification data extract processes depend on the data prefix and owner flag values to determine the system data owned by each product.
- The standards ensure that there will be no data conflict in the product being developed and the future Oracle Utilities Application Framework release.
- The standards ensure that there will be no data conflict between customer modifications and future Oracle Utilities product releases.
- The data prefix is used to prevent test data from being released to production.

Developer's Note: All test data added to the system data tables must be prefixed by ZZ (all upper case) in order for the installation and upgrade utility to recognize them as test data.

Guidelines for System Table Updates

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

Business Configuration Tables

The majority of data in the tables in this group belongs to the customer. But these tables are shipped with some initial data in order for the customer to login to the system and begin configuring the product. Unless specified otherwise, the initial data is maintained by Oracle Utilities Application Framework and subject to subsequent upgrade.

Application Security and User Profile

These tables define the access rights of a User Group to Application Services and Application Users.

Properties	Description
Tables	SC_ACCESS_CNTL, SC_USER, SC_USR_GRP_PROF, SC_USR_GRP_USR, SC_USER_GROUP, SC_USER_GROUP_L
Initial Data	User Group All SERVICES and default system user SYSUSER. Upon installation the system default User Group All SERVICES is given unrestricted accesses to all services defined in Oracle Utilities Application Framework.

Developer's Note: When a new service is added to the system, all actions defined for the service must be made available to the User Group All SERVICES.

Currency Code

The ISO 4217 three-letter codes are taken as the standard code for the representation of each currency.

Properties	Description
Tables	CI_CURRENCY_CD, CI_CURRENCY_CD_L
Initial Data	United States Dollar (USD).

DB Process

Properties	Description
Tables	CI_DB_PROC, CI_DB_PROC_L, CI_DB_INSTR, CI_DB_INSTR_L
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.

Display Profile

The Display Profile Code is referenced in the User (SC_USER) table.

Properties	Description
Tables	CI_DISP_PROF, CI_DISP_PROF_L
Initial Data	North America (NORTHAM) and Europe (EURO).

Installation Options

Installation Option has only one row that is shipped with the initial installation of the Oracle Utilities Application Framework. The updatable columns in these tables are customer data and will not be overridden by the upgrade process unless a special script is written and included in the upgrade process.

Properties	Description
Tables	F1_INSTALLATION, CI_INSTALL_ALG, CI_INSTALL_MSG, CI_INSTALL_MSG_L, CI_INSTALL_PROD
Initial Data	Option 11111.

Developer's Note: The system data owner of an environment is defined in the Installation Option. This Owner Flag value is stamped on all system data that is added to this environment. The installation default value is Customer Modification (CM). This value must be changed in the base product development environments.

Language Code

Language Code must be a valid code defined in ISO 639-2 Alpha-3. Adding a new language code to the table without translating all language dependent objects in the system can cause errors when a user chooses the language.

Properties	Description
Tables	CI_LANGUAGE
Initial Data	English (ENG).

To Do Priority and Role

New To Do Types released will be linked to the default To Do Role and set to the product assigned priority value initially. These initial settings can be overridden by the implementation.

Properties	Description
Tables	CI_ROLE(L), CI_TD_VAL_ROLE
Initial Data	F1_DFLT

Development and Implementation System Tables

This section defines the standards for the system tables that contain data for application development. The data in these tables implement business logic and UI functions shared by various products and product extensions in the same database.

Standards

When adding new data, the owner flag value of the environment must prefix certain fields of these tables. For example, when a developer adds a new algorithm type to an Oracle Utilities Business Intelligence development environment, B1 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.

Version 2.2 of the framework has a new system data upgrade rule - Override Owner flag. If duplicate data rows (data row with same primary key values) are found at the time of upgrade, the owner flag values will get overridden. The lower level application system data will override the upper level system data. For example, F1 overrides C1, F1&C1 override CM, and so on. This rule will be applied to the following tables: CI_CHAR_ENTITY, CI_MD_MO_ALG, F1_BUS_OBJ_ALG, F1_BUS_OBJ_STATUS_ALG, CI_MD_MO_OPT, F1_BUS_OBJ_OPT, F1_BUS_OBJ_STATUS_OPT, F1_BUS_OBJ_STATUS, F1_BUS_OBJ_STATUS_L

Algorithm Type

Properties	Description
Tables	CI_ALG_TYPE, CI_ALG_TYPE_L, CI_ALG_TYPE_PRM, CI_ALG_TYPE_PRM_L
Standard Data Fields	Algorithm Type (ALG_TYPE_CD)
Customer Modification	None

Algorithm

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

Application Security

Properties	Description
Tables	SC_APP_SERVICE, SC_APP_SERVICE_L, CI_APP_SVC_ACC
Standard Data Fields	Application Service ID (APP_SVC_ID). Customer care and billing products prior to version 2.0 will continue to use CI as a prefix for the application service.
Customer Modification	None

Batch Control

Properties	Description
Tables	CI_BATCH_CTRL, CI_BATCH_CTRL_L, CI_BATCH_CTRL_P, CI_BATCH_CTRL_P_L
Standard Data Fields	Batch Process (BATCH_CD), Program Name (PROGRAM_NAME)
Customer Modification	Next Batch Number (NEXT_BATCH_NBR), Last Update Instance (LAST_UPDATE_INST), Last Update Date time (LAST_UPDATE_DTTM). These columns are updated by the batch processes. Batch Parameter Value (BATCH_PARM_VAL)

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_TR_RULE, F1_BUS_OBJ_TR_RULE_L
Standard Data Fields	Business Object (BUS_OBJ_CD)
Customer Modification	None

Business Service

Properties	Description
Tables	F1_BUS_SVC, F1_BUS_SVC_L
Standard Data Fields	Business Service (BUS_SVC_CD)
Customer Modification	None

Characteristics

Properties	Description
Tables	CI_CHAR_TYPE, CI_CHAR_TYPE_L, CI_CHAR_ENTITY, CI_CHAR_VAL, CI_CHAR_VAL_L
Standard Data Fields	Characteristic Type (CHAR_TYPE_CD)
Customer Modification	Adhoc Characteristic Value Validation Rule (ADHOC_VAL_ALG_CD) on Characteristic Entity Table (CI_CHAR_ENTITY)

Data Area

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

Display Icon

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

Foreign Key Reference

Properties	Description
Tables	CI_FK_REF, CI_FK_REF_L

Properties	Description
Standard Data Fields	FK reference code (FK_REF_CD)
Customer Modification	None

Lookup

Properties	Description
Tables	CI_LOOKUP_FIELD, CI_LOOKUP_VAL, CI_LOOKUP_VAL_L, , CI_LOOKUP(view)
Standard Data Fields	<p>Field Name (FIELD_NAME)</p> <ul style="list-style-type: none"> A lookup field name must have corresponding field metadata. The name of the lookup field column must be assigned to avoid conflicts among different products. If you follow the standards for database field names, a Customer Modification lookup field name will be automatically Customer Modification prefixed. <p>Field Value (FIELD_VALUE)</p> <ul style="list-style-type: none"> If a lookup field is customizable, Customer Modification can insert new lookup values. X or Y must prefix when implementers introduce a new lookup value. Product development can extend the Oracle Utilities Application Framework owned lookup field's value with caution. When it needs to be extended, prefix the first letter of the Owner Flag to the value. For example, when adding a new value to the algorithm entity flag (ALG_ENTITY_FLG), prefix with B1 if you are developing an Oracle Utilities Business Intelligence product.
Customer Modification	Override Description (DESCR_OVRD)

A new Feature option is defined through adding a value to EXT_SYS_TYP_FLG. The field value for this look up field must be prefixed by the Owner flag value.

Map

Properties	Description
Tables	F1_MAP, F1_MAP_L

Properties	Description
Standard Data Fields	Map Code (MAP_CD)
Customer Modification	None

Messages

Properties	Description
Tables	CI_MSG_CATEGORY, CI_MSG_CATEGORY_L, CI_MSG, CI_MSG_L

Properties	Description
Standard Data Fields	<p>Message Category (MESSAGE_CAT_NBR)</p> <ul style="list-style-type: none"> Messages are grouped in categories and each category has message numbers between 1 and 99999. A range of message categories is assigned to a product. You must use only the assigned category for your product. Oracle Utilities Customer Care and Billing and Oracle Utilities Business Intelligence - 00001 thru 00100 Oracle Utilities Application Framework Java - 11001 thru 11100 Oracle Utilities Customer Care and Billing Java - 11101 thru 11200 Oracle Utilities Business Intelligence Java - 11201 thru 11300 Implementer COBOL - 90000 Implementer WSS - 90001 Implementer Java - 90002 Reserved for Tests - 99999 <p>Message Number (MESSAGE_NBR) for COBOL message categories</p> <ul style="list-style-type: none"> Message numbers below 1000 are reserved for common messages. Implementers must not use message numbers below 1000. <p>Message Number (MESSAGE_NBR) for Java message categories</p> <ul style="list-style-type: none"> Subsystem Standard Messages - 00001 thru 02000 Reserved - 02001 thru 09999 Published Messages - 10001 thru 11000 Package Messages - 10001 thru 90000 Reserved - 90001 thru 99999 Each package is allocated 100 message numbers, each starting from 101. Published Messages are messages that are special-interest messages that implementations need to know about and are therefore published in the user docs. Examples of these include messages that are highly likely to be changed for an implementation, or messages that are embedded into other texts/messages and therefore the message number is never shown Reserved message number ranges are for future use and therefore must not be used by all products.

Properties	Description
Customer Modification	Override Description (DESCRLONG_OVRD), Message Text Override (MESSAGE_TEXT_OVRD)

Meta Data - Table and Field

Properties	Description
Tables	CI_MD_TBL, CI_MD_TBL_FLD, CI_MD_TBL_L, CI_MD_TBL_FLD_L, CI_MD_FLD, CI_MD_FLD_L
Standard Data Fields	Table Name (TBL_NAME) <ul style="list-style-type: none"> Table names must match with the physical table name or view name in the database. Field Name (FLD_NAME)Field name must match with the physical column name in the database unless the field is a work field. Field name does not have to follow the prefixing standard unless the field is a work field or customer modification field.
Customer Modification	Audit Switches (AUDIT_INSERT_SW, AUDIT_UPDATE_SW, AUDIT_DELETE_SW), Audit Program Name (AUDIT_PGM_NAME), Audit Table Name (AUDIT_TBL_NAME), Override label (OVRD_LABEL)

Meta Data - Constraints

Properties	Description
Tables	CI_MD_CONST, CI_MD_CONST_FLD
Standard Data Fields	Constraint Id (CONST_ID) <ul style="list-style-type: none"> AA_CXXXXXP00 for Primary Constraints AA_CXXXXXRnn for Foreign Key Constraints Where <ul style="list-style-type: none"> AA: Product owner flag value XXXXX: First 5 letters of the primary index name of the table nn: integer, 01 through 99
Customer Modification	None

Meta Data - Menu

Menus can be extended to support multiple products by adding a new menu line to an existing menu. The sequence number on the menu line language table (CI_MD_MENU_LINE_L) determines the order the menu lines appear. Within the same sequence, alphabetic sorting is used.

Properties	Description
Tables	CI_MD_MENU, CI_MD_MENU_L, CI_MD_MENU_ITEM, CI_MD_MENU_ITEM_L, CI_MD_MENU_LINE, CI_MD_MENU_LINE_L
Standard Data Fields	Menu Name (MENU_NAME), Menu Item Id (MENU_ITEM_ID), Menu Line Id (MENU_LINE_ID)
Customer Modification	None

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_REF, 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 CI_MD_PRG_COM),

Meta Data - Maintenance Object

Properties	Description
Tables	CI_MD_MO, CI_MD_MO_L, CI_MD_MO_TBL, CI_MD_MO_OPT, CI_MD_MO_ALG
Standard Data Fields	Maintenance Object Name (MAINT_OBJ_CD)
Customer Modification	None

Meta Data - Work Tables

Properties	Description
Tables	CI_MD_WRK_TBL, CI_MD_WRK_TBL_L, CI_MD_WRK_TBLFLD, CI_MD_MO_WRK
Standard Data Fields	Work Table Name (WRK_TBL_NAME)
Customer Modification	None

Meta Data - Search Object

Properties	Description
Tables	CI_MD_SO, CI_MD_SO_L, CI_MD_SO_RSFLD, CI_MD_SO_RSFLDAT, CI_MD_SOCG, CI_MD_SOCG_FLD, CI_MD_SOCG_FLDAT, CI_MD_SOCG_L, CI_MD_SOCG_SORT
Standard Data Fields	Search Object Name (SO_CD)
Customer Modification	None

Navigation Option

Properties	Description
Tables	CI_NAV_OPT, CI_NAV_OPT_L, CI_NAV_OPT_CTXT, CI_NAV_OPT_USG, CI_MD_NAV
Standard Data Fields	Navigation Option Code (NAV_OPT_CD), Navigation Key (NAVIGATION_KEY)
Customer Modification	Navigation Key Override (NAV_KEY_OVRD)

Portal and Zone

Properties	Description
Tables	CI_PORTAL, CI_PORTAL_L, CI_PORTAL_ZONE, CI_ZONE, CI_ZONE_L, CI_ZONE_PARM, 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) <ul style="list-style-type: none"> A new Zone can be added to the Product owned Portal Pages. The existing Zones cannot be removed from the Product owned Portal Pages.
Customer Modification	Sort Sequence (SORT_SEQ)

Sequence

Properties	Description
Tables	CI_SEQ
Standard Data Fields	Sequence Name (SEQ_NAME)
Customer Modification	Sequence Number (SEQ_NBR) This field is updated by the application process and must be set to 1 initially.

Schema

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

Script

Properties	Description
Tables	CI_SCR, CI_SCR_L, CI_SCR_CRT, CI_SCR_CRT_GRP, CI_SCR_CRT_GRP_L, CI_SCR_DA, CI_SCR_FLD_MAP, CI_SCR_PRMP,CI, CI_SCR_PRMP_L, CI_SCR_STEP, CI_SCR_STEP_L
Standard Data Fields	Script Code (SCR_CD)
Customer Modification	None

To Do Type

Properties	Description
Tables	CI_TD_TYPE, CI_TD_TYPE_L, CI_TD_SRTKEY_TY, CI_TD_DRLKEY_TY, CI_TD_SRTKEY_TY_L
Standard Data Fields	To Do Type Code (TD_TYPE_CD)
Customer Modification	Creation Batch Code (CRE_BATCH_CD), Route Batch Code (RTE_BATCH_CD), Priority Flag (TD_PRIORITY_FLG)

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_SENDER_L, CI_XAI_SNDR_CTX, CI_XAI_OPTION

Properties	Description
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 CI_XAI_OPTION)

The following XAI tables might have system data installed upon the initial installation but a subsequent system data upgrade process will not update the content of these table unless the change is documented in the database upgrade guide : CI_XAI_RCVR, CI_XAI_RCVR_L, CI_XAI_RCVR_CTX, CI_XAI_RCVR_RSP, CI_XAI_RCVR_RGRP, CI_XAI_SENDER, CI_XAI_SERNDER_L, CI_XAI_SNDR_CTX

XAI Services

Properties	Description
Tables	CI_XAI_IN_SVC, CI_XAI_IN_SVC_L, CI_XAI_SVC_PARM
Standard Data Fields	To Do Type Code (TD_TYPE_CD), XAI Inbound Service Id (XAI_IN_SVC_ID), XAI Inbound Service Name (XAI_IN_SVC_NAME)
Customer Modification	XAI_IN_SVC_ID, XAI_IN_SVC_NAME, XAI_VERSION_ID, POST_ERROR_SW

Oracle Utilities Application Framework Only Tables

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

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

System Table List

This section contains the names of system tables, upgrade actions, and a brief description of the tables. The upgrade actions are explained below.

Keep (KP): The data of 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 of the table in the database is kept untouched. If the data belongs to the base product, any changes pertaining to the new version of the software are performed.

Refresh (RF): The existing data in the table is replaced with the data from the base product table.

Note. New product data is also inserted into tables marked as 'Merge'. If implementers add rows for a customer specific enhancement, it can cause duplication when the system data gets upgraded to the next version. We strongly recommend following the guidelines on how to use designated range of values or prefixes to segregate the implementation data from the base product data.

Table Name	Upgrade Action	Description
CI_ALG	MG	Algorithm
CI_ALG_L	MG	Algorithm Language
CI_ALG_PARM	MG	Algorithm Parameters
CI_ALG_TYPE	MG	Algorithm Type
CI_ALG_TYPE_L	MG	Algorithm Type Language
CI_ALG_TYPE_PRM	MG	Algorithm Type Parameter
CI_ALG_TYPE_PRM_L	MG	Algorithm Type Parameter Language
CI_ALG_VER	MG	Algorithm Version
CI_APP_SVC_ACC	MG	Application Service Access Mode
CI_BATCH_CTRL	MG	Batch Control
CI_BATCH_CTRL_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

Table Name	Upgrade Action	Description
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_ATT_TY	RF	MD Element Attribute Type
CI_MD_ATT_DTL	RF	MD Element Attribute Type Detail
CI_MD_ATT_DTL_L	RF	MD Element Attribute Type Detail Language
CI_MD_CONST	MG	Constraints
CI_MD_CONST_FLD	MG	Constraint Fields
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_ATT	RF	Element Type Attributes
CI_MD_ELTY_L	RF	Element Type Language
CI_MD_FLD	MG	Field
CI_MD_FLD_L	MG	Field Language
CI_MD_LOOKUP	RF	MD Lookup Field Value
CI_MD_LOOKUP_F	RF	MD Lookup Field
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

Table Name	Upgrade Action	Description
CI_MD_MO_TBL	MG	Maintenance Object Table
CI_MD_MO_WRK	MG	Maintenance Object Work Tables
CI_MD_MSG	RF	MD Message
CI_MD_MSG_L	RF	MD Message Language
CI_MD_NAV	MG	Navigation Key
CI_MD_PDF	RF	Predefined Fields
CI_MD_PDF_VAL	RF	Predefined Values
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 Object Criteria Group Field Attribute
CI_MD_SOCG_L	MG	Search Object Criteria Group Language
CI_MD_SOCG_SORT	MG	Search Object Criteria Group Result Sort Order
CI_MD_SO_L	MG	Search Object Language
CI_MD_SO_RSFLD	MG	Search Object Result Field
CI_MD_SO_RSFLDAT	MG	Search Object Result Field Attribute
CI_MD_SRC_TYPE	RF	Source Type
CI_MD_SRC_TYPE_L	RF	Source Type Language
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

Table Name	Upgrade Action	Description
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_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_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 Page
CI_PORTAL_L	MG	Portal Page Language
CI_PORTAL_ZONE	MG	Portal Zone
CI_SCR	MG	Script
CI_SCR_CRT	MG	Script Criteria
CI_SCR_CRT_GRP	MG	Script Criteria Group
CI_SCR_CRT_GRP_L	MG	Script Criteria Group Language
CI_SCR_DA	MG	Script Data Area
CI_SCR_FLD_MAP	MG	Script Field Mapping
CI_SCR_L	MG	Script Language

Table Name	Upgrade Action	Description
CI_SCR_PRMP_T	MG	Script Prompt
CI_SCR_PRMP_T_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_XAI_ADAPTER	MG	XAI Adapter
CI_XAI_ADAPTER_L	MG	XAI Adapter Lang
CI_XAI_CLASS	MG	XAI Class
CI_XAI_CLASS_L	MG	XAI Class Language
CI_XAI_ENV_HNDL	MG	XAI Envelope Handler
CI_XAI_ENV_HNDL_L	MG	XAI Envelope Handler Language
CI_XAI_EXECUTER	RF	XAI Executer
CI_XAI_EXECUTER_L	RF	XAI Executer Language
CI_XAI_FORMAT	RF	XAI Format
CI_XAI_FORMAT_L	RF	XAI Format Language
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_XAI_SVC_VERS	MG	XAI Inbound Service Version
CI_XAI_SVC_VERS_L	MG	XAI Inbound Service Version Language (Unsupported Table)
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

Table Name	Upgrade Action	Description
F1_BUS_OBJ	MG	Business Object
F1_BUS_OBJ_ALG	MG	Business Object Algorithm
F1_BUS_OBJ_L	MG	Business Object Language
F1_BUS_OBJ_OPT	MG	Business Object Option
F1_BUS_OBJ_STATUS	MG	Business Object Status
F1_BUS_OBJ_STATUS_ALG	MG	Business Object Status Algorithm
F1_BUS_OBJ_STATUS_L	MG	Business Object Status Language
F1_BUS_OBJ_STATUS_OPT	MG	Business Object Status Option
F1_BUS_OBJ_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_MAP	MG	UI Map
F1_MAP_L	MG	UI Map 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

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