

Oracle Utilities Meter Data Management

Database Administrator's Guide

Release 2.0.1.5

E18181-05

October 2011

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Preface

This guide provides instructions for installing and maintaining the database for Oracle Utilities Meter Data Management.

This preface contains these topics:

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

Audience

Oracle Utilities Meter Data Management Database Administrator's Guide is intended for database administrators who will be installing and maintaining the database for Oracle Utilities Meter Data Management.

Related Documents

For more information, see these Oracle documents:

- *Oracle Utilities Meter Data Management Quick Install Guide*
- *Oracle Utilities Meter Data Management Installation Guide*

Updates to this Documentation

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

Conventions

The following text conventions are used in this document:

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

Chapter 1

Database Overview

This section provides an overview of the Oracle Utilities Meter Data Management database, including:

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

Supported Database Platforms

This section defines the platforms on which Oracle Utilities Meter Data Management is verified to operate.

Supported Platforms Summary Table

Oracle Utilities Meter Data Management is certified on the following platforms:

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

The following Oracle Database Server Editions are supported:

- Oracle Database Enterprise Edition
- Oracle Database Standard Edition

Note: Oracle Database Enterprise Edition and the Partitioning and Advanced Compression options are not mandatory but recommended. Standard Edition should only be considered suitable for very small, pilot projects or development environments where scalability, performance, and database size-on-disk are not important considerations. Oracle Database Enterprise Edition, including the Advanced Compression and Partitioning options, is strongly recommended in all other situations.

Refer to My Oracle Support for additional details.

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 Meter Data Management has been tested with.

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

The exceptions from this rule are Hibernate software version 3.3.2 ga and the Oracle Client version 11.2.0.1. These versions should not be upgraded.

Always contact Oracle Utilities Meter Data Management support prior to applying vendor updates that do not guarantee backward compatibility.

Database Maintenance Rules

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

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

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

What Changes Are Permitted

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

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

What Changes Are Not Permitted

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

- Base objects must not be removed or altered in the following ways:
 - Columns in base tables must not be altered in anyway (altered, removed or added).
 - Columns in Indexes must not be altered or removed.
 - Tables must not be renamed or removed.
 - Base views must not be renamed or removed.
 - Base Triggers and Sequences must not be renamed or removed.
 - Base indexes must not be altered or removed.

Chapter 2

Database Installation

This section provides the steps required to install or upgrade the Oracle Utilities Meter Data Management database, including:

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

Installation Overview

Note: Refer to the *Oracle Utilities Meter Data Management Installation Guide* for the hardware and software versions required for the installation on Unix or Windows. This installation is for Oracle Utilities Meter Data Management V2.0.1 and the upgrade of Oracle Utilities Meter Data Management V2.0.0 to V2.0.1.

The following type of installation is available for Oracle Utilities Meter Data Management:

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

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

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

Review the Storage.xml file prior to Initial Install or Upgrade Install. Information in this file is used by CDXDBI while installing and upgrading the Oracle Utilities Meter Data Management database objects.

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

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

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

Oracle Database Installation

The following section outlines the instructions for installing the Oracle Database for Oracle Utilities Meter Data Management.

Note: The installation tools outlined in this guide run on Windows and UNIX/Linux only. Please refer to the supported platforms table in Chapter 1 for more information on supported platforms.

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 and 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 application objects across multiple tablespaces, you must create the tablespaces of your choice and edit the Storage.xml file, supplied with the install package, before starting the installation process.

Unix

The files are located in MDM/DatabaseCreation/Unix

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 (AL32UTF8):
  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: AL32UTF8
Do you want to continue (Y/N)?
```

6. Once the database has been created, you will be prompted to either exit the utility or to install the demo database:

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 database.

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 dump file directory (data\_pump\_dir):
- 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:** The data\_pump\_dir must exist in the database created above before continuing with the import. You should also copy the exp\_demo.dmp file to the data\_pump\_dir.

**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 MDM/DatabaseCreation/Windows. 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.
- Q - Quit.

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:** The data\_pump\_dir must exist in the database created above before continuing with the import. You should also copy the exp\_demo.dmp file to the data\_pump\_dir.

**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 you for parameter values:

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

```
Enter the password for the user:
```

```
Enter the name of the Oracle Database: database name
```

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

```
Select the following options:
```

```
(A/a): Generate security for All objects in the Database (e.g. A or
a for all objects)
```

```
(O/o): Generate security for specific Objects inputted in this
terminal (e.g. CI_ACCT,CI_ACCT_K)
```

```
Generate security for specific objects generated from an input File
(e.g. Security_Objects.txt)
```

The utility configures security for the CISADM schema objects

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

For example:

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

**Note:** Database vault must be disabled before running

## Populating Language Data

At this point, the Oracle Utilities Meter Data Management demo database is ready for use. Please note that this database contains data in the ENGLISH language only. If you use any other supported language, you can run the F1-LANG batch program to duplicate the entries for new language records. For more information on running this batch program, refer to the user documentation section “Defining Background Processes.”

You can also install the language specific 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.

**Note:** You must have a supported version of the Java Development Kit installed on the Windows desktop where you stage and run the database installation package. Refer to the Oracle Utilities Meter Data Management Installation Guide for more information.

## Database Script and Utilities Installation

Unzip the database.zip file to your local machine.

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

Set up 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:
  - createdb.sql - Create Database
  - createdbcatalog.sql - Build database catalog tables.
  - createdbfiles.sql - Create data files for tablespaces
  - init.ora - Sample initialization parameters for the database
  - createcdxusers.sql - Create users
  - restartdb.sql - DB restart
- 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. See “Database Creation” for more details.

## Install

Install Oracle Utilities Application Framework V4.1.0 prior to Oracle Utilities Meter Data Management 2.0.1.

The files for Oracle Utilities Application Framework installation are located in the FW410 folder

1. Install base FW V4.1.0 by running the CdxDBI.exe from the Install-Upgrade folder under FW410.
2. Apply prerequisite Framework DB single fixes. See the *Oracle Utilities Meter Data Management Installation Guide* for more details.

The files for the Initial Install of Oracle Utilities Meter Data Management 2.0.1 are located in the Install-Upgrade folder under MDF and MDM.

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

- Location for jar files. (The Jar files are bundled with the database package.)
- Java Home (For example, C:\Java\jdk1.6.0\_18)

Perform the following steps to install the MDM database:

1. Run CDXDBI.exe from MDF/Install-Upgrade. 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 location of Java Home.
  - The location of TUGBU Jarfiles.
  - 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.
  - The Oracle database role with read-write privileges to the Database Schema.
  - The Oracle database role with read-only privileges to the Database Schema.
2. 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.
3. After setting up roles and users, the utility continues upgrading schema and system data definitions. If an error occurs while executing an SQL or another utility, it logs and displays the error message and allows you to re-execute the current step.
4. Run CDXDBI.exe from MDM/Install-Upgrade. The utility prompts you to enter values for the following parameters:
5. 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.
6. After setting up roles and users, the utility continues upgrading schema and system data definitions. If an error occurs while executing an SQL or another utility, it logs and displays the error message and allows you to re-execute the current step.

#### **CDXDBI performs the following tasks:**

- Interacts with the user to collect information about the name of Oracle account that will own the application schema (for example, CISADM), password of this account, 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).
- 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.
- Verifies whether tablespace names already exist in Storage.xml file (if not, the process will abort).
- Installs the schema, installs the system data, and configures security.
- Maintains upgrade log tables in the database.
- Updates release ID when the upgrade is completed successfully.
- If an error occurs while executing a SQL script or another utility, it logs and displays the error message and allows you to re-execute the current step. Log files 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 necessarily mean a problem exists.

- Stores the Schema owner and password in the feature configuration table. The password is stored in encrypted format.

### Post-Install Tasks:

Refer to **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 complete statistics for these new objects using the DBMS\_STATS package.

## Upgrade Install

The following section assumes an existing Oracle Utilities Meter Data Management V2.0.0 installation on top of Oracle Utilities Application Framework V4.0.2 installation.

### Install

Install Oracle Utilities Application Framework V4.1.0 prior to Oracle Utilities Meter Data Management 2.0.1.

The files for Oracle Utilities Application Framework installation are located in the FW410 folder.

1. Install base FW V4.1.0 by running the CdxDBI.exe from the Install-Upgrade folder under FW410.
2. Apply prerequisite Framework DB single fixes. See the *Oracle Utilities Meter Data Management Installation Guide* for more details.

The files for the Upgrade Install of Oracle Utilities Meter Data Management 2.0.1 are located in the Install-Upgrade folder under MDF and MDM.

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 (select/update/insert/delete) 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).
- A database role that has read-write (select/update/insert/delete) privileges to the objects in the application schema. The application will access the database as this user. (for example, CIS\_USER).
- A database role with read-only privileges to the objects in the application schema. (for example, CIS\_READ).
- The location for jar files. (The Jar files are bundled with the database package.)
- Java Home (For example, C:\Java\jdk1.6.0\_18)

Following are the steps involved:

1. Review and edit the Storage.xml file in the MDF/Install-Upgrade folder to set the various options discussed previously. The instructions for editing the file are included in the file itself.
2. Run CDXDBI.exe from the MDF/Install-Upgrade folder. 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 location of Java Home
  - TUGBU Jarfiles location.
  - 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.
  - The Oracle database role with read-write privileges to the Database Schema.
  - The Oracle database role 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.
6. Run CDXDBI.exe from the MDM/Install-Upgrade folder. 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
  - The location of the Jar file.
  - Java Home.
7. The utility at this point is ready to perform the upgrade install and prompts you for permission to start the process.
8. 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.
9. 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:**

- Interacts with the user to collect information about the name of Oracle account that will own the application schema (for example, CISSPLADM), 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, CISSPLUSER), and the name of the Oracle account that will be assigned read-only privileges to the application schema (for example, CISSPLREAD).

- 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.
- Verifies whether the upgrade path from the current release id to the target release id is supported by the upgrade.
- Verifies whether the tablespace names already exist in Storage.xml file (the process aborts, if not).
- Upgrades the schema, upgrades the system data, and configures security.
- Maintains upgrade log tables in the database.
- Updates release id when the upgrade is completed successfully.
- If an error occurs while executing a SQL script or another utility, it logs and displays the error message and allows you to re-execute the current step. Log files 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 necessarily mean a problem exists.
- Stores the Schema owner and password in feature configuration table. The password will be stored in encrypted format.

## 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 Meter Data Management 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 MDM/DatabaseCreation directory under:
  - createdb.sql - Create Database
  - createdbcatalog.sql - Build database catalog tables.

- createdbfiles.sql - Create data files for tablespaces
- init.ora - Sample initialization parameters for the database
- createcdxusers.sql - Create Users
- restartdb.sql - restart 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.



# Chapter 3

---

## Database Design

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

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

# Database Object Standard

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

## Categories of Data

A table can belong to one of the three categories:

- Control (admin)
- Master
- Transaction

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

Example of tables in each category:

- **Control:** SC\_USER, CI\_ADJ\_TYPE, F1\_BUS\_OBJ
- **Master:** CI\_PER, CI\_PREM,
- **Transaction:** F1\_FACT, CI\_FT

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

## Naming Standards

The following naming standards must be applied to database objects.

### Table

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

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

Some examples are:

- CI\_ADJ\_TYPE
- CI\_ADJ\_TYPE\_L

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

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

The tables prior to V2.0.0 are prefixed with CI\_ or SC\_.

### Columns

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

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

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

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

Some examples are:

- F1C066P0
- F1C066S1
- CM206S2

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

## Updating Storage.xml

The storage.xml file that comes with the product allocates all base tables and indexes to the default tablespace CISTS\_01. If you decide to allocate some tables or indexes outside of the default tablespace, then this has to be reflected in the storage.xml file by changing the tablespace name from the default value to a custom value, according to the format shown below:

**Format:**

```
<Table_Name>
 <TABLESPACE>CISTS_01</TABLESPACE>
 <PARALLEL>1</PARALLEL>
```

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

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

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

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

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

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

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

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

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

## Sequence

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

The sequence numbers should be named as below

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

[OF][C/M/T]NNN\_SEQ

- OF stands for Owner Flag. For example, Framework its F1. Other examples are M1,C1,D1,D2, etc.
- C/M/T stands for Control (Admin)/Master/Transaction Tables.
- NNN is a three digit unique Identifier for a Table on which the Sequence is defined.

For Example: F1T220\_SEQ

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

[OF][C/M/T]NNN\_Column\_Name\_SEQ

- OF stands for Owner Flag. For example, the framework is F1. Other examples are M1,C1,D1,D2, etc.
- C/M/T stands for Control (Admin)/Master/Transaction tables.
- NNN is a three digit unique identifier for a table on which the sequence is defined.

For Example: F1T220\_BO\_STATUS\_CD\_SEQ and F1T220\_BUS\_OBJ\_CD\_SEQ

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

[OF]Column\_Name\_SEQ

- OF stands for Owner Flag. For example, the framework is F1. Other examples are M1,C1,D1,D2, etc.

For Example: F1FKVALID\_SEQ

## **Trigger**

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

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

## Column Data Type and Constraints

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

### User Defined Code

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

### System Assigned Identifier

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

### Date/Time/Timestamp

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

### Number

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

### Fixed Length/Variable Length Character Columns

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

### Null Column Support

With Oracle Utilities Application Framework Single Fix 12874623 the application has nullable column support. The NULLABLE\_SW on CI\_MD\_TBL\_FLD can be turned ON for columns which are intended to have null values. The framework will then be able to write null values into those 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 Application Framework limits the data modification of the tables that have owner flag to the data owned by the product.

## Version

The Version column is used 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

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## Database Implementation Guidelines

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

- **Configuration Guidelines**

**Note:** Refer to My Oracle Support for more information.

See **Appendix C: Partitioning Recommendations for Oracle Utilities Meter Data Management** for additional information about configuring the Oracle Utilities Meter Data Management database.

# 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 the following recommendation for partitioning tables.

- Use a minimum of 'n' partitions for selective database objects, where 'n' is number of RAC nodes.

**Note:** For additional information, see the appendix on Table Partitioning.

## Transparent Data Encryption Recommendations

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

Please consider the following when implementing TDE:

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

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

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

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

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

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

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

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

```
Create tablespace <tablespace_name> logging datafile '<datafile
location>' size <initial size> reuse autoextend on next <next size>
maxsize unlimited extent management local uniform size
<uniform size> encryption using 'AES128' default storage(encrypt) ;
```
- Indexed columns can only be encrypted using the NO SALT Option. Salt is a way to strengthen the security of encrypted data. It is a random string added to the data before it is encrypted, causing repetition of text in the clear to appear different when encrypted.

## Data Compression Recommendations

Oracle Utilities supports Advanced Data Compression. This is available from Oracle 11gR1 onwards. Compression reduces the database storage footprint. Make sure that your resources are sufficiently sized for this as it involves additional hardware utilization from the system.

- Compression can be enabled at the Tablespace level or at the Table level.
- All CLOB fields should be stored as SecureFiles with Medium compression.
- All current month partitions should remain uncompressed.

For Non-Exadata hardware you can use a compression method to compress historic data. For Exadata hardware the historic data should be compressed with HCC compression using the QUERY HIGH method.

A separate license is required for using Advanced Data Compression. As a part of the Schema creation we create the product-owned tables with compression turned OFF. If you have the license then you can enable compression.

## Database Vault Recommendations

We support Database Vault from the Oracle Utilities Application Framework 4.1.0. All non-application User IDs can be prevented from using DDL or DML statements against the application schema. So SYS and SYSTEM cannot issue DDL or DML statements against CISADM schema.

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

Application user must be given DML only permissions.

Database Vault can be used to control access during patch process and Install/Upgrade process. Configuration is also supported beginning with the Oracle Utilities Application Framework 4.1.0 patch application with Database Vault.

## 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 an Oracle Advanced Compression license in addition to Oracle Database Enterprise Edition. This feature is not available for the standard edition of the Oracle database.

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

See **Database Syntax** on page 1-1 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=0
db_file_multiblock_read_count=8
transactions=3000
open_cursors=3000
db_writer_processes=12
optimizer_index_cost_adj=1
optimizer_index_caching=100
db_files=1024
dbwr_io_slaves=10 (Only if Asynchronous IO is not Supported)
sessions=4500
memory_target=0
memory_max_target=0
sec_case_sensitive_logon=FALSE
processes=3000
dml_locks=4860
```



# Appendix A

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## Upgrades to the Oracle Utilities Meter Data Management Database

This document highlights the changes made to Oracle Utilities Meter Data Management database from V2.0.0.1 to V2.0.1. In the last section of this document you will find a list of the schema objects added or dropped in MDM 2.0.1.

This section includes:

- **Automatic Data Upgrade**
- **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 Application Framework.

### **Set Business Status for Measurement Data**

As life cycle is added to BO an upgrade script is used to update the business status code in all existing customer records.

### **MO Algorithm Moved**

An upgrade script is used to delete existing customer records that have been moved to base product.

# Schema Change

## New Tables

The following new tables are added to Oracle Utilities Meter Data Management V2.0.1.

| Tables                    | Description                         |
|---------------------------|-------------------------------------|
| D1_SP_MSRMT_CYC_SCHED_RTE | SP/Measurement Cycle Schedule Route |

## Dropped Tables

None

## Unsupported Tables

None

## Added Columns

The following Table Columns are added to Oracle Utilities Meter Data Management V2.0.1:

- D1\_COMM\_TYPE :COMM\_TYPE\_STAT\_FLG
- D1\_DVC\_EVT :DVC\_EVT\_END\_DTTM
- D1\_INIT\_MSRMT\_DATA:IMD\_CTRL\_DC\_ID
- D1\_INIT\_MSRMT\_DATA:IMD\_CTRL\_MC\_ID
- D1\_SP\_MSRMT\_CYC\_SCHED\_RTE:BO\_STATUS\_CD
- D1\_SP\_MSRMT\_CYC\_SCHED\_RTE:BO\_STATUS\_REASON\_CD
- D1\_SP\_MSRMT\_CYC\_SCHED\_RTE:BUS\_OBJ\_CD
- D1\_SP\_MSRMT\_CYC\_SCHED\_RTE:CRE\_DTTM
- D1\_SP\_MSRMT\_CYC\_SCHED\_RTE:D1\_SP\_ID
- D1\_SP\_MSRMT\_CYC\_SCHED\_RTE:MSRMT\_CYC\_CD
- D1\_SP\_MSRMT\_CYC\_SCHED\_RTE:MSRMT\_CYC\_RTE\_CD
- D1\_SP\_MSRMT\_CYC\_SCHED\_RTE:SCHED\_SELECTION\_DT
- D1\_SP\_MSRMT\_CYC\_SCHED\_RTE:STATUS\_UPD\_DTTM
- D1\_SP\_MSRMT\_CYC\_SCHED\_RTE:VERSION

## Dropped Columns

The following columns are dropped in this release.

- D1\_COMM\_TYPE:ACTIVITY\_TYPE\_STAT\_FLG
- D1\_COMM\_TYPE:OUTMSG\_TYPE\_CD

## Unsupported Table Columns

None

## Column Format Change

None

## New System Data

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

### Algorithm Type

The following algorithm types are new to V2.0.1.

| Algorithm Type | Description                                                    |
|----------------|----------------------------------------------------------------|
| D1-ADDLOGSE    | Add MO Log for Sync Request Seeder                             |
| D1-ADDLTRANS   | Perform Additional Install Event Transformation                |
| D1-ADEVTTVAL   | Active Device Event Type Validation                            |
| D1-AMIDIOCRT   | AMI Device Identifier Outbound Communication Creation          |
| D1-AUD-QTYUE   | Audit IMD Quantity Changes and Set User-Edited Flag            |
| D1-AUD-UEFLG   | Set user-edited flag                                           |
| D1-BODIFFDT    | BO Differs By Device Type                                      |
| D1-CCINPVAL    | Cancel Command Input Validation                                |
| D1-CCOUTMSG    | Create Outbound Message (Connect/Disconnect)                   |
| D1-CCRSRTBO    | Transform to Command Request or Service Request Transaction BO |
| D1-CECD        | Check for existing future Connects or Disconnects              |
| D1-CHKIMD      | Check for Initial Measurement Data                             |
| D1-CHKMST      | Check for existing Measurements                                |
| D1-CHKSREXST   | Check Inbound Sync Request Existence                           |
| D1-CLEAREXCP   | Sync Request Clear Exception                                   |
| D1-CMOCC       | Commission Outbound Communication Creation                     |
| D1-COBKA       | Create Outbound Communication for Activities                   |
| D1-COCE        | Cancel Outstanding Completion Events                           |
| D1-COCOMMCF    | Create Outbound Communication based on Completion Flag         |
| D1-CODROC      | Create On-Demand Read Outbound Communication                   |
| D1-COMMINFO    | Communication Information                                      |
| D1-COMPDE-TD   | Complete Device Event To Do                                    |

| Algorithm Type | Description                                                      |
|----------------|------------------------------------------------------------------|
| D1-COOC        | Cancel Outstanding Outbound Communication                        |
| D1-COUTMSG     | Create Outbound Message                                          |
| D1-CRAINFO     | Command Request Activity Information                             |
| D1-CRE-TDNVE   | Create IMD To Do for Error States                                |
| D1-CREATELOG   | Create Log Entries for Device Event Seeder                       |
| D1-CREAT*TODO  | Create Device Event To Do                                        |
| D1-CRENEGACK   | Create Negative Acknowledgement                                  |
| D1-CREPOSACK   | Create Positive Acknowledgement                                  |
| D1-DCVALDEC    | Default Configuration Validation of Device Event Category        |
| D1-DDACINFO    | Device Activity with Duration - Information                      |
| D1-DDR         | Determine Device and Recipient                                   |
| D1-DEFSYNCTZ   | Default Sync Request Inbound Time Zone                           |
| D1-DE*TBOD     | Device Event Type and Business Object Identification             |
| D1-DE*TBOSYNC  | Determine BO for Synchronized Objects                            |
| D1-DE*TSYNRBO  | Determine Sync Request BO                                        |
| D1-DE*TTARGBO  | Determine Sync Request Inbound Target BO                         |
| D1-DE*TTARIEI  | Determine IE Target BO and Check for Smart Device - Initial Sync |
| D1-DE*TTARIEO  | Determine IE Target BO and Check for Smart Device - Ongoing Sync |
| D1-DEVICEID    | Device Identification                                            |
| D1-DFLSYNCBO   | Default Composite Sync Request BO                                |
| D1-DFTSTD*TM   | Default Start Date/Time                                          |
| D1-DIFDVE*TC   | Method Differs By Device Event Category                          |
| D1-DMRO        | Default Measurement Requested                                    |
| D1-DMT         | Default Measurement Type                                         |
| D1-DRD*TBOD    | Determine Read Device Transaction BO                             |
| D1-DSCPRDEV*T  | Discard Pair of Events                                           |
| D1-DVCE*TV*AL  | Validate Device Event Processing Method Configuration            |

| Algorithm Type | Description                                            |
|----------------|--------------------------------------------------------|
| D1-DVEVTINFO   | Device Event Info                                      |
| D1-EVCRBONSC   | Event Creation Based on Status Codes - Additional      |
| D1-EXCMPEVTS   | Execute Completion Events                              |
| D1-FAILPA      | Fail Parent Activity                                   |
| D1-FINDCMD     | Find Command to Cancel                                 |
| D1-FRER        | Send Fail Response to External Requester               |
| D1-GINPVAL     | Common Input Validation                                |
| D1-HLPRDDEVT   | Hold Paired Device Event                               |
| D1-IMD-RETRY   | Retry Initial Measurement Data Processing              |
| D1-IMD-SD-TR   | IMD Seeder Transition Determinant                      |
| D1-IMD-TRNS    | IMD Transition - No Log Entries                        |
| D1-INITACT     | Initiate Activity                                      |
| D1-OCDDT       | Outbound Communication Differs by Device Type          |
| D1-PASSPA      | Pass Parent Activity                                   |
| D1-PBSCMTOCC   | Priority-Based Status Code Mapping to Condition Codes  |
| D1-REPRDVCET   | Reprocess Device Event                                 |
| D1-RESLVKEYS   | Resolve Keys                                           |
| D1-RFINSC      | Retrieve Scalar Final Measurements                     |
| D1-RFINTM      | Retrieve Interval Final Measurements                   |
| D1-RIINTM      | Retrieve Interval Initial Measurements                 |
| D1-RMVCE       | Retrieve Measurements via Create IMD Completion Events |
| D1-RRER        | Send Received Response to External Requester           |
| D1-RSINIMS     | Retrieve Scalar Initial Measurements                   |
| D1-RSTEXPDT    | Reset Date Time                                        |
| D1-SANFS       | Alert - Activities Exist in a Non-Final State          |
| D1-SENDTOSUB   | Send to Subscribers                                    |
| D1-SETCMPIND   | Set Composite Indicator Value                          |
| D1-SETERRFLG   | Set Error Flag                                         |
| D1-SETTRANDT   | Setup Transformed Data                                 |
| D1-SHEVTD'TTM  | Shift Event Date/Times to Standard                     |

| Algorithm Type | Description                                                      |
|----------------|------------------------------------------------------------------|
| D1-SNDDVSTCK   | Send Device Status Check Notification to Edge Application        |
| D1-SNDRDTEA    | Send On Demand Read to Edge Application                          |
| D1-SODRTEA     | Send On-Demand Read to Edge Application                          |
| D1-SPLCONSMO   | Split into Constituent Device Configuration and MC Sync Requests |
| D1-SPRID       | Service Provider Identification                                  |
| D1-SR-CRSEED   | Instantiate a Sync Request Seeder                                |
| D1-SR-PREADD   | Sync Request Pre-Add Data                                        |
| D1-SR-UPDDAT   | Sync Request Update Data                                         |
| D1-SRCNTEA     | Send Connect or Disconnect Notification to Edge Application      |
| D1-SRER        | Send Success Response to External Requester                      |
| D1-TERMACT     | Terminate Activity                                               |
| D1-TIMEOUT     | Time Out - Outbound Communication                                |
| D1-TPATOF      | Transition Parent Activity To Failed                             |
| D1-TRANRELCS   | Transition Related Composite Sync Request                        |
| D1-TRANTONEG   | Do Not Clear Exceptions and Transition to Negative State         |
| D1-TRNIESTAT   | Translate Install Event Status                                   |
| D1-TRNONOFF    | Translate/Suppress On/Off History                                |
| D1-UPAEDT      | Update Parent Activity's Event Date Time                         |
| D1-VALACT*TDI  | Validate Activity Type and Transition to Error State If Invalid  |
| D1-VALCOMTP    | Validate Communication Type                                      |
| D1-VALDEVMC    | Validate that Device has appropriate Measuring Component         |
| D1-VALDEXEVT   | Validate External Event Name                                     |
| D1-VALDVCEVT   | Validate Device Event                                            |
| D1-VALDVCNAC   | Validate Device Not Already Commissioned                         |
| D1-VALDVCNAD   | Validate Device Not Already Decommissioned                       |

| Algorithm Type | Description                                                            |
|----------------|------------------------------------------------------------------------|
| D1-VALDVCSTS   | Validate Install Event Status                                          |
| D1-VALIDCMD    | Validate Head-End's Capability to Perform Command                      |
| D1-VALIMPINT   | Validate Start and End Date Time                                       |
| D1-VALMAXRT    | Validate Maximum Retries If Retry Frequency Is Populated               |
| D1-VALMDEST    | Validate Measurement Destination                                       |
| D1-VALMREQO    | Validate Measurement Requested                                         |
| D1-VALOUTCOM   | Validate Outbound Communication                                        |
| D1-VALSCHTRU   | Validate Schema                                                        |
| D1-VALSTCOND   | Validate State Condition of Smart Device                               |
| D1-VALSYNCBO   | Perform BO Validation                                                  |
| D1-VLPREVTTY   | Validate Paired Event Device Event Type                                |
| D1-VSED'TMT    | Validate Interval Start Date Time and Interval End Date Time           |
| D1-WAITCONSY   | Wait for Constituent Sync Requests                                     |
| D1-WAITEFFDT   | Wait for Effective Date                                                |
| D1-WFMTO       | Wait for Measurement Time Out                                          |
| D1-WTTMOUT     | Wait Time Out                                                          |
| D2-ADS-INFO    | Aggregator Creator Postal and Service Type - Information               |
| D2-ADS-TR      | Check if Aggregator Creator has Performed a Scan                       |
| D2-AGG-MC      | Aggregate Measurements of Aggregator's Constituent MCs                 |
| D2-AMC-INFO    | Service Type and Postal Aggregator - Information                       |
| D2-CRE-AGGMC   | Aggregator MC Creation for Postal Code and Service Type                |
| D2-DET-CMC     | Find Constituent Measuring Components Based on Service Type and Postal |
| D2-DETUSID     | Determine Usage Subscription ID                                        |
| D2-DETUTBO     | Determine Usage Transaction Business Object                            |
| D2-BLDSUMSQ    | Build Summary SQs                                                      |
| D2-CALUSGSUB   | Calculate Usage (Sub Usage Transaction)                                |
| D2-CHKSUBUT    | Check Sub Usage Transactions                                           |

| Algorithm Type | Description                                           |
|----------------|-------------------------------------------------------|
|                | D2-CRE-UTSD                                           |
| D2-CHKTRNPUT   | Set Try To Transition Parent Usage Transaction to Yes |
| D2-DET-UTDT    | Determine Usage Transaction Period                    |
| D2-OACHKVAL    | Zero Consumption Outage Activity Validation           |
| D2-RETRY       | Retry                                                 |
| D2-SEND-EROR   | Send Error Notification                               |
| D2-TNAFCALCH   | Transition After Calculation (Sub Usage Transaction)  |
| D2-TNORBATCH   | Proceed With Calculation Or Defer Calculation         |
| D2-TRNRATESC   | Transform Rate Schedule                               |
| D2-VAL-AMCT    | Validate Aggregator Measuring Component Type          |
| D2-VALMATH     | Validate Math                                         |
| D2-ZEROCNCHK   | Zero Consumption Check                                |
| D2-MATH        | Math                                                  |
| D2-SEND-SUBC   | Send Subsequent Correction Notification               |
| D2-TRNUSGPNT   | Try to Transition Parent Usage Transaction            |
| D2-TRNUS       | Transform Usage Subscription                          |
| D2-UTSEEDLOG   | Create Usage Transaction Seeder Log Entries           |
| D2-UTSEEDVAL   | Usage Transaction Seeder Validation                   |

## Algorithm

The following algorithms are new to V2.0.1.

| Algorithm    | Description                                           |
|--------------|-------------------------------------------------------|
| D1-ADDLOGSE  | Add MO Log for Sync Request Seeder                    |
| D1-ADDLTRANS | Perform Additional Install Event Transformation       |
| D1-ADEVTTVAL | Active Device Event Type Validation                   |
| D1-AMIDIOCRT | AMI Device Identifier Outbound Communication Creation |
| D1-AUD-QTYUE | Audit IMD Quantity Changes and Set User-Edited Flag   |

| Algorithm    | Description                                                                          |
|--------------|--------------------------------------------------------------------------------------|
| D1-AUD-UEFLG | Audit User Edited Flag                                                               |
| D1-BODIFFDT  | BO Differs By Device Type                                                            |
| D1-CCINPVAL  | Cancel Command Input Validation                                                      |
| D1-CCSRER    | Cancel Command Send Success Response to External Requester                           |
| D1-CDCCSRTBO | Transform to Connect Command Request or Connect Service Request Transaction BO       |
| D1-CDCOBC    | Create Decommission Outbound Communication for Activities                            |
| D1-CDDCSRTBO | Transform to Disconnect Command Request or Disconnect Service Request Transaction BO |
| D1-CECD      | Check for existing future Disconnects                                                |
| D1-CECONNECT | Check for existing future Connects                                                   |
| D1-CHKIMD    | Check For IMD                                                                        |
| D1-CHKMST    | Check for existing Measurements                                                      |
| D1-CHKSREXST | Check Inbound Sync Request existence                                                 |
| D1-CLCOC     | Create Load Check Outbound Communication                                             |
| D1-CLEAREXCP | Sync Request Clear Exception                                                         |
| D1-CMOCC     | Commission Outbound Communication Creation                                           |
| D1-COBKA     | Create Outbound Communication for On-Demand Read (Interval)                          |
| D1-COCE      | Cancel Outstanding Completion Events                                                 |
| D1-CODROC    | Create On-Demand Read for Start Measurement                                          |
| D1-CODROCD   | Create On-Demand Read for Final Measurement                                          |
| D1-COMMINFO  | Communication Information                                                            |
| D1-COMPDE-TD | Complete Device Event To Do                                                          |
| D1-COOC      | Cancel Outstanding Outbound Communication                                            |
| D1-COUTMSG   | Create Outbound Message                                                              |
| D1-CRAINFO   | Command Request Activity Information                                                 |
| D1-CRCOC     | Create Remote Connect Outbound Communication                                         |

| Algorithm    | Description                                               |
|--------------|-----------------------------------------------------------|
| D1-CRDOC     | Create Remote Disconnect Outbound Communication           |
| D1-CRE-TDNVE | Create IMD To Do for Error States                         |
| D1-CREATELOG | Create Log Entries                                        |
| D1-CREATTODO | Create Device Event To Do                                 |
| D1-CREDVSTCK | Create Device Status Check Outbound Communication         |
| D1-CREDVSTLD | Create Device Status Check Outbound Communication         |
| D1-CRENEGACK | Create Negative Acknowledgement                           |
| D1-CREPOSACK | Create Positive Acknowledgement                           |
| D1-CROBCA    | Create Outbound Communication for On-Demand Read (Scalar) |
| D1-CTDEBOE   | Create To Do Entry for BO in Error                        |
| D1-DCVALDEC  | Default Configuration Validation of Device Event Category |
| D1-DDACINFO  | Device Activity with Duration - Information               |
| D1-DDR       | Determine Device and Recipient                            |
| D1-DEFSYNCTZ | Default Sync Request Inbound Time Zone                    |
| D1-DETBOLD   | Device Event Type and Business Object Identification      |
| D1-DETBOSYNC | Determine BO for Synchronized Objects                     |
| D1-DETSYNRBO | Determine Sync Request BO                                 |
| D1-DETTARGCN | Determine Sync Request Target BO - Contact                |
| D1-DETTARGDC | Determine Sync Request Target BO - Device Configuration   |
| D1-DETTARGDV | Determine Sync Request Target BO - Device                 |
| D1-DETTARGMC | Determine Sync Request Target BO - Measuring Component    |
| D1-DETTARGSP | Determine Sync Request Target BO - Service Point          |
| D1-DETTARIEI | Determine Install Event Target BO - Initial               |
| D1-DETTARIEO | Determine Install Event Target BO - Ongoing               |
| D1-DEVICEID  | Device Identification                                     |

| Algorithm    | Description                                           |
|--------------|-------------------------------------------------------|
| D1-DFLSYNCBO | Default Composite Sync Request BO                     |
| D1-DFTSTD'TM | Default Start Date/Time                               |
| D1-DIFDVEVTC | Method Differs By Device Event Category               |
| D1-DMRO      | Default Measurement Requested                         |
| D1-DMT       | Default Measurement Type                              |
| D1-DRDTBO    | Determine Read Device Transaction BO                  |
| D1-DSCFRER   | Send Fail Response to External Requester              |
| D1-DSCPRDEVT | Discard Pair of Events                                |
| D1-DSCRER    | Send Received Response to External Requester          |
| D1-DVCEVTVAL | Validate Device Event Processing Method Configuration |
| D1-DVEVTINFO | Device Event Info                                     |
| D1-EXCMPEVTS | Execute Completion Events                             |
| D1-FAILPA    | Fail Parent Activity                                  |
| D1-FINDCMD   | Find Command to Cancel                                |
| D1-FRER      | Send Fail Response to External Requester              |
| D1-GINPVAL   | Common Input Validation                               |
| D1-HECAPVAL  | Validate Head-End's Capability to Perform Activity    |
| D1-HLPRDDEVT | Hold Paired Device Event                              |
| D1-IMD-RETRY | Retry Initial Measurement Data Processing             |
| D1-IMD-SD-TR | Transition Determinant                                |
| D1-IMD-TRNS  | IMD Transition - No Log Entries                       |
| D1-INITACT   | Initiate Activity                                     |
| D1-OCDDT     | Outbound Communication Differs by Device Type         |
| D1-PASSPA    | Pass Parent Activity                                  |
| D1-PBSCMTOCC | Interval Status Code Mapping to Condition Codes       |
| D1-RBOE      | Retry BO in Error                                     |
| D1-REPRDVCET | Reprocess Device Event                                |
| D1-RESKEYFAL | Resolve Keys - Ongoing Sync                           |
| D1-RESKEYTRU | Resolve Keys - Initial Sync                           |
| D1-RFINSC    | Retrieve Scalar Final Measurements                    |

| Algorithm    | Description                                                |
|--------------|------------------------------------------------------------|
| D1-RFINTM    | Retrieve Interval Final Measurements                       |
| D1-RIINTM    | Retrieve Interval Initial Measurements                     |
| D1-RMVCE     | Retrieve Measurements via Completion Events                |
| D1-RMVCERC   | Retrieve Measurements via Completion Events Remote Connect |
| D1-RRER      | Send Received Response to External Requester               |
| D1-RSINIMS   | Retrieve Scalar Initial Measurements                       |
| D1-RSTEXPDT  | Reset Expiration Date Time                                 |
| D1-SANFS     | Alert - Show Activities in Non-Final State                 |
| D1-SENDTOSUB | Send to Subscribers                                        |
| D1-SETCMPIND | Set Composite Indicator Value                              |
| D1-SETERRFLG | Set Error Flag                                             |
| D1-SETTRANDT | Setup Transformed Data                                     |
| D1-SFMTEA    | Send Final Measurement to Edge Application                 |
| D1-SHEVTDTTM | Shift Event Date/Times to Standard                         |
| D1-SNDDVSTCK | Send Device Status Check Notification to Edge Application  |
| D1-SNDRDTEA  | Send On Demand Read to Edge Application                    |
| D1-SODRTEA   | Send Start Measurement to Edge Application                 |
| D1-SPLCONSMO | Split into Constituent MOs                                 |
| D1-SPRID     | Service Provider Identification                            |
| D1-SR-CRSEED | Instantiate a Sync Request Seeder                          |
| D1-SR-PREADD | Sync Request Pre-Add Data                                  |
| D1-SR-UPDDAT | Sync Request Update Data                                   |
| D1-SRCNTEA   | Send Remote Connect Notification to Edge Application       |
| D1-SRDNTEA   | Send Remote Disconnect Notification to Edge Application    |
| D1-SRER      | Send Success Response to External Requester                |
| D1-TDCREATE  | Sync Request To Do Entry Creation                          |
| D1-TERMACT   | Terminate Activity                                         |

| Algorithm     | Description                                                        |
|---------------|--------------------------------------------------------------------|
| D1-TIMEOUT    | Time Out                                                           |
| D1-TODOCOMPL  | Generic To Do Completion                                           |
| D1-TODORETRY  | Sync Request Retry for To Do's                                     |
| D1-TPATOF     | Transition Parent Activity To Failed                               |
| D1-TRANRELCS  | Transition Related Composite Sync Request                          |
| D1-TRANTONEG  | Do Not Clear Exceptions and Transition to Negative State           |
| D1-TRNIESTAT  | Translate Install Event Status                                     |
| D1-TRNONOFF   | Translate/Suppress On/Off History                                  |
| D1-UPAEDT     | Update Parent Activity's Event Date Time                           |
| D1-VALACTTIDI | Validate Activity Type and Transition to Error State If Invalid    |
| D1-VALCOMTP   | Validate Communication Type                                        |
| D1-VALDEVMC   | Validate that Device has appropriate Measuring Component           |
| D1-VALDEVMCS  | Validate that Device has appropriate Measuring Component           |
| D1-VALDEXEVT  | Validate External Event Name                                       |
| D1-VALDMDEST  | Validate Measurement Destination                                   |
| D1-VALDVCEVT  | Validate Device Event                                              |
| D1-VALDVCNAC  | Validate Device Not Already Commissioned                           |
| D1-VALDVCNAD  | Validate Device Not Already Decommissioned                         |
| D1-VALDVCNCD  | Validate Device is not already Connected                           |
| D1-VALDVCNDC  | Validate Device is not already Disconnected                        |
| D1-VALHECPRD  | Validate Head-end's Capability to perform Remote Disconnect        |
| D1-VALIDCMD   | Validate Headend's capability to perform On Demand Read (Interval) |
| D1-VALIDCMDS  | Validate Headend's capability to perform On Demand Read (Scalar)   |
| D1-VALIMPINT  | Validate Start and End Date Time                                   |
| D1-VALMAXRT   | Validate Maximum Retries If Retry Frequency Is Populated           |

| Algorithm    | Description                                                   |
|--------------|---------------------------------------------------------------|
| D1-VALMDEST  | Validate Measurement Destination                              |
| D1-VALMREQO  | Validate Measurement Requested                                |
| D1-VALOUTCOM | Validate Outbound Communication                               |
| D1-VALSCHTRU | Validate Schema                                               |
| D1-VALSTCOND | Validate State Condition of Smart Device                      |
| D1-VALSYNCBO | Perform BO Validation                                         |
| D1-VHPCD     | Validate Head-end's Capability to perform Connect Disconnect  |
| D1-VHPCOMMS  | Validate Head-End's Capability to Commission Device           |
| D1-VHCPDCOMM | Validate Head-end's Capability to perform Decommission Device |
| D1-VHCPDR    | Validate Head-end's Capability to perform On-Demand Read      |
| D1-VLPREVTY  | Validate Paired Event Device Event Type                       |
| D1-VSED'TMT  | Validate Interval Start Date Time and Interval End Date Time  |
| D1-WAITCONSY | Wait for Constituent Sync Requests                            |
| D1-WAITEFFDT | Wait for Effective Date                                       |
| D1-WFMTO     | Wait for Measurement Time Out                                 |
| D1-WT'TMOUT  | Wait Time Out                                                 |
| D2-ADS-INFO  | Aggregator Dimension Scanner Information                      |
| D2-ADS-TR    | Activity Dimension Scanner Monitor                            |
| D2-AGG-MC    | Aggregate Measurements of Aggregator's Constituent MCs        |
| D2-AMC-INFO  | Service Type and Postal Aggregator - Information              |
| D2-BLDSUMSQ  | Build Summary SQs                                             |
| D2-CALUSGSUB | Calculate Usage (Sub Usage Transaction)                       |
| D2-CHKSUBUT  | Check Sub Usage Transactions                                  |
| D2-CHKTRNPUT | Set Try To Transition Parent Usage Transaction to Yes         |
| D2-CRE-AGGMC | Aggregator MC Creation for Postal Code and Service Type       |
| D2-CRE-UTSD  | Attempt to Reprocess Usage Transaction Seeder                 |

| Algorithm     | Description                                                            |
|---------------|------------------------------------------------------------------------|
| D2-DET-CMC    | Find Constituent Measuring Components Based on Service Type and Postal |
| D2-DET-UTDT   | Determine Usage Transaction Period                                     |
| D2-DET-TARGUS | Determine Sync Request Target BO - Usage Subscription                  |
| D2-DET-USID   | Determine Usage Subscription ID                                        |
| D2-DET-UTBO   | Determine Usage Transaction Business Object                            |
| D2-INTADJSCA  | Interval Adjustment Based on Related Scalar Measurement                |
| D2-MATH       | Math                                                                   |
| D2-OACHKVAL   | Zero Consumption Outage Activity Validation                            |
| D2-RETRY      | Retry                                                                  |
| D2-SCAPROEST  | Estimate Scalar Based on Profile Data                                  |
| D2-SEND-EROR  | Send Error Notification                                                |
| D2-SEND-SUBC  | Send Subsequent Correction Notification                                |
| D2-TNAFCALCH  | Transition After Calculation (Sub Usage Transaction)                   |
| D2-TNORBATCH  | Proceed With Calculation Or Defer Calculation                          |
| D2-TRNRATESC  | Transform Rate Schedule                                                |
| D2-TRNUS      | Transform Usage Subscription                                           |
| D2-TRNUSGPNT  | Try to Transition Parent Usage Transaction                             |
| D2-UTSE-TODO  | Create Usage Transaction Seeder Exception To Do                        |
| D2-UTSEEDVAL  | Usage Transaction Seeder Validation                                    |
| D2-VAL-AMCT   | Validate Aggregator Measuring Component Type                           |
| D2-VALMATH    | Validate Math                                                          |
| D2-ZEROCNCHK  | Zero Consumption Check                                                 |
| D2-UTSEEDLOG  | Create Usage Transaction Seeder Log Entries                            |

## Application Service

The following Application Services are new to V2.0.1

| Application Service  | Description                                |
|----------------------|--------------------------------------------|
| D1-COMMISSIONDVCBOAS | Device Commission BO                       |
| D1-DECOMMDVCBOAS     | Device Decommission BO                     |
| D1-DEVICEEVENTBOAS   | Device Event BO                            |
| D1-DVCEVENTBOAS      | Device Event Seeder BO                     |
| D1-DVCSTATCHKBOAS    | Device Status Check BO                     |
| D1-DVCWITHDURATNBOAS | Device Activity with Duration BO           |
| D1-ODRDBOAS          | On-Demand Read BO                          |
| D1-REMOTECONNECTBOAS | Remote Connect BO                          |
| D1-REMOTEDISCONBOAS  | Remote Disconnect BO                       |
| D1-SPMCSR            | SP / Measurement Cycle Schedule Route MO   |
| D1-SPMCSRBOAS        | SP / Measurement Cycle Schedule Route BO   |
| D1-STDDVCEVENTBOAS   | Standard Device Event BO                   |
| D1-SYNCADDDVCBOAS    | Device Synchronization Add BO              |
| D1-SYNCADDDVCFGBOAS  | Device Config Synchronization Add BO       |
| D1-SYNCADDIEBOAS     | Install Event Synchronization Add BO       |
| D1-SYNCADDMCBOAS     | Measuring Component Synchronization Add BO |
| D1-SYNCADDSPBOAS     | SP Synchronization Add BO                  |
| D1-SYNCREQCOMPBOAS   | Composite Sync Request BO                  |
| D1-SYNCREQININITBOAS | Sync Request Inbound Initial BO            |
| D1-SYNCREQINONGOBOAS | Sync Request Inbound Ongoing BO            |
| D1-SYNCREQSEEDBOAS   | Sync Request Seeder BO                     |
| D1-SYREQININITSPBOAS | Sync Request Inbound Initial BO            |
| D1CEVT               | Completion Event Portal                    |
| D1CEVTQ              | Completion Event Query Portal              |
| D1COMM               | Communication Portal                       |
| D1COMMQ              | Communication Query Portal                 |
| D1COMMTY             | Communication Type Portal                  |
| D1DETYT              | Device Event Type Portal                   |
| D1DVCEVQ             | Device Event Query Portal                  |

| Application Service | Description                            |
|---------------------|----------------------------------------|
| D1DVCEVT            | Device Event Portal                    |
| D1DVCEVTYP          | Device Type Portal                     |
| D1MCTYQ             | Measuring Component Type Query         |
| D1SYNCIN            | Sync Request Inbound Portal            |
| D1SYNCIQ            | Sync Request Inbound Query Portal      |
| D1SYNCRINM          | Sync Request Portal                    |
| D1SYNCRINQ          | Sync Request Query Portal              |
| D1SYRINE            | Sync Request Inbound Exceptions Portal |
| D2-AGGBOAS          | Aggregator Measuring Component BO      |
| D2-AGGDSBOAS        | Agg Dimension Scanner Activity BO      |
| D2-SYNCADDUSBOAS    | US Synchronization Add BO              |
| D2-USAGETRANSUBBOAS | Usage Transaction Sub BO               |
| D2-USGTRNSEEDERBOAS | Usage Transaction Seeder BO            |
| D2360ADD            | 360 Search by Address                  |
| D2360DEV            | 360 Search by Device                   |
| D2360NAM            | 360 Search by Name                     |
| D2TOTR              | Total and Trends Portal                |
| D2TOTRMT            | Total and Trends View Portal           |
| D2_VEEEME           | VEE Exceptions                         |

## Batch Control

The following Batch Controls are new to V2.0.1.

| Batch Control | Description                                |
|---------------|--------------------------------------------|
| D1-CMSYN      | Composite Sync Request                     |
| D1-CRERR      | Command Request Error - Retry              |
| D1-CRWT       | Command Request Wait - Monitor             |
| D1-CSPSR      | Create SP Msrmt Cycle Schedule Rte Records |
| D1-DVEVS      | Device Event Seeder Monitor Process        |
| D1-GNIMD      | Generic IMD Monitor                        |
| D1-ICERR      | Inbound Communication Error - Retry        |
| D1-OCERR      | Outbound Communication Error - Retry       |

| Batch Control | Description                                 |
|---------------|---------------------------------------------|
| D1-OCWT       | Outbound Communication Wait - Monitor       |
| D1-PSPSR      | Process SP / MC Schedule Route Records      |
| D1-SIHER      | Initial Sync Request - Error                |
| D1-SIKCN      | Initial Sync Request - Resolve Keys Contact |
| D1-SIKDC      | Initial Sync Request - Resolve Keys DC      |
| D1-SIKDV      | Initial Sync Request - Resolve Keys Device  |
| D1-SIKIE      | Initial Sync Request - Resolve Keys IE      |
| D1-SIKMC      | Initial Sync Request - Resolve Keys MC      |
| D1-SIKSP      | Initial Sync Request - Resolve Keys SP      |
| D1-SIKUS      | Initial Sync Request - Resolve Keys US      |
| D1-SILCN      | Initial Sync Request - Load Data Contact    |
| D1-SILDC      | Initial Sync Request - Load Data DC         |
| D1-SILDV      | Initial Sync Request - Load Data Device     |
| D1-SILIE      | Initial Sync Request - Load Data IE         |
| D1-SILMC      | Initial Sync Request - Load Data MC         |
| D1-SILSP      | Initial Sync Request - Load Data SP         |
| D1-SILUS      | Initial Sync Request - Load Data US         |
| D1-SIOER      | Ongoing Sync Request - Error                |
| D1-SIOPE      | Ongoing Sync Request - Pending              |
| D1-SRSDE      | Sync Request Seeder - Error                 |
| D1-UTCD       | Usage Transaction Calculate Defer Monitor   |
| D1-UTID       | Usage Transaction Issue Detected Monitor    |
| D1-UTSED      | Usage Transaction Seeder - Error            |
| D2-ADS        | Aggregator Dimension Scanner Monitor        |
| D2-AGG        | Aggregation Monitor                         |
| D2-SIKUS      | Initial Sync Request - Resolve Keys US      |
| D2-SILUS      | Initial Sync Request - Load Data US         |

## Business Object

The following Business Objects are new to V2.0.1.

| Business Object | Description   |
|-----------------|---------------|
| D1-ActivityLite | Activity LITE |

| Business Object                | Description                              |
|--------------------------------|------------------------------------------|
| D1-AuditList                   | IMD - Audit List Section Only (Lite)     |
| D1-BusinessObject              | Business Object                          |
| D1-BusinessObjectMO            | Business Object MO                       |
| D1-CancelCommand               | Cancel Command                           |
| D1-CancelCommandType           | Cancel Command Type                      |
| D1-CommInLite                  | Inbound Communication Lite               |
| D1-CommOutLite                 | Outbound Communication Lite              |
| D1-CommTypeBundlingAddBO       | Bundling Add BO for Communication Type   |
| D1-CommunicationLite           | Communication Lite                       |
| D1-CommunicationTypePhysicalBO | Physical BO for Communication Type       |
| D1-CompositeSyncRequest        | Composite Sync Request                   |
| D1-CompositeSyncRequestDC      | Device Config Composite Sync Request     |
| D1-DeviceCommission            | Device Commissioning                     |
| D1-DeviceCommissionType        | Device Commission Type                   |
| D1-DeviceDecommission          | Device Decommissioning                   |
| D1-DeviceDecommissionType      | Device Decommission Type                 |
| D1-DeviceEvent                 | Device Event                             |
| D1-DeviceEventMappingLookup    | Device Event Mapping                     |
| D1-DeviceEventSeeder           | Device Event Seeder                      |
| D1-DeviceLiteAMI               | BO to Get AMI related details for Device |
| D1-DeviceStatusCheck           | Device Status Check                      |
| D1-DeviceStatusCheckType       | Device Status Check Type                 |
| D1-DeviceWithDurationActParent | Device Activity with Duration Parent     |
| D1-DeviceWithDurationActType   | Device Activity with Duration Type       |
| D1-DeviceWithDurationActivity  | Outage Activity with Duration            |
| D1-DvcCommunicationStatLookup  | Device Communication Status              |
| D1-DvcConnectionStatLookup     | Device Connection Status                 |
| D1-DvcEventCategoryLookup      | Device Event Category                    |
| D1-DvcEventTypeBundlingAddBO   | Bundling Add BO for Device Event Type    |
| D1-DvcEventTypePhysicalBO      | Physical BO for Device Event Type        |
| D1-DvcFunctionalStateLookup    | Device Functional State                  |
| D1-ExecutionPriorityLookup     | Execution Priority                       |

| Business Object               | Description                                |
|-------------------------------|--------------------------------------------|
| D1-ExternalActTypeIdentifier  | External Activity Type Identifier          |
| D1-ExternalCommTypeLookup     | External Communication Type                |
| D1-GenericConnect             | Generic Connect Device                     |
| D1-GenericDisconnect          | Generic Disconnect Device                  |
| D1-HeadendUOMLookup           | Headend UOM Code to Standard UOM           |
| D1-HowToProcDvcEvsInformation | How to Process Device Event Related Info   |
| D1-HowToProcessDeviceInfo     | How to Process Device Related Information  |
| D1-IBCommunicationTypeBasis   | Inbound Communication Type Basis           |
| D1-IMDRawData                 | Initial Measurement Data Raw Lite          |
| D1-IMDRetry                   | IMD Retry BO                               |
| D1-IMDSeederLite              | IMD Seeder Lite                            |
| D1-InitialSyncRequestContact  | Contact Initial Sync Request               |
| D1-InitialSyncRequestDC       | Device Configuration Initial Sync Request  |
| D1-InitialSyncRequestDevice   | Device Initial Sync Request                |
| D1-InitialSyncRequestIE       | Install Event Initial Sync Request         |
| D1-InitialSyncRequestMC       | Measuring Component Initial Sync Request   |
| D1-InitialSyncRequestSP       | Service Point Initial Sync Request         |
| D1-IntStsCodeToCondMapLookup  | Interval Status Code to Condition Mapping  |
| D1-LoadActionCodeLookup       | Load Action Code                           |
| D1-MCScratchpadLite           | MC Lite Scratchpad                         |
| D1-MCStandAlone               | Measuring Component Standalone Lite        |
| D1-MCTypeValueIdentifiers     | Measuring Component Type Value Identifiers |
| D1-MaintenanceObjectLITE      | Maintenance Object                         |
| D1-OBCommunicationTypeBasis   | Outbound Communication Type Basis          |
| D1-OnDemandReadAbstract       | On-Demand Read Abstract Parent             |
| D1-OnDemandReadInterval       | On-Demand Read Interval                    |
| D1-OnDemandReadIntervalType   | On-Demand Read Interval Type               |
| D1-OnDemandReadScalar         | On-Demand Read Scalar                      |
| D1-OnDemandReadScalarType     | On-Demand Read Scalar Admin BO             |
| D1-OngoingSyncReqAckMsg       | Ongoing Sync Request Acknowledgement       |
| D1-OngoingSyncRequestContact  | Contact Ongoing Sync Request               |

| Business Object                | Description                                |
|--------------------------------|--------------------------------------------|
| D1-OngoingSyncRequestDC        | Device Configuration Ongoing Sync Request  |
| D1-OngoingSyncRequestDevice    | Device Ongoing Sync Request                |
| D1-OngoingSyncRequestIE        | Install Event Ongoing Sync Request         |
| D1-OngoingSyncRequestMC        | Measuring Component Ongoing Sync Request   |
| D1-OngoingSyncRequestSP        | Service Point Ongoing Sync Request         |
| D1-PairedEventFirstDeviceEvent | Device Event - Paired Event (First)        |
| D1-PairedEventFirstDvcEvtType  | Device Event Type - Paired Event (First)   |
| D1-PairedEventLastDeviceEvent  | Device Event - Paired Event (Last)         |
| D1-PairedEventLastDvcEvtType   | Device Event Type - Paired Event (Last)    |
| D1-RemoteConnect               | Remote Connect                             |
| D1-RemoteConnectType           | Remote Connect Type                        |
| D1-RemoteDisconnect            | Remote Disconnect                          |
| D1-RemoteDisconnectType        | Remote Disconnect Type                     |
| D1-SPMrmtCycScheduleRoute      | SP / Measurement Cycle Schedule Route      |
| D1-SeederSyncMasterConfig      | Seeder Sync Request Master Configuration   |
| D1-StandardDeviceEvent         | Standard Device Event                      |
| D1-StandardDeviceEventType     | Standard Device Event Type                 |
| D1-StdEventNameLookup          | Standard Event Name                        |
| D1-SyncRequestSeeder           | Sync Request Seeder                        |
| D1-SynchronizationAddContact   | Contact Synchronization Add                |
| D1-SynchronizationAddDC        | Device Configuration Synchronization Add   |
| D1-SynchronizationAddDevice    | Device Synchronization Add                 |
| D1-SynchronizationAddIE        | Install Event Synchronization Add          |
| D1-SynchronizationAddMC        | Measuring Component Synchronization Add    |
| D1-SynchronizationAddSP        | Service Point Synchronization Add          |
| D1-YesNoLookup                 | Yes/No                                     |
| D2-ActivityAggDimScanner       | Aggregator Creator - Postal / Service Type |
| D2-ActivityTypeAggDimScanner   | Aggregator Dimension Scanner Activity Type |
| D2-Aggregator                  | Aggregator - Postal and Service Type       |
| D2-AggregatorLite              | Aggregator Lite                            |

| Business Object               | Description                                |
|-------------------------------|--------------------------------------------|
| D2-AggregatorType             | Aggregator Type                            |
| D2-AggregatorTypeLite         | Aggregator Type - Lite                     |
| D2-CCBRateScheduleLookup      | CCB Rate Schedule                          |
| D2-HowToSendUSInfoBatch       | How To Send US Related Information Batch   |
| D2-HowToSendUSInfoOnline      | How To Send US Information - Online        |
| D2-InitialSyncRequestUS       | Usage Subscription Initial Sync Request    |
| D2-Math                       | Usage Rule - Math                          |
| D2-SubUsageTransaction        | Sub Usage Transaction                      |
| D2-USMainContactLITE          | Usage Subscription Main Contact Lite       |
| D2-UsageTranOutboundMesg      | Usage Transaction Outbound Message         |
| D2-UsgTranChkSubLITE          | Usage Transaction Check Sub LITE           |
| D2-UsgTranErrDtlOutboundMesg  | Usage Trans Error Details Outbound Message |
| D2-UsgTranSeeder              | Usage Transaction Seeder                   |
| D2-UsgTranSubCorrectOutbound  | Usage Trans Subsequent Correction Outbound |
| D2-OngoingSyncRequestUS       | Usage Subscription Ongoing Sync Request    |
| D2-UsgTranRetryLITE           | Usage Transaction Retry LITE               |
| D2-SynchronizationAddUS       | US Synchronization Add                     |
| D2-UsageTransactionStatusLite | Usage Transaction Status LITE              |
| D2-UsgTranDeferLITE           | Usage Transaction Defer LITE               |
| D2-UsgTranSubLITE             | Usage Transaction Sub LITE                 |
| D2-ZeroConsumptionCheck       | Zero Consumption Check                     |
| WX-MDMMasterConfig            | Self-Service (Meter Data Management)       |

## FK Reference

The following FK References are new to V2.0.1.

| FK Reference | Description                      |
|--------------|----------------------------------|
| D1-ESSRC     | External System with Search Zone |
| D1-MOSRC     | MO with Search Zone              |
| D1-SRQIN     | Sync Request Inbound             |
| D1-TBSRC     | Table with Search Zone           |

| FK Reference | Description                            |
|--------------|----------------------------------------|
| D1CE-BO      | Valid Completion Event Business Object |
| D1SA-BO      | BO Option - Measurement Log BO         |
| D1VB-BO      | BO Option - Valid Command Request BO   |
| D1VC-BO      | BO Option - Valid Completion Event     |
| D1-USGRE     | Usage Transaction Parent               |

## Lookups

The following Lookups are new to V2.0.1.

| Lookup Field Name             | Field Value | Language | Description                               |
|-------------------------------|-------------|----------|-------------------------------------------|
| ACCESS_MODE                   | D1AD        | ENG      | Additional Processing                     |
| ACCESS_MODE                   | D1AP        | ENG      | Process                                   |
| ACCESS_MODE                   | D1CM        | ENG      | Communication in Progress                 |
| ACCESS_MODE                   | D1CR        | ENG      | Connection Ready                          |
| ACCESS_MODE                   | D1DT        | ENG      | Transformed                               |
| ACCESS_MODE                   | D1FK        | ENG      | Resolved                                  |
| ACCESS_MODE                   | D1HD        | ENG      | Hold                                      |
| ACCESS_MODE                   | D1KA        | ENG      | Key Allocated                             |
| ACCESS_MODE                   | D1KR        | ENG      | Keys Resolved                             |
| ACCESS_MODE                   | D1LD        | ENG      | Loaded                                    |
| ACCESS_MODE                   | D1MR        | ENG      | Commission Ready                          |
| ACCESS_MODE                   | D1NK        | ENG      | Acknowledgement Sent                      |
| ACCESS_MODE                   | D1PA        | ENG      | Pre-Added                                 |
| ACCESS_MODE                   | D1RE        | ENG      | Retry                                     |
| ACCESS_MODE                   | D1SP        | ENG      | Split                                     |
| ACCESS_MODE                   | D1SS        | ENG      | Send                                      |
| ACCESS_MODE                   | D1UP        | ENG      | Updating                                  |
| ACCESS_MODE                   | D1VD        | ENG      | Data Transformed / Basic Schema Validated |
| ACCESS_MODE                   | D1VL        | ENG      | Validate                                  |
| ACCESS_MODE                   | D1WT        | ENG      | Waiting for Effective Date                |
| ACCESS_MODE                   | D1WW        | ENG      | Wait                                      |
| ACTIVITY_REL_OBJ<br>_TYPE_FLG | D1EE        | ENG      | Ending Event                              |

| Lookup Field Name         | Field Value | Language | Description                               |
|---------------------------|-------------|----------|-------------------------------------------|
| ACTIVITY_REL_OBJ_TYPE_FLG | D1IE        | ENG      | Initiating Event                          |
| ACTIVITY_REL_TYPE_FLG     | D1CN        | ENG      | Cancel                                    |
| ACTIVITY_TYPE_CA_T_FLG    | D1DE        | ENG      | Device Event Activity                     |
| AUTO_RETRY_FLG            | D1NO        | ENG      | No                                        |
| AUTO_RETRY_FLG            | D1YS        | ENG      | Yes                                       |
| BAR_DATA_TYPE_FLG         | D1DE        | ENG      | Device Events                             |
| BO_TR_COND_FLG            | D1AC        | ENG      | Active                                    |
| BO_TR_COND_FLG            | D1DR        | ENG      | Discard                                   |
| BO_TR_COND_FLG            | D1IN        | ENG      | Inactive                                  |
| BO_TR_COND_FLG            | D1VE        | ENG      | VEE State                                 |
| BUS_OBJ_OPT_FLG           | D1CC        | ENG      | Create Completion Events                  |
| BUS_OBJ_OPT_FLG           | D1CS        | ENG      | Channel Status Code Mapping               |
| BUS_OBJ_OPT_FLG           | D1IS        | ENG      | Interval Status Code to Condition Mapping |
| BUS_OBJ_OPT_FLG           | D1SA        | ENG      | Synchronization Add BO                    |
| BUS_OBJ_OPT_FLG           | D1VB        | ENG      | Valid Command Request BO                  |
| BUS_OBJ_OPT_FLG           | D1VS        | ENG      | Valid State Change Code                   |
| COMM_REL_OBJ_TYPE_FLG     | D1OB        | ENG      | Initiating Outbound Communication         |
| COMM_REL_OBJ_TYPE_FLG     | D1PA        | ENG      | Initiating Activity                       |
| COMM_TYPE_STAT_FLG        | D1AC        | ENG      | Active                                    |
| COMM_TYPE_STAT_FLG        | D1IN        | ENG      | Inactive                                  |
| CONTACT_ID_TYPE_FLG       | D1EI        | ENG      | External ID                               |
| D1_CLEAR_EXCEPTIONS_FLG   | D1CL        | ENG      | Clear Exception                           |
| D1_CLEAR_EXCEPTIONS_FLG   | D1DC        | ENG      | Do Not Clear Exception                    |
| D1_COMM_TYPE_DUP_STA_FLG  | D1AC        | ENG      | Create as Active, Deactivate Original     |
| D1_COMM_TYPE_DUP_STA_FLG  | D1IN        | ENG      | Create as Inactive                        |

| Lookup Field Name               | Field Value | Language | Description               |
|---------------------------------|-------------|----------|---------------------------|
| D1_EVT_DUR_FLG                  | D1CN        | ENG      | Continuous                |
| D1_EVT_DUR_FLG                  | D1IN        | ENG      | Individual                |
| D1_SHOW_ALL_CO<br>MMT_FLG       | D1YE        | ENG      | Yes                       |
| D1_SHOW_ALL_DVC<br>_EVT_TYP_FLG | D1YE        | ENG      | Yes                       |
| D1_SHOW_ALL_SYN<br>C_REQ_IN     | D1YS        | ENG      | Yes                       |
| DATE_TIME_STAND<br>ARD_FLG      | D1NO        | ENG      | No                        |
| DATE_TIME_STAND<br>ARD_FLG      | D1YS        | ENG      | Yes                       |
| DVC_EVT_ACTION_<br>FLG          | D1SB        | ENG      | Subscribe                 |
| DVC_EVT_ACTION_<br>FLG          | D1US        | ENG      | Unsubscribe               |
| DVC_EVT_OUTCOM<br>E_FLG         | D1SB        | ENG      | Subscribed                |
| DVC_EVT_OUTCOM<br>E_FLG         | D1US        | ENG      | Unsubscribed              |
| DVC_ID_TYPE_FLG                 | D1EI        | ENG      | External ID               |
| F1_COMPOSITE_SY<br>NC_FLG       | D1SD        | ENG      | Seeder Sync Request       |
| LOAD_ACTION_CO<br>DE_FLG        | D1AR        | ENG      | Armed                     |
| LOAD_ACTION_CO<br>DE_FLG        | D1CL        | ENG      | Closed                    |
| LOAD_ACTION_CO<br>DE_FLG        | D1CN        | ENG      | Connect                   |
| LOAD_ACTION_CO<br>DE_FLG        | D1DC        | ENG      | Disconnect                |
| LOAD_ACTION_CO<br>DE_FLG        | D1OP        | ENG      | Open                      |
| LOAD_ACTION_CO<br>DE_FLG        | D1PL        | ENG      | Initiate Power Limitation |
| LOAD_ACTION_CO<br>DE_FLG        | D1UN        | ENG      | Unknown                   |
| MC_ID_TYPE_FLG                  | D1EI        | ENG      | External ID               |
| MSRMT_TYPE_FLG                  | D1IN        | ENG      | Interval                  |

| Lookup Field Name          | Field Value | Language | Description                            |
|----------------------------|-------------|----------|----------------------------------------|
| MSRMT_TYPE_FLG             | D1SC        | ENG      | Scalar                                 |
| PROCESS_FLG                | D1NP        | ENG      | Do Not Process                         |
| PROC_ROLE_FLG              | D1AM        | ENG      | Obtain AMI Device Identifier           |
| PROC_ROLE_FLG              | D1DC        | ENG      | Device Commission                      |
| PROC_ROLE_FLG              | D1DD        | ENG      | Device Decommission                    |
| PROC_ROLE_FLG              | D1DM        | ENG      | Device Event Mapping                   |
| PROC_ROLE_FLG              | D1DS        | ENG      | Device Status Check                    |
| PROC_ROLE_FLG              | D1EP        | ENG      | Event Processing Default Configuration |
| PROC_ROLE_FLG              | D1IN        | ENG      | On-Demand Read (Interval)              |
| PROC_ROLE_FLG              | D1LC        | ENG      | Load Check                             |
| PROC_ROLE_FLG              | D1RC        | ENG      | Remote Connect                         |
| PROC_ROLE_FLG              | D1RD        | ENG      | Remote Disconnect                      |
| PROC_ROLE_FLG              | D1SC        | ENG      | On-Demand Read (Scalar)                |
| PROC_ROLE_FLG              | D1SD        | ENG      | Send Device Event                      |
| PROC_ROLE_FLG              | D1UM        | ENG      | UOM Mapping                            |
| REL_OBJ_TYPE_FLG           | D1CM        | ENG      | Composite Sync Request                 |
| REPROCESS_PERFORMED_FLG    | D1NO        | ENG      | No                                     |
| REPROCESS_PERFORMED_FLG    | D1YS        | ENG      | Yes                                    |
| SMART_DEVICE_INDICATOR_FLG | D1NO        | ENG      | No                                     |
| SMART_DEVICE_INDICATOR_FLG | D1YS        | ENG      | Yes                                    |
| ACCESS_MODE                | D2CD        | ENG      | Calculate Defer                        |
| ACCESS_MODE                | D2CE        | ENG      | Calculated                             |
| ACCESS_MODE                | D2CI        | ENG      | Calculate In Progress                  |
| APPLY_TOU_MAP_DRV_VEC_FLG  | D2NO        | ENG      | No                                     |
| APPLY_TOU_MAP_DRV_VEC_FLG  | D2YS        | ENG      | Yes                                    |
| BO_TR_COND_FLG             | D2CD        | ENG      | Calculate Defer                        |
| BO_TR_COND_FLG             | D2CI        | ENG      | Calculate In Progress                  |
| DEFER_CALC_FLG             | D2NO        | ENG      | No                                     |
| DEFER_CALC_FLG             | D2YS        | ENG      | Yes                                    |

| Lookup Field Name             | Field Value | Language | Description                                 |
|-------------------------------|-------------|----------|---------------------------------------------|
| FALSE_ACTION_FLG              | D2AT        | ENG      | Apply False Formula                         |
| FALSE_ACTION_FLG              | D2CN        | ENG      | Check Next Condition                        |
| INSERT_SQ_ENTRY_FLG           | D2NO        | ENG      | No                                          |
| INSERT_SQ_ENTRY_FLG           | D2YS        | ENG      | Yes                                         |
| INTV_SET_FLG                  | D2FV        | ENG      | FV - Final Vector Interval Value            |
| INTV_SET_FLG                  | D2V1        | ENG      | IV1 - Vector 1 Interval Value               |
| INTV_SET_FLG                  | D2V2        | ENG      | IV2 - Vector 2 Interval Value               |
| INTV_SET_FLG                  | D2V3        | ENG      | IV3 - Vector 3 Interval Value               |
| INTV_SET_FLG                  | D2V4        | ENG      | IV4 - Vector 4 Interval Value               |
| INTV_SET_FLG                  | D2V5        | ENG      | IV5 - Vector 5 Interval Value               |
| IS_ESTIMATE_FLG               | D2NO        | ENG      | No                                          |
| IS_ESTIMATE_FLG               | D2YS        | ENG      | Yes                                         |
| OUTAGE_CHECK_IF_ZERO_CONS_FLG | D2NO        | ENG      | No                                          |
| OUTAGE_CHECK_IF_ZERO_CONS_FLG | D2YS        | ENG      | Yes                                         |
| PROC_ROLE_FLG                 | D2EB        | ENG      | Usage Trans Error Notification - Batch      |
| PROC_ROLE_FLG                 | D2EO        | ENG      | Usage Trans Error Notification - Online     |
| PROC_ROLE_FLG                 | D2UB        | ENG      | Usage Transaction Notification - Batch      |
| PROC_ROLE_FLG                 | D2UO        | ENG      | Usage Transaction Notification - Online     |
| PROC_ROLE_FLG                 | D2US        | ENG      | Usg Tran Subsequent Correction Notification |
| REQUEST_MODE_FLG              | D2BB        | ENG      | Batch                                       |
| REQUEST_MODE_FLG              | D2OB        | ENG      | Online                                      |
| SAVE_DRV_VEC_FLG              | D2NO        | ENG      | No                                          |
| SAVE_DRV_VEC_FLG              | D2YS        | ENG      | Yes                                         |
| SCALAR_SET_FUNC_FLG           | D2AV        | ENG      | Average                                     |
| SCALAR_SET_FUNC_FLG           | D2CT        | ENG      | Count                                       |

| Lookup Field Name          | Field Value | Language | Description                         |
|----------------------------|-------------|----------|-------------------------------------|
| SCALAR_SET_FUNC_FLG        | D2MN        | ENG      | Min                                 |
| SCALAR_SET_FUNC_FLG        | D2MX        | ENG      | Max                                 |
| SCALAR_SET_FUNC_FLG        | D2TL        | ENG      | Total                               |
| SET_FUNC_DRV_VE_C_FLG      | D2AV        | ENG      | Average                             |
| SET_FUNC_DRV_VE_C_FLG      | D2CT        | ENG      | Count                               |
| SET_FUNC_DRV_VE_C_FLG      | D2MN        | ENG      | Min                                 |
| SET_FUNC_DRV_VE_C_FLG      | D2MX        | ENG      | Max                                 |
| SET_FUNC_DRV_VE_C_FLG      | D2TL        | ENG      | Total                               |
| SQ_ENTRY_QTY_SR_C_FLG      | D2DV        | ENG      | Set Function Against Derived Vector |
| SQ_ENTRY_QTY_SR_C_FLG      | D2SC        | ENG      | Scalar Formula Result               |
| SUB_UT_EXISTS_FLG          | D2NO        | ENG      | No                                  |
| SUB_UT_EXISTS_FLG          | D2YS        | ENG      | Yes                                 |
| TRUE_ACTION_FLG            | D2AT        | ENG      | Apply True Formula                  |
| TRUE_ACTION_FLG            | D2CN        | ENG      | Check Next Condition                |
| TRY_TRANSIT_PARENUT_UT_FLG | D2NO        | ENG      | No                                  |
| TRY_TRANSIT_PARENUT_UT_FLG | D2YS        | ENG      | Yes                                 |
| USE_PR_MSR_VAL_FLG         | D2NO        | ENG      | No                                  |
| USE_PR_MSR_VAL_FLG         | D2YS        | ENG      | Yes                                 |
| VAR_MATH_TYPE_FLG          | D2FA        | ENG      | Factor                              |
| VAR_MATH_TYPE_FLG          | D2SF        | ENG      | Set Function                        |
| VAR_MATH_TYPE_FLG          | D2SQ        | ENG      | Usage Transaction Service Quantity  |

| Lookup Field Name   | Field Value | Language | Description                           |
|---------------------|-------------|----------|---------------------------------------|
| VECTOR_TYPE_FLG     | D2MC        | ENG      | Specific Measuring Component          |
| VECTOR_TYPE_FLG     | D2PF        | ENG      | Profile Factor                        |
| VECTOR_TYPE_FLG     | D2US        | ENG      | Channels Linked To Usage Subscription |
| VECTOR_TYPE_FLG     | D2UT        | ENG      | Usage Transaction Service Quantity    |
| VEC_FORMULA_SRC_FLG | D2CV        | ENG      | Conditional Vector Formula            |
| VEC_FORMULA_SRC_FLG | D2SV        | ENG      | Simple Vector Formula                 |

## Maintenance Object

The following Maintenance Objects are new to V2.0.1.

| MO code   | Description                           |
|-----------|---------------------------------------|
| D1-SPMCSR | SP / Measurement Cycle Schedule Route |

## Script

The following Scripts are new to V2.0.1.

| Script       | Description                                              |
|--------------|----------------------------------------------------------|
| D1-ADEvtTVal | Active Device Event Type Validation                      |
| D1-AMIDIOCRT | AMI Device Identifier Outbound Communication Creation    |
| D1-ActTreeVi | Activity Tree Visibility                                 |
| D1-AddCCBAIg | Insert CCB-specific algorithms to Sync Request BOs (MDF) |
| D1-AddCCBSS  | Insert CCB-specific algorithms to Sync Request BOs       |
| D1-AddComLog | Communication - Add User Log Entry                       |
| D1-AddDELog  | Device Event - Add User Log Entry                        |
| D1-AddLogSE  | Add MO Log for Seeder Error                              |
| D1-AddSynLog | Sync Request Inbound - Add User Log Entry                |
| D1-AddITrans | Perform Additional Install Event Transformation          |
| D1-AqFltrVal | Activity Query Validate Identifier Filters               |
| D1-AuditList | Retrieve Audit List                                      |

| Script        | Description                                        |
|---------------|----------------------------------------------------|
| D1-AuditVis   | Should Show if Audit List has an entry             |
| D1-BoFiltrVal | Validate Identifier Filters                        |
| D1-CCInpVal   | Cancel Command Input Validation                    |
| D1-CCOUTMSG   | Create OutBound message (Connect/Disconnect)       |
| D1-CECD       | Check for existing future Connects or Disconnects  |
| D1-CEvtGoTo   | Completion Event - Go to Completion Event          |
| D1-CEvtRetDt  | Completion Event - Retrieve Details for Display    |
| D1-CHKIMD     | Check for IMD                                      |
| D1-CHKMST     | Check Existence of Measurements                    |
| D1-CLCOC      | Create Outbound Communication with Completion Flag |
| D1-CMOCC      | Commission Outbound Communication Creation         |
| D1-CODROC     | Create On-Demand Read Outbound Communication       |
| D1-COMMINFO   | Communication Information                          |
| D1-COUTMSG    | Create Outbound message                            |
| D1-CRAINFO    | Command Request Activity Information               |
| D1-CROUTMSG   | Create Outbound Message - Generic Service Script   |
| D1-CevtMain   | Completion Event Maintenance                       |
| D1-ChkSRExst  | Check Inbound Sync Request existence               |
| D1-CnclCmd    | Cancel Command                                     |
| D1-CnclCmdDt  | Retrieve Cancel Command Details for Display        |
| D1-ComTreeVi  | Communication Tree Visibility                      |
| D1-CommCxt    | Highlight Communication in Context                 |
| D1-CommInfo   | Communication - Information                        |
| D1-CommMain   | Communication - Maintenance                        |
| D1-CommTMain  | Communication Type - Maintenance                   |
| D1-CreNegAck  | Create Negative Acknowledgement                    |
| D1-CrePosAck  | Create Positive Acknowledgement                    |

| Script       | Description                                                               |
|--------------|---------------------------------------------------------------------------|
| D1-CreSRSeed | Instantiate a Sync Request Seeder                                         |
| D1-CreSyRSdr | Create Sync Request Seeder from Error Record                              |
| D1-DCVALDEC  | Default Configuration Validation of Device Event C                        |
| D1-DDACINFO  | Device Activity with Duration - Information                               |
| D1-DEvtMain  | Device Event - Maintenance                                                |
| D1-DEvtTMain | Device Event Type - Maintenance                                           |
| D1-DIFDVEVTC | Method Differs By Device Event Category                                   |
| D1-DMRO      | Default Measurement Requested                                             |
| D1-DVCEVTVAL | Validate Device Event Parameters                                          |
| D1-DVEVTINFO | Device Event Info                                                         |
| D1-DefSyncTZ | Default Sync Request Inbound Time Zone Value based on Installation Option |
| D1-DetSynRBO | Determine Sync Request BO                                                 |
| D1-DetTarIEI | Determine Install Event Target BO - Initial                               |
| D1-DetTarIEO | Determine Install Event Target BO - Ongoing                               |
| D1-DetTargBo | Determine Sync Request Inbound Target BO                                  |
| D1-DetTypeBO | Determine Type BO for Savepoint                                           |
| D1-DflSynCBO | Default Composite Sync Request BO                                         |
| D1-DrvSyncIE | Derive Install Event Target BO for Data Sync                              |
| D1-DscPrdEvt | Discard Pair of Events                                                    |
| D1-FindCmd   | Find Command                                                              |
| D1-FltrDiscR | Filter Discard Reason                                                     |
| D1-GINPVAL   | Common Input Validation                                                   |
| D1-GenSPDBoA | Generic Invoke BO Add from Savepoint Dispatcher                           |
| D1-GenSPDBoR | Generic Invoke BO Replace from Savepoint Dispatcher                       |
| D1-GenSPDBoU | Generic Invoke BO Update from Savepoint Dispatcher                        |
| D1-GetStCol  | Get BO Status Option Color                                                |
| D1-IMD-Trns  | Do not create log entries on transition                                   |

| Script       | Description                                                  |
|--------------|--------------------------------------------------------------|
| D1-IMDEvUpd  | Multiple IMD and Event Upload                                |
| D1-IMDEvtUpl | IMD and Event Upload                                         |
| D1-IMDUpPosM | Online IMD and Event Upload: Post Map Processing             |
| D1-IMDUpPosP | Online IMD and Event Upload: Post Processing                 |
| D1-INITACT   | Initiate Activity                                            |
| D1-InitCmd   | Initiate Meter Command                                       |
| D1-MeasValDe | Get Measurement Value Descriptions                           |
| D1-MsrmtDisp | Measurement Data Display                                     |
| D1-MsrmtMain | Measurement Maintenance                                      |
| D1-RFINSC    | Retrieve Scalar Final Measurements                           |
| D1-RFINTM    | Retrieve Interval Final Measurements                         |
| D1-RIINTM    | Retrieve Interval Initial Measurements                       |
| D1-RMVCE     | Retrieve Measurements via Create IMD Completion Events       |
| D1-RSINIMS   | Retrieve Scalar Initial Measurements                         |
| D1-RelCEvtSh | Zone Visibility - Related Completion Event Should Show Zone  |
| D1-ReslvKeys | Resolve Keys                                                 |
| D1-RetCCRR   | Retrieve Cancel Command Requesters and Recipients            |
| D1-RetCevt   | Retrieve Completion Events                                   |
| D1-RetODRDt  | Retrieve On Demand Read Details                              |
| D1-RetRqster | Retrieve Requesters                                          |
| D1-RtDCDtls  | Device Commission - Retrieve Details for Display             |
| D1-RtDDADtls | Device Activity with Duration - Retrieve Details for Display |
| D1-RtDDDtls  | Device Decommission - Retrieve Details for Display           |
| D1-RtDEDtls  | Device Event - Retrieve Details for Display                  |
| D1-RtDESDtls | Device Event Seeder - Retrieve Details for Display           |
| D1-RtDSCDtls | Device Status Check - Retrieve Details for Display           |
| D1-RtNextSts | Retrieve Next States                                         |

| Script       | Description                                                            |
|--------------|------------------------------------------------------------------------|
| D1-RtODRDtIs | Retrieve Details On Demand Read Display                                |
| D1-RtODRSCDt | Retrieve Details On Demand Read Scalar Display                         |
| D1-RtRCDtIs  | Remote Connect - Retrieve Details for Display                          |
| D1-RtRDDtIs  | Remote Disconnect - Retrieve Details for Display                       |
| D1-SANFS     | Alert - Show Non-Final Activities linked to MC, US, Device, MC, Contac |
| D1-SNDRDTEA  | Send On Demand Read to Edge Application                                |
| D1-SODRTEA   | Send On-Demand Read to Edge Application                                |
| D1-SRCNTEA   | Send Connect or Disconnect Notification to Edge Application            |
| D1-SRIExcDtl | Sync Request Inbound Exception Details - Display                       |
| D1-SRPreAdd  | Sync Request Pre-Add Data                                              |
| D1-SRUpdData | Sync Request Update Data                                               |
| D1-SRUpdSP   | Sync Request Update SP Data                                            |
| D1-SendToSub | Send to Subscribers                                                    |
| D1-SetCmpInd | Set Composite Indicator Value                                          |
| D1-SetErrFlg | Set Error Flag                                                         |
| D1-SetPrmKey | Move Prime Key to transform group                                      |
| D1-SetTranDt | Setup Transformed Data                                                 |
| D1-SndDvStCk | Send Device Status Check Notification to Edge Application              |
| D1-SplConsMO | Split into Constituent MOs                                             |
| D1-SynInDisp | Sync Request Inbound - Retrieve Details for Display                    |
| D1-SynInExcp | Sync Request Inbound Exceptions                                        |
| D1-SynInMain | Sync Request Inbound - Maintenance                                     |
| D1-SyncFlVal | Validate Sync Request Filters                                          |
| D1-TIMEOUT   | Time Out - Outbound Communication                                      |
| D1-TPATOF    | Transition Parent Activity To Failed                                   |
| D1-TermAct   | Terminate Activity for Device Event                                    |

| Script        | Description                                                  |
|---------------|--------------------------------------------------------------|
| D1-TranRelCS  | Transition Related Composite Sync Request                    |
| D1-TranToNeg  | Do Not Clear Exceptions and Transition to Negative State     |
| D1-TrnIESTat  | Translate Install Event Status                               |
| D1-TrnOnOff   | Translate/Suppress On/Off History                            |
| D1-VALCOMTP   | Validate Communication Type                                  |
| D1-VALDEVMC   | Validate that Device has appropriate MC                      |
| D1-VALDVCEVT  | Validate Device Event                                        |
| D1-VALDVCNAC  | Validate Device Not Already Commissioned                     |
| D1-VALDVCNAD  | Validate Device Not Already Decommissioned                   |
| D1-VALDVCSTS  | Validate Install Event Status                                |
| D1-VALIDCMD   | Validate Head-end's Capability to perform Command            |
| D1-VALIMPINT  | Validate Start and End Date Time                             |
| D1-VALMDEST   | Validate Measurement Destination                             |
| D1-VALMREQO   | Validate Measurement Requested                               |
| D1-VALOUTCOM  | Validate Outbound Communication                              |
| D1-VLPREVTITY | Validate Paired Event Device Event Type                      |
| D1-VSEDTMT    | Validate Interval Start Date Time and Interval End Date Time |
| D1-ValDExEvt  | Validate External Event Name                                 |
| D1-ValMaxRt   | Populate Maximum Retries when retry Frequency is populated   |
| D1-ValSchTru  | Validate Schema                                              |
| D1-ValStCond  | Validate State Condition of Smart Device                     |
| D1-ValSyncBO  | Perform BO Validation                                        |
| D1-WFMTO      | Wait for Measurement Time Out                                |
| D1-WaitConSy  | Wait for Constituent Sync Requests                           |
| D1IBCommNav   | Navigate to Communication with Inbound Communication Id      |
| D1OBCommNav   | Navigate to Communication with Outbound Communication Id     |
| d1-NavAct     | Navigate to Activity                                         |

| Script       | Description                                              |
|--------------|----------------------------------------------------------|
| D2-ADS-Info  | Aggregator Dimension Scanner Information                 |
| D2-ADS-TR    | Check if Aggregator Creator has Performed a Single Scan  |
| D2-AMC-Info  | Service Type and Postal Aggregator - Information         |
| D2-ActDisp   | Retrieve Activity Details                                |
| D2-AddCCBAIg | Insert CCB-specific algorithms to Sync Request BOs (MDM) |
| D2-AddCCBSS  | Insert CCB-specific algorithms to Sync Request BOs       |
| D2-AggDisp   | Retrieve Service Type and Potal Aggregator Details       |
| D2-AggFltVal | Validate Aggregator Identifier Filters                   |
| D2-AggMCMaIn | Aggregator Measuring Component Maintenance               |
| D2-ChkTrnPUT | Set Try To Transition Parent Usage Transaction to Yes    |
| D2-Cre-AggMC | Aggregator MC Creation for Postal Code and Service Type  |
| D2-DetUsgDT  | Determine Usage Transaction Period                       |
| D2-MCSumGoTo | Measuring Component - Go To 360 View or Total & Trends   |
| D2-MathDisp  | Math Display                                             |
| D2-MathPost  | Math Post processing                                     |
| D2-MathPre   | Math Pre processing                                      |
| D2-OACHKVAL  | Zero Consumption Outage Activity Validation              |
| D2-SendError | Send Error Notification                                  |
| D2-SendSubC  | Send Subsequent Correction Notification                  |
| D2-SubUTVis  | Visibility Service Script for Sub Usage Transaction      |
| D2-SubUsgDts | Sub Usage Retrieve Details for Display                   |
| D2-TrnRateSc | Transform Rate Schedule                                  |
| D2-TrnUS     | Transform Usage Subscription                             |
| D2-UTScalVis | Visibility Service Script for Scalar Details             |
| D2-UTSeedPre | Usage Transaction Seeder Pre-Processing                  |

| Script        | Description                                    |
|---------------|------------------------------------------------|
| D2-UTSeedVal  | Usage Transaction Seeder Validation            |
| D2-UsgrTraPre | Usage Transaction Pre-Processing               |
| D2-V360Addr   | Validate Address filters                       |
| D2-V360Dvc    | Validate Device filters                        |
| D2-V360Name   | Validate Name filters                          |
| D2-Val-AMCT   | Validate Aggregator Measuring Component Type   |
| D2_MCCalcInf  | Get MC Calc Information                        |
| D2_QtyInfo    | Format the quantity information                |
| D2_SEDttmInf  | Format the start and end date/time information |
| D2_SEQtyInfo  | Format the start and end quantity information  |
| D2_SPCalcInf  | Get SP Calc Information                        |
| D2_UTScalVis  | Visibility Service Script for ScalarDetails    |

## To do Type

The following To Do type is new to V2.0.1.

| To Do Type | Description                       |
|------------|-----------------------------------|
| D1-SYNIN   | Sync Request Inbound Error        |
| D1-IBCTD   | Inbound Communication To Do Type  |
| D1-OBCTD   | Outbound Communication To Do Type |
| D1-DETD    | Device Event To Do Type           |

## Portal

The following Portal is new to V2.0.1.

| Portal    | Description            |
|-----------|------------------------|
| D1CEVT    | Completion Event       |
| D1CEVTL   | Completion Event Log   |
| D1CEVTQ   | Completion Event Query |
| D1COMM    | Communication          |
| D1COMMLOG | Communication Log      |

| Portal     | Description                     |
|------------|---------------------------------|
| D1COMMQ    | Communication Query             |
| D1COMMTY   | Communication Type              |
| D1DETYT    | Device Event Type               |
| D1DVCEVQ   | Device Event Query              |
| D1DVCEVT   | Device Event                    |
| D1DVCEVTL  | Device Event Log                |
| D1MCTYQ    | Measuring Component Type Query  |
| D1SYNCILOG | Sync Request Inbound Log        |
| D1SYNCIN   | Sync Request Inbound            |
| D1SYNCIQ   | Sync Request Inbound Query      |
| D1SYRINE   | Sync Request Inbound Exceptions |
| D2360ADD   | 360 Search by Address           |
| D2360DEV   | 360 Search by Device            |
| D2360NAM   | 360 Search by Name              |
| D2TOTR     | Total and Trends                |
| D2TOTRMT   | Total and Trends View           |

## Portal Zone

The following Portal Zones are added to V2.0.1

| Portal    | Zone         |
|-----------|--------------|
| D1ACT     | D1-ACTRELCVT |
| D1ACT     | D1-ACTTREE   |
| D1CEVT    | D1-CEVTDISP  |
| D1CEVT    | D1-CEVTRELOB |
| D1CEVTL   | D1-CEVTLOG   |
| D1CEVTQ   | D1-CEVTQRY   |
| D1COMM    | D1-COMMDISP  |
| D1COMM    | D1-COMMTREE  |
| D1COMMLOG | D1-COMMLOG   |
| D1COMMQ   | D1-COMMQRY   |
| D1COMMTY  | D1-COMMTDISP |
| D1COMMTY  | D1-COMMTLIST |

| Portal     | Zone         |
|------------|--------------|
| D1DETYTYP  | D1-DETYPDISP |
| D1DETYTYP  | D1-DETYPLIST |
| D1DVCEVQ   | D1-DVCEVTQRY |
| D1DVCEVT   | D1-DVEVTDISP |
| D1DVCEVTL  | D1-DVCEVTLOG |
| D1DVCTYP   | D1-DETYPDISP |
| D1IMDSA    | D1-MSRMTIM   |
| D1IMLOG    | D1-AUDLSDISP |
| D1MC       | D1-MSRMTS    |
| D1MCTYQ    | D1-MCTYQRY   |
| D1SP       | D1-SPMCSRLST |
| D1SYNCILOG | D1-SYNINLOG  |
| D1SYNCIN   | D1-SYNINDISP |
| D1SYNCIN   | D1-SYNINEXCZ |
| D1SYNCIQ   | D1-SYNRINQRY |
| D1SYRINE   | D1-SYNCRINED |
| D1SYRINE   | D1-SYNCRINES |
| D1UTNM     | D2-SUBUTLIST |
| D1UTNM     | D2_UTSCLARDT |
| D2360ADD   | D2-360SRCAD  |
| D2360DEV   | D2-360SRCDV  |
| D2360NAM   | D2-360SRCNM  |
| D2360VWM   | D1-MSRMTS    |
| D2TOTR     | D2-AGGMCQRY  |
| D2TOTRMT   | D1-MCDISP    |
| D2TOTRMT   | D1-MSRMTS    |
| D2TOTRMT   | D2-FIAOVLY   |
| D2TOTRMT   | D2-FVOVLY    |
| D2TOTRMT   | D2-TOUOVLY   |

## UI Map

The following UI Maps are new to V2.0.1.

| Map                            | Description                                     |
|--------------------------------|-------------------------------------------------|
| D1- DvcDurnActTypeDisp         | Device Activity with Duration Type - Disp       |
| D1- DvcDurnActTypeMaint        | Device Activity with Duration Type - Maint      |
| D1-ActivityCommonOnClick       | Activity Type Common On Click Actions           |
| D1-ActivityTypeCommonAction    | Activity Type Common Action Buttons             |
| D1-ActivityTypeCommonOnClick   | Activity Type Common On Click Actions           |
| D1-ActivityTypeMaintCommon1    | Activity Type Maintenance Common Fragment       |
| D1-ActivityTypeMaintCommon2    | Activity Type Maintenance Common Fragment       |
| D1-AuditListDisplay            | Audit List - Display                            |
| D1-CevtRelObjFKQryFltr         | Completion Evt Rlt Obj Foreign Key Filter       |
| D1-CmdRqstDisplayCmdInfo       | Command Request Display Info                    |
| D1-CmdRqstDisplayMain          | Command Request Display Main                    |
| D1-CmdRqstDisplayRecordInfo    | Command Request Display Record Info             |
| D1-CmdRqstMaintCommon          | Command Request Maintenance Common              |
| D1-CmdRqstTypeDispMain         | Command Request Type Display Main               |
| D1-CmdRqstTypeDispRecordInfo   | Command Req Type Display Record Info            |
| D1-CmdRqstTypeExcpHandlingDisp | Command Request Type Exception Handling Display |
| D1-CmdRqstTypeExcpHandlingMain | Command Request Type Exception Handling Maint   |
| D1-CnclCmdDisp                 | Cancel Command - Display UI Map                 |
| D1-CnclCmdDisplayCmdInfo       | Cancel Command Request Display Info             |
| D1-CnclCmdDisplayMain          | Command Request Display Main                    |
| D1-CnclCmdMaint                | Cancel Command Maintenance                      |
| D1-CnclCmdMaintCommon          | Cancel Command Maintenance Common               |
| D1-CnclCmdQryFltr              | Cancel Command Query Filter                     |
| D1-CnclCmdTypDisp              | Cancel Command Type - Display UI Map            |
| D1-CnclCmdTypMaint             | Cancel Command Type Maintenance                 |
| D1-CommAddUserLog              | Communication - Add User Log Entry              |
| D1-CommDvcSearchQryFltr        | Communication - Device Query                    |
| D1-CommIdentifierSearchQryFltr | Communication - Identifier Query                |

| Map                            | Description                                |
|--------------------------------|--------------------------------------------|
| D1-CommNmAdrDtQryFltr          | Communication - Name Address Date Query    |
| D1-CommTypeCommonAction        | Communication Type Common Action Buttons   |
| D1-CommTypeCommonMaint         | Communication Type Common Maintenance      |
| D1-CommTypeCommonOnClick       | Communication Type Common On Click Actions |
| D1-CommTypeMainDisp            | Communication Type Common Display - Main   |
| D1-CommTypeRecordInfoDisp      | Comm Type Common Display - Record Info     |
| D1-CommonIMDMainDisplay        | Common Initial Measurement Data Fragment   |
| D1-CommunicationCommonOnClick  | Communication Common On Click Actions      |
| D1-CommunicationInOnAddEdit    | Comm Fields displayed on Add or Edit act   |
| D1-CommunicationOnAddEdit      | Comm Fields displayed on Add or Edit act   |
| D1-CommunicationOutOnAddEdit   | Comm Fields displayed on Add or Edit act   |
| D1-CompletionEventAddUserLog   | Completion Event - Add User Log Entry      |
| D1-DeviceCommissionDisplay     | Device Commission - Display                |
| D1-DeviceCommissionMaint       | Device Commission - Maintenance            |
| D1-DeviceCommissionTypeDisplay | Device Commission Type - Display           |
| D1-DeviceCommissionTypeMaint   | Device Commission Type Maintenance Map     |
| D1-DeviceDecommissionDisp      | Decommission Device Display                |
| D1-DeviceDecommissionMaint     | Decommission Device Maintenance            |
| D1-DeviceDecommissionTypeDisp  | Decommission Device Type - Display         |
| D1-DeviceDecommissionTypeMaint | Decommission Device Type - Maintenance     |
| D1-DeviceEventEventInfoDisp    | Device Event - Event Information Display   |
| D1-DeviceEventEventInfoMaint   | Device Event - Event Information Maint     |
| D1-DeviceEventMainDisp         | Device Event Main Display                  |
| D1-DeviceEventMainMaint        | Device Event Main Maintenance              |
| D1-DeviceEventMappingDisp      | Device Event Mapping - Display             |
| D1-DeviceEventMappingMaint     | Device Event Mapping - Maintenance         |
| D1-DeviceEventRecordInfoDisp   | Device Event Record Info Display           |

| Map                            | Description                                 |
|--------------------------------|---------------------------------------------|
| D1-DeviceEventSeederDisp       | Device Event Seeder - Display               |
| D1-DeviceEventSeederMainDisp   | Device Event Seeder Main Display            |
| D1-DeviceEventSeederMainMaint  | Device Event Seeder Main Maintenance        |
| D1-DeviceEventSeederMaint      | Device Event Seeder - Maintenance           |
| D1-DeviceEventSenderDisp       | Device Event Sender Display                 |
| D1-DeviceEventSenderMaint      | Device Event Sender Maintenance             |
| D1-DeviceEventTypeDisp         | Device Event Type Main Display              |
| D1-DeviceEventTypeMaint        | Device Event Type Main Maintenance          |
| D1-DeviceStatusCheckDisplay    | Device Status Check - Display               |
| D1-DeviceStatusCheckMaint      | Device Status Check - Maintenance           |
| D1-DeviceStatusCheckTypDisplay | Device Status Check Type - Display          |
| D1-DeviceStatusCheckTypMaint   | Device Status Check Type - Maintenance      |
| D1-DisplayRecordInfoHeader     | Record Action Header HTML Fragment          |
| D1-DuplicateCommunicationType  | Duplicate Communication Type Status         |
| D1-DvcCommStatusLookupDisplay  | SGG Dvc Communication Stat Lkup - Display   |
| D1-DvcCommStatusLookupMaint    | SGG Dvc Comm Stat Lkup - Maintenance        |
| D1-DvcConnStatusLookupDisplay  | SGG Device Connection Stat Lkup - Display   |
| D1-DvcConnStatusLookupMaint    | SGG Device Conn Stat Lkup - Maintenance     |
| D1-DvcDurActMainDisp           | Device Activity with Duration Main Display  |
| D1-DvcDurActMainMaint          | Device Activity with Duration Maintenance   |
| D1-DvcDurActRecordInfoDisp     | Dvc Activity with Duration Record Info Disp |
| D1-DvcEventAddUserLog          | Device Event - Add User Log Entry           |
| D1-DvcEventCategoryLookupDisp  | Device Event Category Lookup - Display      |
| D1-DvcEventCategoryLookupMaint | Device Event Category Lookup - Maintenance  |
| D1-DvcEventQ1Filter            | Device ID Query Filter                      |
| D1-DvcEventQ2Filter            | Device Event ID Query Filter                |
| D1-DvcFuncStateLookupDisplay   | SGG Device Functional State Lkup - Display  |

| Map                            | Description                                    |
|--------------------------------|------------------------------------------------|
| D1-DvcFuncStateLookupMaint     | SGG Device Func State Lkup - Maintenance       |
| D1-DvcWithDuratnActivityDisp   | Device Activity with Duration - Display        |
| D1-DvcWithDuratnActivityMaint  | Device Activity with Duration - Maint          |
| D1-EnterDiscardReason          | Enter Discard Reason                           |
| D1-EventBarDeviceEventType     | Event Bar Device Event Type Grid               |
| D1-ExcHndlMaint                | Exception Handling Maintenance                 |
| D1-ExecutionPriorityDisplay    | Execution Priority Lookup - Display            |
| D1-ExecutionPriorityLookupDisp | Execution Priority Lookup Display              |
| D1-ExecutionPriorityMaint      | Execution Priority Lookup Maintenance          |
| D1-ExtActTypeIdentifierDisplay | External Activity Type Identifier - Display    |
| D1-ExtActTypeIdentifierMaint   | External Activity Type Identifier - Maint      |
| D1-ExtEvtNameFilter            | External Event Name Search                     |
| D1-ExtReferenceIdUIMapFilter   | Sync Request - External Reference Id Query     |
| D1-ExternalCommTypeLookupDisp  | External Commn Type lookup - Display           |
| D1-ExternalCommTypeLookupMaint | External Commn Type Lookup - Maintenance       |
| D1-HeadendUOMLookupDisplay     | Create Headend UOM Code - Display              |
| D1-HeadendUOMLookupMaint       | Maintenance UI Map for the Head-end UOM        |
| D1-HowToCreateActivityOBComm   | How to Create OB Communication/Send OB Message |
| D1-HowToDeviceEventRelInfoMain | How To Send Device Events - Maint              |
| D1-HowToProcessDeviceRelInfo   | How To Process Device Related Info - Maint     |
| D1-HowToSendActivityResponse   | How To Send Activity Response Maintenance      |
| D1-IBCommCommonMaint           | Inbound Communication Maintenance Common       |
| D1-IBCommMainDisplay           | Inbound Communication Common Display Main      |
| D1-IBCommRecordInfoDisp        | Inbound Communication Common Record Info       |
| D1-IMDRecordActionDisplay      | IMD Record Action Header Fragment              |
| D1-IMDRecordInfoDisplay        | IMD Record Information Fragment                |
| D1-IMDUpload                   | Online IMD and Event Upload                    |

| Map                            | Description                                                   |
|--------------------------------|---------------------------------------------------------------|
| D1-IMDUploadDispRslt           | Online IMD and Event Upload Results                           |
| D1-IntStsCodeToCondMapDisp     | Interval Status Code to Condition Mapping<br>Lookup - Display |
| D1-IntStsCodeToCondMapMaint    | Interval Status Code to Condition Mapping<br>- Maintenance    |
| D1-LoadActionCodeLookupDisplay | Load Action Code Lookup - Display                             |
| D1-LoadActionCodeLookupMaint   | Load Action Code Lookup - Maintenance                         |
| D1-MCMeasurementsFilter        | Measurements Filter Fragment                                  |
| D1-NoValidCEvtForActivity      | No valid Completion events For Activity                       |
| D1-OBCommCmdInfoDisp           | Outbound Communication Display<br>Command Inf                 |
| D1-OBCommCommonMaint           | Outbound Communication Maintenance<br>Common                  |
| D1-OBCommMainDisplay           | Outbound Communication Common<br>Display Main                 |
| D1-OBCommRecordInfoDisp        | Outbound Communication Common<br>Record Info                  |
| D1-OnDemandReadIntTypeDisp     | On Demand Read Interval Type - Display                        |
| D1-OnDemandReadIntTypeMaint    | On Demand Read Interval Type -<br>Maintenance                 |
| D1-OnDmdReadIntDisp            | On Demand Read Interval - Display                             |
| D1-OnDmdReadIntMaint           | On Demand Read Interval - Maintenance                         |
| D1-OnDmdReadSclrDisp           | On Demand Read Scalar - Display                               |
| D1-OnDmdReadSclrMaint          | On Demand Read Scalar - Maintenance                           |
| D1-OnDmdReadSclrTypeDisp       | On Demand Read Scalar Type - Display                          |
| D1-OnDmdReadSclrTypeMaint      | On Demand Read Scalar Type -<br>Maintenance                   |
| D1-PairedEventFirstDvcEvtMaint | Paired Event Device Evt First -<br>Maintenance                |
| D1-PairedEventLastDvcEvtMaint  | Paired Event Device Evt Last -<br>Maintenance                 |
| D1-PairedEvtFrstDvcEvtTypDisp  | DeviceEventType PairedEvent(First) -<br>Disp                  |
| D1-PairedEvtFrstDvcEvtTypMaint | Dvc Evt Typ PairedEvt(First) -<br>Maintenance                 |
| D1-PairedEvtLastDvcEvtTypDisp  | Dvc Evt Typ - Paired Evt (Last) - Display                     |
| D1-PairedEvtLastDvcEvtTypMaint | Dvc Evt Typ Paired Evt(Last) -<br>Maintenance                 |

| Map                             | Description                                |
|---------------------------------|--------------------------------------------|
| D1-ParentActQryFltr             | Parent Activity Query Filter               |
| D1-ProcessingMethodCommonMaint  | Processing Method Common Maintenance       |
| D1-RemoteConnectDisplay         | Remote Connect - Display                   |
| D1-RemoteConnectMaint           | Remote Connect - Maintenance               |
| D1-RemoteConnectTypeDisplay     | Remote Connect Type - Display              |
| D1-RemoteConnectTypeMaint       | Remote Connect Type Maintenance Map        |
| D1-RemoteDisconnectDisplay      | Remote Disconnect - Display                |
| D1-RemoteDisconnectMaint        | Remote Disconnect - Maintenance            |
| D1-RemoteDisconnectTypeDisplay  | Remote Disconnect Type - Display Map       |
| D1-RemoteDisconnectTypeMaint    | Remote Disconnect Type - Maintenance Map   |
| D1-SeederSyncConfigMaint        | Seeder Sync Master Config - Maintenance    |
| D1-SelCmdReq                    | Select a Command Request to Initiate       |
| D1-SelectCompletionEvent        | Select Completion Event BO                 |
| D1-ServiceProviderFilter        | Service Provider Query                     |
| D1-StandardDeviceEventDisp      | Standard Device Event - Display            |
| D1-StandardDeviceEventMaint     | Standard Device Event - Maintenance        |
| D1-StandardDeviceEventTypeDisp  | Standard Device Event Type - Display       |
| D1-StandardDeviceEventTypeMaint | Standard Device Event Type - Maintenance   |
| D1-StdEventNameLookupDisplay    | Standard Event Name Lookup - Display       |
| D1-StdEventNameLookupMaint      | Standard Event Name Lookup - Maintenance   |
| D1-StdEvtNameFilter             | Standard Event Name Filter                 |
| D1-SyncConfigMaint              | Master Data Sync Configuration - Maint     |
| D1-SyncExternalRefdUIMapFilter  | Sync Request - External Reference Id Query |
| D1-SyncInRequestException       | Sync request Inbound Exception Details     |
| D1-SyncRequestIdUIMapFilter     | Sync Request - Id Query                    |
| D1-SyncRequestInAddUserLog      | Sync Request Inbound - Add User Log Entry  |
| D1-SyncRequestInExceptions      | Sync Request Inbound Exceptions            |
| D1-SyncRequestInUIMapFilter     | Inbound Sync Request Filter                |
| D1-SyncRequestInboundDisplay    | Sync Request Inbound - Display             |
| D1-YesNoLookupDisplay           | Yes/No Lookup - Display                    |

| Map                            | Description                                    |
|--------------------------------|------------------------------------------------|
| D1-YesNoLookupMaint            | Lookup Maintenance - Yes/No                    |
| This is a Maintenance UI Map f | Maintenance UI Map for the Head-end UOM        |
| D2-360AddressSearchFilter      | 360 Search by Address Filter Area              |
| D2-360DeviceSearchFilter       | 360 Search by Device Filter Area               |
| D2-360NameSearchFilter         | 360 Search by Name/Address Filter Area         |
| D2-AggDimScannerActDisp        | Aggregator DS Activity-Display                 |
| D2-AggDimScannerActMaint       | Aggregator DS Activity-Maintenance             |
| D2-AggDimScannerActTypeDisp    | Aggregator DS Activity Type - Display          |
| D2-AggDimScannerActTypeMaint   | Aggregator DS Activity Type - Maintenance      |
| D2-AggMCDisp                   | Service Type and Postal Aggregator-Display     |
| D2-AggMCIdUIMapFilter          | Agg MC - Identifier Query Filter               |
| D2-AggMCMaint                  | Service Type and Postal Aggregator-Maintenance |
| D2-AggMCTypeDisp               | Aggregator Type - Display                      |
| D2-AggMCTypeMaint              | Aggregator Type - Maintenance                  |
| D2-CCBRateScheduleLookupDisp   | CCB Rate Schedule Lookup - Display             |
| D2-CCBRateScheduleLookupMaint  | CCB Rate Schedule Lookup - Maintenance         |
| D2-HowToSendUSInfoDisplay      | How To Send US Related Info - Display          |
| D2-MathDisplay                 | Usage Rule - Math Display                      |
| D2-MathMaint                   | Usage Rule - Math Maintenance                  |
| D2-SubUsageTranDisplay         | Sub Usage Transaction - Display                |
| D2-SubUsageTranDummyMaint      | Sub Usage Tran Dummy - Maintenance             |
| D2-UsageTranSeederDisplay      | Usage Transaction Seeder - Display             |
| D2-UsageTranSeederMaint        | Usage Transaction Seeder - Maintenance         |
| D2-ZeroConsumptionCheckDisplay | Zero Consumption Check - Display               |
| D2-ZeroConsumptionCheckMaint   | Zero Consumption Check - Maintenance           |
| WX-MDMMasterConfigMaint        | Self-Service Maintenance                       |

## XAI Inbound Service

The following XAI Inbound Services are new to V2.0.1.

| XAI Inbound Service name | Description                                         |
|--------------------------|-----------------------------------------------------|
| D103879193               | Device Event Seeder                                 |
| D107437309               | Used by OSB to instantiate an IMD                   |
| D114674062               | Meter Read Download Activity                        |
| D119704947               | Remote Connect                                      |
| D130153938               | Test determine service providers and methods        |
| D132550639               | D1-OnDemandReadScalar                               |
| D141768727               | D1-RemoteConnect                                    |
| D161300300               | Sync Request Inbound Composite                      |
| D169413887               | Sync Request Inbound                                |
| D174889044               | Remote Disconnect                                   |
| D178529520               | Determine eligible command Inbound service          |
| D184212267               | BUG 10288293                                        |
| D195447956               | D1-HowToProcessDeviceInfo D1-HowToProcessDeviceInfo |
| D234847829               | IMD Seeder                                          |
| D264745327               | Usage Transaction Request Inbound                   |
| D290400889               | Test Interval Measurement Counter                   |
| D299648337               | Test VEE Processor                                  |

## Zone

The following new Zones are added to V2.0.1.

| Zone         | Zone Type   | Description                |
|--------------|-------------|----------------------------|
| D1-AUDLSDISP | F1-MAPEXPL  | Audit List                 |
| D1-COMMDISP  | F1-MAPDERV  | Communication              |
| D1-COMMQ1    | F1-DE-QUERY | Name and Address           |
| D1-COMMTLIST | F1-DE       | Communication Type List    |
| D1-DETYPDISP | F1-MAPDERV  | Device Event Type          |
| D1-EXTEVTQRY | F1-DE-QUERY | External Event Name Search |
| D1-MSRMTS    | F1-DE       | Measurements               |

| Zone         | Zone Type    | Description                                  |
|--------------|--------------|----------------------------------------------|
| D1-OMSPEXT   | F1-DE-SINGLE | Build Service Provider Outbound Message Type |
| D1-RETCRSIE  | F1-DE-SINGLE | Retrieve bo and Arming Status for IE         |
| D1-RETDCINSY | F1-DE-SINGLE | Get related Device Config Sync Request       |
| D1-RETLATLOG | F1-DE-SINGLE | Retrieve latest log entry                    |
| D1-RETSTCOND | F1-DE-SINGLE | Validate State Condition of Smart Device     |
| D1-SYNCRINED | F1-MAPEXPL   | Sync Request Inbound Exception Details       |
| D1-CHKSREXST | F1-DE-SINGLE | Check Sync Request Inbound existence         |
| D1-COMMLOG   | F1-DE        | Communication Log                            |
| D1-DETCOMTYP | F1-DE-SINGLE | Get CommunicationType given Transaction BO   |
| D1-DETOMSGTP | F1-DE-SINGLE | Determine Outbound Message Type BO           |
| D1-DVCEVTQ1  | F1-DE-QUERY  | Device                                       |
| D1-MSGSRCHQ1 | F1-DE-QUERY  | Message Search                               |
| D1-RETCONSSR | F1-DE-SINGLE | Retrieve Constituent Sync Requests           |
| D1-RETRC     | F1-DE-SINGLE | Retrieve Recipients                          |
| D1-RETRELACT | F1-DE-SINGLE | Retrieve Related Activities                  |
| D1-RETSPIE   | F1-DE-SINGLE | Retrieve Service Point for Install Event     |
| D1-SPMCSRLST | F1-DE-SINGLE | SP/ Measurement Cycle Schedule Routes List   |
| D1-SYNINEXCZ | F1-MAPEXPL   | Sync Request Inbound Exceptions              |
| D1-CHECKDMC  | F1-DE-SINGLE | Device should have one Measuring Component   |
| D1-DETMSTRBO | F1-DE-SINGLE | Determine Master BO                          |
| D1-ESSRCH    | F1-DE-QUERY  | External System Search                       |
| D1-GETCHARTY | F1-DE-SINGLE | Get Char type given char type flg,entity     |
| D1-GETEXSOMT | F1-DE-SINGLE | Get External System - Outbound Message Type  |
| D1-GETGENPR  | F1-DE        | Get general procesing id for device event    |
| D1-MSRMTIM   | F1-DE-SINGLE | Measurements of Initial Measurement          |
| D1-RETACTION | F1-DE-SINGLE | Retrieve Active Activity                     |
| D1-RETMCIDDT | F1-DE-SINGLE | Retrieve Measuring Component ID, latest DT   |
| D1-RETPOBCOM | F1-DE-SINGLE | Retrieve Outbound Communication(s)           |

| Zone          | Zone Type    | Description                                           |
|---------------|--------------|-------------------------------------------------------|
| D1-SYNCRINES  | F1-DE-SINGLE | Sync Request Inbound Exception Summary                |
| D1-SYNINEXCP  | F1-DE-SINGLE | Sync Request Exception Details                        |
| D1-SYNRINQ2   | F1-DE-QUERY  | Sync Request Inbound Id                               |
| D1-TBLSRCH    | F1-DE-QUERY  | Table Search                                          |
| D1-COMMQ2     | F1-DE-QUERY  | Device Information                                    |
| D1-COMMQ3     | F1-DE-QUERY  | Communication Identifier                              |
| D1-DETYPLIST  | F1-DE-SINGLE | Device Event Type List                                |
| D1-DVCEVTQ2   | F1-DE-QUERY  | Device Event ID                                       |
| D1-RETCEVT    | F1-DE-SINGLE | Retrieve Completion Event                             |
| D1-RETDEACTT  | F1-DE-SINGLE | Retrieve Device Event Activity Types                  |
| D1-RETDETSEV  | F1-DE-SINGLE | Retrieve Dvc Evt Type for Standard Event              |
| D1-SYNINEXPM  | F1-DE-SINGLE | Retrieve Sync Request Exception Parameters            |
| D1-SYNRINQ3   | F1-DE-QUERY  | External Reference Id                                 |
| D1-COMMTDISP  | F1-MAPDERV   | Communication Type                                    |
| D1-DEVTTYQRY  | F1-DE-QUERY  | Device Event Type Search                              |
| D1-GETACTTYP  | F1-DE-SINGLE | Get Type for Admin ,TransactionBO,category            |
| D1-MSRMTFRIM  | F1-DE-SINGLE | Measurements of Initial Measurement                   |
| D1-OUTMSGTSH  | F1-DE-QUERY  | Outbound Message Type Search - Query Zone             |
| D1-RETCC      | F1-DE-QUERY  | Retrieve Command to Cancel                            |
| D1-RETDVCEVT  | F1-DE-SINGLE | Retrieve Device Event for Activity                    |
| D1-RETMOONBO  | F1-DE        | Retrieves the MO value on the BO                      |
| D1-RETOBCOMM  | F1-DE-SINGLE | Retrieve Outbound Communication(s)                    |
| D1-RETSPID    | F1-DE-SINGLE | Retrieve Service Point from Service Point External Id |
| D1-STEV'TNMQR | F1-DE-QUERY  | Standard Event Name Search                            |
| D1-SYNRINQ1   | F1-DE-QUERY  | Sync Request Inbound Information                      |
| D1-USACT      | F1-DE        | Service Point Activities                              |
| D1-BOBYMO     | F1-DE-QUERY  | Business Object Search Query Zone                     |
| D1-DVCEVTQRY  | F1-DE-MULQRY | Device Event Search                                   |
| D1-DVEVTDISP  | F1-MAPDERV   | Device Event                                          |
| D1-RETDVCCOM  | F1-DE        | Retrieve related device for communication             |

| Zone         | Zone Type    | Description                                      |
|--------------|--------------|--------------------------------------------------|
| D1-RETRR     | F1-DE-SINGLE | Retrieve Requesters                              |
| D1-SYNEXCDET | F1-DE-SINGLE | Sync Request Exception Details                   |
| D1-CEVTRELOB | F1-DE        | Completion Event Related Objects                 |
| D1-COMMQRY   | F1-DE-MULQRY | Communication Search                             |
| D1-DETMCTYP  | F1-DE-SINGLE | Determine Measuring Component Type               |
| D1-EXTACT    | F1-DE-SINGLE | Retrieve Activity from External Activity         |
| D1-MCTYQ1    | F1-DE-QUERY  | Measuring Component Type Search                  |
| D1-MCTYQRY   | F1-DE-MULQRY | Measuring Component Type Search                  |
| D1-RETDDVCBO | F1-DE-SINGLE | Retrieve latest Device Config by BO effdt        |
| D1-RETDVCAMI | F1-DE-SINGLE | Retrieve Device ID for AMI Device ID Type        |
| D1-RETMCID   | F1-DE-SINGLE | Retrieve Measuring Component IDs                 |
| D1-RETMRIMD  | F1-DE-SINGLE | Retrieve the most recent interval IMD            |
| D1-RETRLNACT | F1-DE-SINGLE | Retrieve Related Non-Final Activities            |
| D1-RETSYNCDT | F1-DE-SINGLE | Get related Device Type                          |
| D1-SYNINDISP | F1-MAPDERV   | Sync Request Inbound                             |
| D1-SYNINLOG  | F1-DE        | Sync Request Inbound Log                         |
| D1-ACTTREE   | F1-DE        | Activity Hierarchy Tree                          |
| D1-BLDDISCRS | F1-DE-SINGLE | Build Discard Reason                             |
| D1-CEVTLOG   | F1-DE        | Completion Event Log                             |
| D1-CNTADEVT  | F1-DE-SINGLE | Count Active Device Event Type                   |
| D1-COMMTREE  | F1-DE        | Communication Tree                               |
| D1-COMTYPQRY | F1-DE-QUERY  | Communication Type Search                        |
| D1-DVCEVTLOG | F1-DE        | Device Event Log                                 |
| D1-FINDCMD   | F1-DE-SINGLE | Find Command                                     |
| D1-GETCMPEVT | F1-DE-SINGLE | Retrieve Completion Events                       |
| D1-ICOROCDT  | F1-DE        | Retrieves IC linked OC for Device Commis         |
| D1-MOSRCH    | F1-DE-QUERY  | Maintenance Object Search                        |
| D1-PARENTACT | F1-DE-QUERY  | Parent Activity Search                           |
| D1-SANFS     | F1-DE        | Alert - Activities in Non-Final State            |
| D1-SRVPRVQRY | F1-DE-QUERY  | Service Provider Search                          |
| D1-SYNCREQEX | F1-DE-SINGLE | Retrieve Parameter List - Sync Request Exception |

| Zone         | Zone Type    | Description                                   |
|--------------|--------------|-----------------------------------------------|
| D1-SYNRINQRY | F1-DE-MULQRY | Sync Request Inbound Search                   |
| D2-TMDPRD    | F1-DE-SINGLE | Date Period for which TOU Map Data Exists     |
| D2-AGGMCQRY  | F1-DE-MULQRY | Aggregator Search                             |
| D2-UTSUB     | F1-DE-SINGLE | Obtain list of Sub Usage Transaction          |
| D2_UTSCLARDT | F1-DE        | Usage Transaction Scalar Details              |
| D2_GETSCLSP  | F1-DE-SINGLE | Retrieve SP Details From Usage Scalar Details |
| D2-360SRCAD  | F1-DE        | Search by Address                             |
| D2_GETSCLMC  | F1-DE-SINGLE | Retrieve MC Details From Usage Scalar Details |
| D2-RETAGGMCT | F1-DE-SINGLE | Retrieve MC Types for Aggregator MC class     |
| D2-360SRCDV  | F1-DE        | Search by Device                              |
| D2-STPCQ1    | F1-DE-QUERY  | Service Type and Postal                       |
| D2_CHKUTSCAL | F1-DE-SINGLE | Check For Usage Transaction Scalar Details    |
| D2-360SRCNM  | F1-DE        | Search by Name                                |
| D2-RETSVCTPC | F1-DE-SINGLE | Retrieve distinct Service Type and Postal     |
| D2-SUBUTLIST | F1-DE        | Sub Usage Transaction                         |



# Appendix B

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## Oracle Application Framework System Table Guide

This section lists the system tables owned by the Oracle Utilities Application Framework V4.1.0 and explains the data standards of the system tables. The data standards are required for the installation of Oracle Utilities Application Framework, development within the Oracle Utilities Application Framework, and the configuration and customization of Oracle Utilities products. Adhering to the data standards is a prerequisite for seamless upgrade to future releases.

This section includes:

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

## 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,<br>CI_DB_INSTR, CI_DB_INSTR_L, L,<br>CI_DB_INSTR_OVRD                                                      |
| Initial Data | Copy DB Process (CL-COPDB). This DB process allows users to copy a DB process from one database to another using Config Lab utility. |

## 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,<br>CI_INSTALL_ALG, CI_INSTALL_MSG,<br>CI_INSTALL_MSG_L,<br>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 Customer Care and Billing environment, C1 should prefix the new Algorithm Type code. The fields that are subject to this rule are listed in Standard Data Fields property.

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

Starting with version 2.2 of the framework a new system data upgrade rule was introduced - Override Owner flag. If duplicate data rows (data row with same primary key values) are found at the time of upgrade, the owner flag values will get overridden. The lower level application system data will override the upper level system data. For example, F1 overrides C1, F1&C1 override CM, and so on. This rule will be applied to the following tables: CI\_CHAR\_ENTITY, CI\_MD\_MO\_ALG, F1\_BUS\_OBJ\_ALG, F1\_BUS\_OBJ\_STATUS\_ALG, CI\_MD\_MO\_OPT, F1\_BUS\_OBJ\_OPT, F1\_BUS\_OBJ\_STATUS\_OPT, F1\_BUS\_OBJ\_STATUS, F1\_BUS\_OBJ\_STATUS\_L

### Algorithm Type

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

## Algorithm

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

## Application Security

| Properties            | Description                                                                                                                                                   |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tables                | SC_APP_SERVICE, SC_APP_SERVICE_L, CI_APP_SVC_ACC                                                                                                              |
| Standard Data Fields  | Application Service ID (APP_SVC_ID). Customer 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) and the batch process update these columns. Time Interval (TIMER_INTERVAL), Thread Count (BATCH_THREAD_CNT), Maximum Commit Records (MAX_COMMIT_RECS), User (USER_ID), Language (LANGUAGE_CD), Email Address (EMAILID), Start program debug tracing (TRC_PGM_STRT_SW), End Program Debug trace (TRC_PGM_END_SW), SQL debug tracing (TRC_SQL_SW) and Standard debug tracing (TRC_STD_SW) on CI_BATCH_CTRL Table. Batch Parameter Value (BATCH_PARM_VAL) on Batch Control Parameters Table (CI_BATCH_CTRL_P) |

## Business Object

| Properties            | Description                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tables                | F1_BUS_OBJ, F1_BUS_OBJ_L,<br>F1_BUS_OBJ_ALG, F1_BUS_OBJ_OPT,<br>F1_BUS_OBJ_STATUS,<br>F1_BUS_OBJ_STATUS_L,<br>F1_BUS_OBJ_STATUS_ALG,<br>F1_BUS_OBJ_STATUS_OPT,<br>F1_BUS_OBJ_STATUS_RSN,<br>F1_BUS_OBJ_STATUS_RSN_L,<br>F1_BUS_OBJ_STATUS_RSN_CHAR<br>F1_BUS_OBJ_TR_RULE,<br>F1_BUS_OBJ_TR_RULE_L                                                                                                                       |
| Standard Data Fields  | Business Object (BUS_OBJ_CD)                                                                                                                                                                                                                                                                                                                                                                                            |
| Customer Modification | Batch Control (BATCH_CD), Alert<br>(BO_ALERT_FLG), Sequence<br>(SORT_SEQ5), Status Reason<br>(STATUS_REASON_FLG) fields on<br>Business Object Status Table<br>(F1_BUS_OBJ_STATUS). Instance<br>Control (INSTANCE_CTRL_FLG),<br>Application Service (APP_SVC_ID) on<br>Business Object Table (F1_BUS_OBJ).<br>Status Reason Selection<br>(STATUS_REASON_SELECT_FLG) on<br>Status Reason Table<br>(F1_BUS_OBJ_STATUS_RSN) |

## Business Service

| Properties            | Description                      |
|-----------------------|----------------------------------|
| Tables                | F1_BUS_SVC, F1_BUS_SVC_L         |
| Standard Data Fields  | Business Service (BUS_SVC_CD)    |
| Customer Modification | Application Service (APP_SVC_ID) |

## Characteristics

| Properties           | Description                                                                    |
|----------------------|--------------------------------------------------------------------------------|
| Tables               | CI_CHAR_TYPE, CI_CHAR_TYPE_L,<br>CI_CHAR_ENTITY, CI_CHAR_VAL,<br>CI_CHAR_VAL_L |
| Standard Data Fields | Characteristic Type (CHAR_TYPE_CD)                                             |

| Properties            | Description                                                                                                   |
|-----------------------|---------------------------------------------------------------------------------------------------------------|
| Customer Modification | Adhoc Characteristic Value Validation Rule (ADHOC_VAL_ALG_CD) on Characteristic Entity Table (CI_CHAR_ENTTTY) |

## 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                       |
| Standard Data Fields  | FK reference code (FK_REF_CD)                |
| Customer Modification | Info Program Name (INFO_PRG), Zone (ZONE_CD) |

## Lookup

| Properties | Description                                                                                         |
|------------|-----------------------------------------------------------------------------------------------------|
| Tables     | CI_LOOKUP_FIELD,<br>CI_LOOKUP_VAL,<br>CI_LOOKUP_VAL_L,<br>F1_EXT_LOOKUP_VAL,<br>F1_EXT_LOOKUP_VAL_L |

| Properties            | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Standard Data Fields  | <p>Field Name (FIELD_NAME)</p> <ul style="list-style-type: none"> <li>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.</li> </ul> <p>Field Value (FIELD_VALUE)</p> <ul style="list-style-type: none"> <li>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.</li> <li>Product development can extend the Oracle Utilities Application Framework owned lookup field's value with caution. When it needs to be extended, prefix the first letter of the Owner Flag to the value. For example, when adding a new value to the algorithm entity flag (ALG_ENTITY_FLG), prefix with C1 if you are developing an Oracle Utilities Customer Care and Billing product.</li> </ul> <p>Introduced in V 4.0.1:<br/>Value (F1_EXT_LOOKUP_VALUE)</p> <ul style="list-style-type: none"> <li>This will allow storing longer value keys rather than the normal 4byte lookup values.</li> </ul> |
| Customer Modification | Override Description (DESCR_OVRD) on Lookup Field Value Language Table (CI_LOOKUP_VAL_L)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

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 |
| Standard Data Fields  | UI Map (MAP_CD)  |
| Customer Modification | None             |

## Managed Content

| Properties            | Description                             |
|-----------------------|-----------------------------------------|
| Tables                | F1_MANAG_CONTENT,<br>F1_MANAG_CONTENT_L |
| Standard Data Fields  | Managed Content<br>(MANAG_CONTENT_CD)   |
| Customer Modification | None                                    |

## Messages

| Properties | Description                                             |
|------------|---------------------------------------------------------|
| Tables     | CI_MSG_CATEGORY,<br>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"> <li>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.</li> <li>Oracle Utilities Customer Care and Billing and Oracle Utilities Business Intelligence - 00001 thru 00100</li> <li>Oracle Utilities Application Framework Java - 11001 thru 11100</li> <li>Oracle Utilities Customer Care and Billing Java - 11101 thru 11200</li> <li>Oracle Utilities Business Intelligence Java - 11201 thru 11300</li> <li>Implementer COBOL - 90000</li> <li>Implementer WSS - 90001</li> <li>Implementer Java - 90002</li> <li>Reserved for Tests - 99999</li> </ul> <p>Message Number (MESSAGE_NBR) for COBOL message categories</p> <ul style="list-style-type: none"> <li>Message numbers below 1000 are reserved for common messages. Implementers must not use message numbers below 1000.</li> </ul> <p>Message Number (MESSAGE_NBR) for Java message categories</p> <ul style="list-style-type: none"> <li>Subsystem Standard Messages - 00001 thru 02000</li> <li>Reserved - 02001 thru 09999</li> <li>Published Messages - 10001 thru 11000</li> <li>Package Messages - 10001 thru 90000</li> <li>Reserved - 90001 thru 99999</li> <li>Each package is allocated 100 message numbers, each starting from 101.</li> <li>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</li> <li>Reserved message number ranges are for future use and therefore must not be used by all products.</li> </ul> |

| Properties            | Description                                                                            |
|-----------------------|----------------------------------------------------------------------------------------|
| Customer Modification | Override Description (DESCRLONG_OVRD),<br>Message Text Override<br>(MESSAGE_TEXT_OVRD) |

## Meta Data - Table and Field

| Properties            | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tables                | CI_MD_TBL, CI_MD_TBL_FLD,<br>CI_MD_TBL_L, CI_MD_TBL_FLD_L,<br>CI_MD_FLD, CI_MD_FLD_L,<br>F1_DB_OBJECTS_REPO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Standard Data Fields  | <p>Table Name (TBL_NAME)</p> <ul style="list-style-type: none"> <li>Table names must match with the physical table name or view name in the database.</li> <li>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.</li> <li>F1_DB_OBJECTS_REPO Table stores information about Indexes, Sequences, Triggers and other database objects excluding Tables and Fields (as they are already stored in the other Metadata tables)</li> </ul> |
| Customer Modification | <p>Audit Switches (AUDIT_INSERT_SW, AUDIT_UPDATE_SW, AUDIT_DELETE_SW), Override label (OVRD_LABEL) on MD Table Field Table (CI_MD_TBL_FLD). Audit Program Name (AUDIT_PGM_NAME), Audit Table Name (AUDIT_TBL_NAME), Audit Program Type (AUDIT_PGM_TYPE_FLG), Key Validation (KEY_VALIDATION_FLG) and Caching strategy (CACHE_FLG) on MD Table (CI_MD_TBL). Override Label (OVRD_LABEL) and Customer Specific Description (DESCRLONG_OVRD) on Field Table.</p>                                                                                                                                                                            |

## Meta Data - Constraints

| Properties            | Description                                                                                                                                                                                                                                                                |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tables                | CI_MD_CONST, CI_MD_CONST_FLD                                                                                                                                                                                                                                               |
| Standard Data Fields  | Constraint Id (CONST_ID) <ul style="list-style-type: none"> <li>Index Name for Primary Constraints</li> <li>&lt;Index Name&gt;Rnn for Foreign Key Constraints Where               <ul style="list-style-type: none"> <li>nn: integer, 01 through 99</li> </ul> </li> </ul> |
| 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,<br>CI_MD_MENU_ITEM,<br>CI_MD_MENU_ITEM_L,<br>CI_MD_MENU_LINE,<br>CI_MD_MENU_LINE_L |
| Standard Data Fields  | Menu Name (MENU_NAME), Menu Item<br>Id (MENU_ITEM_ID), Menu Line Id<br>(MENU_LINE_ID)                        |
| Customer Modification | Override Label (OVRD_LABEL) on<br>Menu Line Language Table<br>(CI_MD_MENU_LINE_L)                            |

## Meta Data - Program, Location and Services

| Properties | Description                                                                                                                                                                                                         |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tables     | CI_MD_PRG_COM,<br>CI_MD_PRG_LOC, CI_MD_SVC,<br>CI_MD_SVC_L, CI_MD_SVC_PRG,<br>CI_MD_PRG_REF, CI_MD_PRG_MOD,<br>CI_MD_PRG_EL_AT,<br>CI_MD_PRG_ELEM,<br>CI_MD_PRG_SEC, CI_MD_PRG_SQL,<br>CI_MD_PRG_VAR, CI_MD_PRG_TAB |

| Properties            | Description                                                                                                                                                |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Standard Data Fields  | Program Component Id (PROG_COM_ID), Location Id (LOC_ID), Program Component Name (PROG_COM_NAME), Service Name (SVC_NAME), Navigation Key (NAVIGATION_KEY) |
| Customer Modification | User Exit Program Name (USER_EXIT_PGM_NAME) on Program Components Table (CI_MD_PRG_COM),                                                                   |

### Meta Data - Maintenance Object

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

### Meta Data - Work Tables

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

### Meta Data - Search Object

| Properties            | Description                                                                                                                              |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Tables                | CI_MD_SO, CI_MD_SO_L, CI_MD_SO_RSFLD, CI_MD_SO_RSFLDAT, CI_MD_SO CG, CI_MD_SO CG_FLD, CI_MD_SO CG_FLDAT, CI_MD_SO CG_L, CI_MD_SO CG_SORT |
| Standard Data Fields  | Search Object (SO_CD)                                                                                                                    |
| Customer Modification | None                                                                                                                                     |

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## Navigation Option

| Properties            | Description                                                                |
|-----------------------|----------------------------------------------------------------------------|
| Tables                | CI_NAV_OPT, CI_NAV_OPT_L,<br>CI_NAV_OPT_CTXT,<br>CI_NAV_OPT_USG, CI_MD_NAV |
| Standard Data Fields  | Navigation Option Code<br>(NAV_OPT_CD), Navigation Key<br>(NAVIGATION_KEY) |
| Customer Modification | None                                                                       |

## Portal and Zone

| Properties            | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tables                | CI_PORTAL, CI_PORTAL_L,<br>CI_PORTAL_ZONE, CI_ZONE,<br>CI_ZONE_L, CI_ZONE_PRM,<br>CI_ZONE_HDL, CI_ZONE_HDL_L,<br>CI_ZONE_HDL_PRM,<br>CI_ZONE_HDL_PRM_L,<br>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"> <li>A new Zone can be added to the Product owned Portal Pages.</li> <li>The existing Zones cannot be removed from the Product owned Portal Pages.</li> </ul>                                                                                                                                                                                                                           |
| Customer Modification | Sort Sequence (SORT_SEQ) on Context Sensitive Zone Table (CI_UI_ZONE).<br>Show on Portal Preferences (USER_CONFIG_FLG) on Portal Table (CI_PORTAL). Override Sequence (SORT_SEQ_OVRD) on Portal Zone Table (CI_PORTAL_ZONE). Customer Specific Description (DESCRLONG_OVRD) on Zone Language Table (CI_ZONE_L). Override Parameter Value (ZONE_HDL_PARM_OVRD) on Zone Type Parameters Table (CI_ZONE_HDL_PRM). Override Parameter Value (ZONE_PARM_VAL_OVRD) on Zone Parameters Table (CI_ZONE_PRM). |

## Sequence

| Properties            | Description                                                                                                   |
|-----------------------|---------------------------------------------------------------------------------------------------------------|
| Tables                | CI_SEQ                                                                                                        |
| Standard Data Fields  | Sequence Name (SEQ_NAME)                                                                                      |
| Customer Modification | Sequence Number (SEQ_NBR)<br>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,<br>CI_SCR_CRT_GRP,<br>CI_SCR_CRT_GRP_L, CI_SCR_DA,<br>CI_SCR_FLD_MAP, CI_SCR_PRMP,CI,<br>CI_SCR_PRMP_L, CI_SCR_STEP,<br>CI_SCR_STEP_L |
| Standard Data Fields  | Script (SCR_CD)                                                                                                                                                     |
| Customer Modification | None                                                                                                                                                                |

## To Do Type

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

## XAI configuration

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

The following XAI tables might have system data installed upon the initial installation but a subsequence system data upgrade process will not update the content of these table unless the change is documented in the database upgrade guide : CI\_XAI\_RCVR, CI\_XAI\_RCVR\_L, CI\_XAI\_RCVR\_CTX, CI\_XAI\_RCVR\_RSP, CI\_XAI\_RCVR\_RGRP, CI\_XAI\_SENDER, CI\_XAI\_SERNDER\_L, CI\_XAI\_SNDR\_CTX

## XAI Services

| Properties            | Description                                                                                                                                                                                                                                  |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tables                | CI_XAI_IN_SVC, CI_XAI_IN_SVC_L,<br>CI_XAI_SVC_PARM                                                                                                                                                                                           |
| Standard Data Fields  | XAI Inbound Service Id<br>(XAI_IN_SVC_ID), XAI Inbound Service<br>Name (XAI_IN_SVC_NAME)                                                                                                                                                     |
| Customer Modification | XAI Version (XAI_VERSION_ID), Trace<br>(TRACE_SW), Debug (DEBUG_SW),<br>Request XSL (INPUT_XSL), Response<br>XSL (RESPONSE_XSL), Record XSL<br>(RECORD_XSL and Post Error<br>(POST_ERROR_SW) on XAI Inbound<br>Service Table (CI_XAI_IN_SVC) |

## Oracle Utilities Application Framework Only Tables

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

- CI\_MD\_AT\_DTL / CI\_MD\_AT\_DTL\_L
- CI\_MD\_ATT\_TY
- CI\_MD\_CTL / CI\_MD\_CTL\_L
- CI\_MD\_CTL\_TMPL
- CI\_MD\_ELTY / CI\_MD\_ELTY\_L
- CI\_MD\_ELTY\_AT
- CI\_MD\_LOOKUP / CI\_MD\_LOOKUP\_F
- CI\_MD\_PDF / CI\_MD\_PDF\_VAL
- CI\_MD\_MSG / CI\_MD\_MSG\_L
- CI\_MD\_SRC\_TYPE / CI\_MD\_SRC\_TYPE\_L
- CI\_MD\_TMPL / CI\_MD\_TMPL\_L
- CI\_MD\_TMPL\_ELTY
- CI\_MD\_TMPL\_VAR / CI\_MD\_TMPL\_VAR\_L
- CI\_MD\_VAR / CI\_MD\_VAR\_DTL / CI\_MD\_VAR\_DTL\_L
- CI\_XAI\_EXECUTER / CI\_XAI\_EXECUTER\_L

## System Table List

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

**Keep (KP):** The data in the table in the customer's database is kept untouched. No insert or delete is performed to this table by the upgrade process. The initial installation will add necessary data for the system

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

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

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

| Table Name        | Upgrade Action | Description                        |
|-------------------|----------------|------------------------------------|
| CI_ALG            | MG             | Algorithm                          |
| CI_ALG_L          | MG             | Algorithm Language                 |
| CI_ALG_PARM       | MG             | Algorithm Parameters               |
| CI_ALG_TYPE       | MG             | Algorithm Type                     |
| CI_ALG_TYPE_L     | MG             | Algorithm Type Language            |
| CI_ALG_TYPE_PRM   | MG             | Algorithm Type Parameter           |
| CI_ALG_TYPE_PRM_L | MG             | Algorithm Type Parameter Language  |
| CI_ALG_VER        | MG             | Algorithm Version                  |
| CI_APP_SVC_ACC    | MG             | Application Service Access Mode    |
| CI_BATCH_CTRL     | MG             | Batch Control                      |
| CI_BATCH_CTRL_ALG | KP             | Batch Control Algorithm            |
| CI_BATCH_CTRL_L   | MG             | Batch Control Language             |
| CI_BATCH_CTRL_P   | MG             | Batch Control Parameters           |
| CI_BATCH_CTRL_P_L | MG             | Batch Control Parameters Language  |
| CI_CHAR_ENTITY    | MG             | Characteristic Type Entity         |
| CI_CHAR_TYPE      | MG             | Characteristic Type                |
| CI_CHAR_TYPE_L    | MG             | Characteristic Type Language       |
| CI_CHAR_VAL       | MG             | Characteristic Type Value          |
| CI_CHAR_VAL_L     | MG             | Characteristic Type Value Language |

| Table Name       | Upgrade Action | Description                               |
|------------------|----------------|-------------------------------------------|
| CI_CURRENCY_CD   | KP             | Currency Code                             |
| CI_CURRENCY_CD_L | KP             | Currency Code Language                    |
| CI_DB_INSTR      | KP             | DB Process Instruction                    |
| CI_DB_INSTR_ALG  | KP             | DB Process Instruction Algorithm          |
| CI_DB_INSTR_L    | KP             | DB Process Instruction Language           |
| CI_DB_INST_OVRD  | KP             | DB Process Instruction Override           |
| CI_DB_PROC       | KP             | DB Process                                |
| CI_DB_PROC_L     | KP             | DB Process Language                       |
| CI_DISP_ICON     | MG             | Display Icon                              |
| CI_DISP_ICON_L   | MG             | Display Icon Language                     |
| CI_DISP_PROF     | KP             | Display Profile                           |
| CI_DISP_PROF_L   | KP             | Display Profile Language                  |
| CI_FK_REF        | MG             | Foreign Key Reference                     |
| CI_FK_REF_L      | MG             | Foreign Key Reference Language            |
| CI_LANGUAGE      | MG             | Language Code                             |
| CI_LOOKUP_FIELD  | MG             | Lookup Field                              |
| CI_LOOKUP_VAL    | MG             | Lookup Field Value                        |
| CI_LOOKUP_VAL_L  | MG             | Lookup Field Value Language               |
| CI_MD_ATT_TY     | RF             | MD Element Attribute Type                 |
| CI_MD_AT_DTL     | RF             | MD Element Attribute Type Detail          |
| CI_MD_AT_DTL_L   | RF             | MD Element Attribute Type Detail Language |
| CI_MD_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_AT    | RF             | Element Type Attributes                   |
| CI_MD_ELTY_L     | RF             | Element Type Language                     |
| CI_MD_FLD        | MG             | Field                                     |
| CI_MD_FLD_L      | MG             | Field Language                            |

| Table Name        | Upgrade Action | Description                    |
|-------------------|----------------|--------------------------------|
| 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      |
| 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   |

| Table Name       | Upgrade Action | Description                             |
|------------------|----------------|-----------------------------------------|
| CI_MD_SOCG_FLD   | MG             | Search Object Criteria Group Field      |
| CI_MD_SOCG_FLDAT | MG             | Search Criteria Group Field Attribute   |
| CI_MD_SOCG_L     | MG             | Search Object Criteria Group Language   |
| CI_MD_SOCG_SORT  | MG             | Search Criteria Group Result Sort Order |
| CI_MD_SO_L       | MG             | Search Object Language                  |
| CI_MD_SO_RSFLD   | MG             | Search Object Result Field              |
| CI_MD_SO_RSFLDAT | MG             | Search Object Result Field Attribute    |
| CI_MD_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                           |
| 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                        |

| Table Name        | Upgrade Action | Description                    |
|-------------------|----------------|--------------------------------|
| CI_MSG_CATEGORY_L | MG             | Message Category Language      |
| CI_MSG_L          | MG             | Message Language               |
| CI_NAV_OPT        | MG             | Navigation Option              |
| CI_NAV_OPT_CTXT   | MG             | Navigation Option Context      |
| CI_NAV_OPT_L      | MG             | Navigation Option Language     |
| CI_NAV_OPT_USG    | MG             | Navigation Option Usage        |
| CI_PORTAL         | MG             | Portal                         |
| CI_PORTAL_L       | MG             | Portal Language                |
| CI_PORTAL_ZONE    | MG             | Portal Zone                    |
| CI_SCR            | MG             | Script                         |
| CI_SCR_CRT        | MG             | Script Criteria                |
| CI_SCR_CRT_GRP    | MG             | Script Criteria Group          |
| CI_SCR_CRT_GRP_L  | MG             | Script Criteria Group Language |
| CI_SCR_DA         | MG             | Script Data Area               |
| CI_SCR_FLD_MAP    | MG             | Script Field Mapping           |
| CI_SCR_L          | MG             | Script Language                |
| CI_SCR_PRMP       | MG             | Script Prompt                  |
| CI_SCR_PRMP_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_USR_NAV_LINK   | MG             | User Favorite Links            |
| CI_USR_PORTAL     | KP             | User Portal                    |
| CI_USR_ZONE       | KP             | User Zone                      |
| 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             |

| Table Name        | Upgrade Action | Description                    |
|-------------------|----------------|--------------------------------|
| 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_JNDI_SVR   | KP             | XAI JNDI Server                |
| CI_XAI_JNDI_SVR_L | KP             | XAI JNDI Server Language       |
| CI_XAI_OPTION     | KP             | XAI Option                     |
| CI_XAI_RCVR       | KP             | XAI Receiver                   |
| CI_XAI_RCVR_CTX   | KP             | XAI Receiver Context           |
| CI_XAI_RCVR_L     | KP             | XAI Receiver Language          |
| CI_XAI_RCVR_RGRP  | KP             | XAI Receiver Rule Group        |
| CI_XAI_RCVR_RSP   | KP             | XAI Receiver Response          |
| CI_XAI_SENDER     | KP             | XAI Sender                     |
| CI_XAI_SENDER_L   | KP             | XAI Sender Language            |
| CI_XAI_SNDR_CTX   | KP             | XAI Sender Context             |
| CI_XAI_SVC_PARM   | MG             | XAI Inbound Service Parameters |
| CI_ZONE           | MG             | Zone                           |
| CI_ZONE_HDL       | MG             | Zone Type                      |
| CI_ZONE_HDL_L     | MG             | Zone Type Language             |
| CI_ZONE_HDL_PRM   | MG             | Zone Type Parameters           |
| CI_ZONE_HDL_PRM_L | MG             | Zone Type Parameters Language  |
| CI_ZONE_L         | MG             | Zone Language                  |
| CI_ZONE_PRM       | MG             | Zone Parameters                |
| F1_BUS_OBJ        | MG             | Business Object                |
| F1_BUS_OBJ_ALG    | MG             | Business Object Algorithm      |
| F1_BUS_OBJ_L      | MG             | Business Object Language       |
| F1_BUS_OBJ_OPT    | MG             | Business Object Option         |
| F1_BUS_OBJ_STATUS | MG             | Business Object Status         |

| Table Name                     | Upgrade Action | Description                                 |
|--------------------------------|----------------|---------------------------------------------|
| F1_BUS_OBJ_STATUS_AL<br>G      | MG             | Business Object Status Algorithm            |
| F1_BUS_OBJ_STATUS_L            | MG             | Business Object Status Language             |
| F1_BUS_OBJ_STATUS_OP<br>T      | MG             | Business Object Status Option               |
| F1_BUS_OBJ_STATUS_RS<br>N      | MG             | Status Reason                               |
| F1_BUS_OBJ_STATUS_RS<br>N_CHAR | KP             | Status Reason Characteristic                |
| F1_BUS_OBJ_STATUS_RS<br>N_L    | MG             | Status Reason Language                      |
| F1_BUS_OBJ_TR_RULE             | MG             | Business Object Transition Rule             |
| F1_BUS_OBJ_TR_RULE_L           | MG             | Business Object Transition Rule<br>Language |
| F1_BUS_SVC                     | MG             | Business Service                            |
| F1_BUS_SVC_L                   | MG             | Business Service Language                   |
| F1_DATA_AREA                   | MG             | Data Area                                   |
| F1_DATA_AREA_L                 | MG             | Data Area Language                          |
| F1_DB_OBJECTS_REPO             | MG             | Database Objects Repository                 |
| F1_EXT_LOOKUP_VAL              | MG             | Extendable Lookup                           |
| F1_EXT_LOOKUP_VAL_<br>L        | MG             | Extendable Lookup Language                  |
| F1_INSTALLATION                | KP             | Installation Option - Framework             |
| F1_MANAG_CONTENT               | MG             | Managed Content                             |
| F1_MANAG_CONTENT_<br>L         | MG             | Managed Content Language                    |
| F1_MAP                         | MG             | UI Map                                      |
| F1_MAP_L                       | MG             | UI Map Language                             |
| F1_SCHEMA                      | MG             | Schema                                      |
| SC_ACCESS_CNTRL                | MG             | User Group Access Control                   |
| SC_APP_SERVICE                 | MG             | Application Service                         |
| SC_APP_SERVICE_L               | MG             | Application Service Language                |
| SC_USER                        | KP             | User                                        |
| SC_USER_GROUP                  | KP             | User Group                                  |
| SC_USER_GROUP_L                | KP             | User Group Language                         |
| SC_USR_GRP_PROF                | MG             | User Group Profile                          |

---

| Table Name     | Upgrade Action | Description     |
|----------------|----------------|-----------------|
| SC_USR_GRP_USR | KP             | User Group User |

---



# Appendix C

## Partitioning Recommendations for Oracle Utilities Meter Data Management

This section specifies the partitioning strategy recommended for an initial Oracle Utilities Meter Data Management database configuration. This section includes recommendations for partitioning transaction tables.

In general the recommendation is to create a minimum of 'n' partitions for selective database objects, where 'n' is number of RAC nodes. The partitioning recommendations outlined below can be used as reference:

- **Partitioning Recommendations for Transaction Tables**

### Partitioning Recommendations for Transaction Tables

The table Partitioning scheme for transaction tables is focused primarily on tables associated with Measurement MO, Measurement Log MO and Initial-Measurement-Data MO.

- The Table Partitioning scheme for Transaction tables is focused primarily on tables associated with Measurement MO, Measurement Log MO and Initial-Measurement-Data MO.
- D1\_MSRMT, D1\_MSRMT\_CHAR, D1\_MSRMT\_LOG, D1\_MSRMT\_LOG\_PARM tables can be partitioned by MSRMT\_DTTM (a smaller partition for better performance). Bi-weekly partitions are suggested. Subpartition these tables by MEASR\_COMP\_ID (For example, 8 subpartitions).
- D1\_INIT\_MSRMT\_DATA table can be partitioned by D1\_TO\_DTTM (smaller partition better performance). Biweekly partitions are suggested. Subpartition D1\_INIT\_MSRMT\_DATA table by MEASR\_COMP\_ID (For example, 8 subpartitions).
- D1\_INIT\_MSRMT\_DATA\_CHAR, D1\_INIT\_MSRMT\_DATA\_K, D1\_INIT\_MSRMT\_DATA\_LOG, D1\_INIT\_MSRMT\_DATA\_LOG\_PARM tables can be partitioned by INIT\_MSRMT\_DATA\_ID (For example, 8 subpartitions).
- Indexes on these tables should be mostly local. We have mentioned in the below section which Indexes should be local and which should be global.

This section contains partitioning recommendations as a reference:

#### D1\_MSRMT

```
CREATE TABLE D1_MSRMT
(MEASR_COMP_ID CHAR(12 BYTE) NOT NULL ENABLE,
 MSRMT_DTTM DATE NOT NULL ENABLE,
 BO_STATUS_CD CHAR(12 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 MSRMT_COND_FLG CHAR(6 BYTE) DEFAULT ' ' NOT NULL ENABLE,
```

```

MSRMT_USE_FLG CHAR(4 BYTE) DEFAULT ' ' NOT NULL ENABLE,
MSRMT_LOCAL_DTTM DATE NOT NULL ENABLE,
MSRMT_VAL NUMBER(16,6) DEFAULT 0 NOT NULL ENABLE,
ORIG_INIT_MSRMT_ID CHAR(14 BYTE) DEFAULT ' ' NOT NULL ENABLE,
PREV_MSRMT_DTTM DATE,
MSRMT_VAL1 NUMBER(16,6) DEFAULT 0 NOT NULL ENABLE,
MSRMT_VAL2 NUMBER(16,6) DEFAULT 0 NOT NULL ENABLE,
MSRMT_VAL3 NUMBER(16,6) DEFAULT 0 NOT NULL ENABLE,
MSRMT_VAL4 NUMBER(16,6) DEFAULT 0 NOT NULL ENABLE,
MSRMT_VAL5 NUMBER(16,6) DEFAULT 0 NOT NULL ENABLE,
MSRMT_VAL6 NUMBER(16,6) DEFAULT 0 NOT NULL ENABLE,
MSRMT_VAL7 NUMBER(16,6) DEFAULT 0 NOT NULL ENABLE,
MSRMT_VAL8 NUMBER(16,6) DEFAULT 0 NOT NULL ENABLE,
MSRMT_VAL9 NUMBER(16,6) DEFAULT 0 NOT NULL ENABLE,
MSRMT_VAL10 NUMBER(16,6) DEFAULT 0 NOT NULL ENABLE,
BUS_OBJ_CD CHAR(30 BYTE) DEFAULT ' ' NOT NULL ENABLE,
CRE_DTTM DATE NOT NULL ENABLE,
STATUS_UPD_DTTM DATE NOT NULL ENABLE,
USER_EDITED_FLG CHAR(4 BYTE) DEFAULT ' ' NOT NULL ENABLE,
VERSION NUMBER(5,0) DEFAULT 1 NOT NULL ENABLE
) TABLESPACE <Tablespace_Name>
ENABLE ROW MOVEMENT
PARTITION BY RANGE (MSRMT_DTTM)
SUBPARTITION BY range (MEASR_COMP_ID)
SUBPARTITION TEMPLATE(
subpartition SUB1 values less than (124999999999),
subpartition SUB2 values less than (249999999999),
subpartition SUB3 values less than (374999999999),
subpartition SUB4 values less than (499999999999),
subpartition SUB5 values less than (624999999999),
subpartition SUB6 values less than (744999999999),
subpartition SUB7 values less than (874999999999),
subpartition SUB8 values less than (maxvalue)
)
(PARTITION P1 VALUES LESS THAN(TO_DATE('15/12/2010 00:00:01','DD/MM/
YYYY HH24:MI:SS')),
PARTITION P2 VALUES LESS THAN(TO_DATE('01/01/2011 00:00:01','DD/MM/
YYYY HH24:MI:SS')),
PARTITION P3 VALUES LESS THAN(TO_DATE('15/01/2011 00:00:01','DD/MM/
YYYY HH24:MI:SS')),
PARTITION P4 VALUES LESS THAN(TO_DATE('01/02/2011 00:00:01','DD/MM/
YYYY HH24:MI:SS')),
PARTITION P5 VALUES LESS THAN(TO_DATE('15/02/2011 00:00:01','DD/MM/
YYYY HH24:MI:SS')),
PARTITION P6 VALUES LESS THAN(TO_DATE('01/03/2011 00:00:01','DD/MM/
YYYY HH24:MI:SS')),
PARTITION P7 VALUES LESS THAN(TO_DATE('15/03/2011 00:00:01','DD/MM/
YYYY HH24:MI:SS'))
);

CREATE UNIQUE INDEX D1T298P0 on D1_MSRMT (MEASR_COMP_ID, MSRMT_DTTM)
TABLESPACE <Tablespace_Name> local COMPRESS 1;

alter table D1_MSRMT ADD CONSTRAINT D1T298P0 PRIMARY
KEY(MEASR_COMP_ID, MSRMT_DTTM) USING INDEX TABLESPACE
<Tablespace_Name> ;
CREATE UNIQUE INDEX D1T298S1 on D1_MSRMT (MEASR_COMP_ID,
MSRMT_DTTM,MSRMT_COND_FLG,MSRMT_USE_FLG,MSRMT_LOCAL_DTTM,MSRMT_VAL,MSR
MT_VAL1,MSRMT_VAL2,USER_EDITED_FLG TABLESPACE <Tablespace_Name> local
COMPRESS 1;

```

---

```
CREATE INDEX D1T298S2 ON D1_MSRMT (ORIG_INIT_MSRMT_ID) TABLESPACE
<Tablespace_Name> local COMPRESS 1;
```

## D1\_MSRMT\_CHAR

```
CREATE TABLE D1_MSRMT_CHAR
(
 MEASR_COMP_ID CHAR(12 BYTE) NOT NULL ENABLE,
 MSRMT_DTTM DATE NOT NULL ENABLE,
 CHAR_TYPE_CD CHAR(8 BYTE) NOT NULL ENABLE,
 SEQ_NUM NUMBER(3,0) NOT NULL ENABLE,
 CHAR_VAL CHAR(16 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 ADHOC_CHAR_VAL VARCHAR2(254 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 CHAR_VAL_FK1 VARCHAR2(50 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 CHAR_VAL_FK2 VARCHAR2(50 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 CHAR_VAL_FK3 VARCHAR2(50 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 CHAR_VAL_FK4 VARCHAR2(50 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 CHAR_VAL_FK5 VARCHAR2(50 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 SRCH_CHAR_VAL VARCHAR2(50 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 VERSION NUMBER(5,0) DEFAULT 1 NOT NULL ENABLE
) TABLESPACE <Tablespace_Name>
ENABLE ROW MOVEMENT
PARTITION BY RANGE (MSRMT_DTTM)
SUBPARTITION BY range (MEASR_COMP_ID)
SUBPARTITION TEMPLATE(
 subpartition SUB1 values less than (124999999999),
 subpartition SUB2 values less than (249999999999),
 subpartition SUB3 values less than (374999999999),
 subpartition SUB4 values less than (499999999999),
 subpartition SUB5 values less than (624999999999),
 subpartition SUB6 values less than (744999999999),
 subpartition SUB7 values less than (874999999999),
 subpartition SUB8 values less than (maxvalue)
)
(PARTITION P1 VALUES LESS THAN(TO_DATE('15/12/2010 00:00:01','DD/MM/
YYYY HH24:MI:SS')),
PARTITION P2 VALUES LESS THAN(TO_DATE('01/01/2011 00:00:01','DD/MM/
YYYY HH24:MI:SS')),
PARTITION P3 VALUES LESS THAN(TO_DATE('15/01/2011 00:00:01','DD/MM/
YYYY HH24:MI:SS')),
PARTITION P4 VALUES LESS THAN(TO_DATE('01/02/2011 00:00:01','DD/MM/
YYYY HH24:MI:SS')),
PARTITION P5 VALUES LESS THAN(TO_DATE('15/02/2011 00:00:01','DD/MM/
YYYY HH24:MI:SS')),
PARTITION P6 VALUES LESS THAN(TO_DATE('01/03/2011 00:00:01','DD/MM/
YYYY HH24:MI:SS')),
PARTITION P7 VALUES LESS THAN(TO_DATE('15/03/2011 00:00:01','DD/MM/
YYYY HH24:MI:SS'))
);
CREATE UNIQUE INDEX D1T299P0 ON D1_MSRMT_CHAR
(
 MEASR_COMP_ID, MSRMT_DTTM, CHAR_TYPE_CD, SEQ_NUM
) TABLESPACE <Tablespace_Name> local COMPRESS 1;

ALTER TABLE D1_MSRMT_CHAR ADD CONSTRAINT D1T299P0 PRIMARY KEY
(MEASR_COMP_ID, MSRMT_DTTM, CHAR_TYPE_CD, SEQ_NUM) USING INDEX
TABLESPACE <Tablespace_Name>;

CREATE INDEX D1T299S1 ON D1_MSRMT_CHAR (SRCH_CHAR_VAL) TABLESPACE
<Tablespace_Name> local COMPRESS 1;
```

---

## D1\_MSRMT\_LOG

```
CREATE TABLE D1_MSRMT_LOG
(
 MEASR_COMP_ID CHAR(12 BYTE),
 MSRMT_DTTM DATE,
 SEQNO NUMBER(5,0),
 ORIG_INIT_MSRMT_ID CHAR(14 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 BUS_OBJ_CD CHAR(30 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 BO_DATA_AREA CLOB,
 CHAR_TYPE_CD CHAR(8 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 CHAR_VAL CHAR(16 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 ADHOC_CHAR_VAL VARCHAR2(254 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 CHAR_VAL_FK1 VARCHAR2(50 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 CHAR_VAL_FK2 VARCHAR2(50 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 CHAR_VAL_FK3 VARCHAR2(50 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 CHAR_VAL_FK4 VARCHAR2(50 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 CHAR_VAL_FK5 VARCHAR2(50 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 DESCRLONG VARCHAR2(4000 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 LOG_DTTM DATE NOT NULL ENABLE,
 MESSAGE_CAT_NBR NUMBER(5,0) DEFAULT 0 NOT NULL ENABLE,
 MESSAGE_NBR NUMBER(5,0) DEFAULT 0 NOT NULL ENABLE,
 USER_ID CHAR(8 BYTE) DEFAULT ' ' NOT
NULL ENABLE,
 VERSION NUMBER(5,0) DEFAULT 1 NOT NULL
ENABLE,
 MSRMT_LOG_ENTRY_TYPE_FLG CHAR(4 BYTE) DEFAULT ' ' NOT NULL ENABLE
)
TABLESPACE <Tablespace_Name>
ENABLE ROW MOVEMENT
PARTITION BY RANGE (MSRMT_DTTM)
SUBPARTITION BY range (MEASR_COMP_ID)
SUBPARTITION TEMPLATE(
 subpartition SUB1 values less than (124999999999),
 subpartition SUB2 values less than (249999999999),
 subpartition SUB3 values less than (374999999999),
 subpartition SUB4 values less than (499999999999),
 subpartition SUB5 values less than (624999999999),
 subpartition SUB6 values less than (744999999999),
 subpartition SUB7 values less than (874999999999),
 subpartition SUB8 values less than (maxvalue)
)
(PARTITION P1 VALUES LESS THAN(TO_DATE('15/12/2010 00:00:01','DD/MM/
YYYY HH24:MI:SS')),
 PARTITION P2 VALUES LESS THAN(TO_DATE('01/01/2011 00:00:01','DD/MM/
YYYY HH24:MI:SS')),
 PARTITION P3 VALUES LESS THAN(TO_DATE('15/01/2011 00:00:01','DD/MM/
YYYY HH24:MI:SS')),
 PARTITION P4 VALUES LESS THAN(TO_DATE('01/02/2011 00:00:01','DD/MM/
YYYY HH24:MI:SS')),
 PARTITION P5 VALUES LESS THAN(TO_DATE('15/02/2011 00:00:01','DD/MM/
YYYY HH24:MI:SS')),
 PARTITION P6 VALUES LESS THAN(TO_DATE('01/03/2011 00:00:01','DD/MM/
YYYY HH24:MI:SS')),
 PARTITION P7 VALUES LESS THAN(TO_DATE('15/03/2011 00:00:01','DD/MM/
YYYY HH24:MI:SS'))
);
CREATE UNIQUE INDEX D1T300P0 ON D1_MSRMT_LOG
```

---

```

(MEASR_COMP_ID, MSRMT_DTTM, SEQNO) TABLESPACE <Tablespace_Name> local
COMPRESS 1;
ALTER TABLE D1_MSRMT_LOG ADD CONSTRAINT D1T300P0 PRIMARY KEY
(MEASR_COMP_ID, MSRMT_DTTM, SEQNO) USING INDEX TABLESPACE
<Tablespace_Name>;

```

## D1\_MSRMT\_LOG\_PARM

```

CREATE TABLE D1_MSRMT_LOG_PARM
(
 MEASR_COMP_ID CHAR(12 BYTE),
 MSRMT_DTTM DATE,
 SEQNO NUMBER(5,0),
 PARM_SEQ NUMBER(3,0),
 MSG_PARM_VAL VARCHAR2(30 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 MSG_PARM_TYP_FLG CHAR(4 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 VERSION NUMBER(5,0) DEFAULT 1 NOT NULL ENABLE
)
TABLESPACE <Tablespace_Name>
ENABLE ROW MOVEMENT
 PARTITION BY RANGE (MSRMT_DTTM)
SUBPARTITION BY range (MEASR_COMP_ID)
SUBPARTITION TEMPLATE(
 subpartition SUB1 values less than (124999999999),
 subpartition SUB2 values less than (249999999999),
 subpartition SUB3 values less than (374999999999),
 subpartition SUB4 values less than (499999999999),
 subpartition SUB5 values less than (624999999999),
 subpartition SUB6 values less than (744999999999),
 subpartition SUB7 values less than (874999999999),
 subpartition SUB8 values less than (maxvalue)
)
(PARTITION P1 VALUES LESS THAN(TO_DATE('15/12/2010 00:00:01','DD/MM/
YYYY HH24:MI:SS')),
 PARTITION P2 VALUES LESS THAN(TO_DATE('01/01/2011 00:00:01','DD/MM/
YYYY HH24:MI:SS')),
 PARTITION P3 VALUES LESS THAN(TO_DATE('15/01/2011 00:00:01','DD/MM/
YYYY HH24:MI:SS')),
 PARTITION P4 VALUES LESS THAN(TO_DATE('01/02/2011 00:00:01','DD/MM/
YYYY HH24:MI:SS')),
 PARTITION P5 VALUES LESS THAN(TO_DATE('15/02/2011 00:00:01','DD/MM/
YYYY HH24:MI:SS')),
 PARTITION P6 VALUES LESS THAN(TO_DATE('01/03/2011 00:00:01','DD/MM/
YYYY HH24:MI:SS')),
 PARTITION P7 VALUES LESS THAN(TO_DATE('15/03/2011 00:00:01','DD/MM/
YYYY HH24:MI:SS'))
);
CREATE UNIQUE INDEX D1T301P0 ON D1_MSRMT_LOG_PARM
(
 MEASR_COMP_ID, MSRMT_DTTM, SEQNO, PARM_SEQ
) INDEX TABLESPACE <Tablespace_Name> local COMPRESS 1;

ALTER TABLE D1_MSRMT_LOG_PARM ADD CONSTRAINT D1T301P0 PRIMARY KEY
(MEASR_COMP_ID, MSRMT_DTTM, SEQNO, PARM_SEQ) USING INDEX TABLESPACE
<Tablespace_Name>;

```

---

## D1\_INIT\_MSRMT\_DATA

```
CREATE TABLE D1_INIT_MSRMT_DATA
(
 INIT_MSRMT_DATA_ID CHAR(14 BYTE) NOT NULL ENABLE,
 MEASR_COMP_ID CHAR(12 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 D1_FROM_DTTM DATE,
 D1_TO_DTTM DATE,
 DATA_SRC_FLG CHAR(4 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 TIME_ZONE_CD CHAR(10 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 BUS_OBJ_CD CHAR(30 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 BO_STATUS_CD CHAR(12 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 BO_STATUS_REASON_CD VARCHAR2(30 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 IMD_BO_DATA_AREA CLOB,
 STATUS_UPD_DTTM DATE NOT NULL ENABLE,
 CRE_DTTM DATE NOT NULL ENABLE,
 VERSION NUMBER(5,0) DEFAULT 1 NOT NULL ENABLE,
 IMD_EXT_ID VARCHAR2(120 BYTE),
 PREVEE_BO_DATA_AREA CLOB,
 POSTVEE_BO_DATA_AREA CLOB,
 TRACE_BO_DATA_AREA CLOB,
 RAW_BO_DATA_AREA CLOB
) TABLESPACE <Tablespace_Name>
ENABLE ROW MOVEMENT
LOB (PREVEE_BO_DATA_AREA)
STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS CACHE)
LOB (POSTVEE_BO_DATA_AREA)
STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS CACHE)
LOB (TRACE_BO_DATA_AREA)
STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS CACHE)
LOB (RAW_BO_DATA_AREA)
STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS CACHE)
LOB (IMD_BO_DATA_AREA)
STORE AS SECUREFILE (ENABLE STORAGE IN ROW COMPRESS CACHE)
PARTITION BY RANGE (D1_TO_DTTM)
SUBPARTITION BY range (MEASR_COMP_ID)
SUBPARTITION TEMPLATE(
 subpartition SUB1 values less than (124999999999),
 subpartition SUB2 values less than (249999999999),
 subpartition SUB3 values less than (374999999999),
 subpartition SUB4 values less than (499999999999),
 subpartition SUB5 values less than (624999999999),
 subpartition SUB6 values less than (744999999999),
 subpartition SUB7 values less than (874999999999),
 subpartition SUB8 values less than (maxvalue)
)
(PARTITION P1 VALUES LESS THAN(TO_DATE('15/12/2010 00:00:01','DD/MM/
YYYY HH24:MI:SS')),
 PARTITION P2 VALUES LESS THAN(TO_DATE('01/01/2011 00:00:01','DD/MM/
YYYY HH24:MI:SS')),
 PARTITION P3 VALUES LESS THAN(TO_DATE('15/01/2011 00:00:01','DD/MM/
YYYY HH24:MI:SS')),
 PARTITION P4 VALUES LESS THAN(TO_DATE('01/02/2011 00:00:01','DD/MM/
YYYY HH24:MI:SS')),
 PARTITION P5 VALUES LESS THAN(TO_DATE('15/02/2011 00:00:01','DD/MM/
YYYY HH24:MI:SS')),
 PARTITION P6 VALUES LESS THAN(TO_DATE('01/03/2011 00:00:01','DD/MM/
YYYY HH24:MI:SS')),
 PARTITION P7 VALUES LESS THAN(TO_DATE('15/03/2011 00:00:01','DD/MM/
YYYY HH24:MI:SS')))
```

```

);

CREATE UNIQUE INDEX D1T304P0 ON D1_INIT_MSRMT_DATA
(
 INIT_MSRMT_DATA_ID
) TABLESPACE <Tablespace_Name>
GLOBAL PARTITION BY RANGE (INIT_MSRMT_DATA_ID)
(PARTITION PART1 values less than (12499999999999),
PARTITION PART2 values less than (24999999999999),
PARTITION PART3 values less than (37499999999999),
PARTITION PART4 values less than (49999999999999),
PARTITION PART5 values less than (62499999999999),
PARTITION PART6 values less than (74499999999999),
PARTITION PART7 values less than (87499999999999),
PARTITION PART8 values less than (maxvalue));

ALTER TABLE D1_INIT_MSRMT_DATA ADD CONSTRAINT D1T304P0 PRIMARY KEY
(INIT_MSRMT_DATA_ID) USING INDEX TABLESPACE <Tablespace_Name>;

CREATE INDEX D1T304S1 ON D1_INIT_MSRMT_DATA
(
 MEASR_COMP_ID
 ,BO_STATUS_CD
 ,BUS_OBJ_CD
 ,D1_TO_DTTM
 ,D1_FROM_DTTM
) TABLESPACE <Tablespace_Name> LOCAL COMPRESS 1;

```

## D1\_INIT\_MSRMT\_DATA\_CHAR

```

CREATE TABLE D1_INIT_MSRMT_DATA_CHAR
(
 INIT_MSRMT_DATA_ID CHAR(14 BYTE),
 CHAR_TYPE_CD CHAR(8 BYTE),
 SEQ_NUM NUMBER(3,0),
 CHAR_VAL CHAR(16 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 ADHOC_CHAR_VAL VARCHAR2(254 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 CHAR_VAL_FK1 VARCHAR2(50 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 CHAR_VAL_FK2 VARCHAR2(50 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 CHAR_VAL_FK3 VARCHAR2(50 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 CHAR_VAL_FK4 VARCHAR2(50 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 CHAR_VAL_FK5 VARCHAR2(50 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 SRCH_CHAR_VAL VARCHAR2(50 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 VERSION NUMBER(5,0) DEFAULT 1 NOT NULL ENABLE)
TABLESPACE <Tablespace_Name>
ENABLE ROW MOVEMENT
PARTITION BY RANGE (INIT_MSRMT_DATA_ID)
(PARTITION PART1 values less than (12499999999999),
PARTITION PART2 values less than (24999999999999),
PARTITION PART3 values less than (37499999999999),
PARTITION PART4 values less than (49999999999999),
PARTITION PART5 values less than (62499999999999),
PARTITION PART6 values less than (74499999999999),
PARTITION PART7 values less than (87499999999999),
PARTITION PART8 values less than (maxvalue));

CREATE UNIQUE INDEX D1T305P0 ON D1_INIT_MSRMT_DATA_CHAR
(
 INIT_MSRMT_DATA_ID, CHAR_TYPE_CD, SEQ_NUM
) TABLESPACE <Tablespace_Name> LOCAL COMPRESS 1;

```

---

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

```
CREATE INDEX D1T305S1 ON D1_INIT_MSRMT_DATA_CHAR
(
 SRCH_CHAR_VAL
) TABLESPACE <Tablespace_Name> LOCAL COMPRESS 1;
```

## D1\_INIT\_MSRMT\_DATA\_K

```
CREATE TABLE D1_INIT_MSRMT_DATA_K
(
 INIT_MSRMT_DATA_ID CHAR(14 BYTE),
 ENV_ID NUMBER(6,0) NOT NULL ENABLE,
 CONSTRAINT D1T314P0 PRIMARY KEY (INIT_MSRMT_DATA_ID, ENV_ID) ENABLE
)
ORGANIZATION INDEX TABLESPACE <Tablespace_Name>
ENABLE ROW MOVEMENT
PARTITION BY RANGE (INIT_MSRMT_DATA_ID)
(PARTITION PART1 values less than (12499999999999),
PARTITION PART2 values less than (24999999999999),
PARTITION PART3 values less than (37499999999999),
PARTITION PART4 values less than (49999999999999),
PARTITION PART5 values less than (62499999999999),
PARTITION PART6 values less than (74499999999999),
PARTITION PART7 values less than (87499999999999),
PARTITION PART8 values less than (maxvalue)) compress 1;
```

## D1\_INIT\_MSRMT\_DATA\_LOG

```
CREATE TABLE D1_INIT_MSRMT_DATA_LOG
(
 INIT_MSRMT_DATA_ID CHAR(14 BYTE),
 SEQNO NUMBER(5,0),
 BO_STATUS_CD CHAR(12 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 BO_STATUS_REASON_CD VARCHAR2(30 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 CHAR_TYPE_CD CHAR(8 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 CHAR_VAL CHAR(16 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 ADHOC_CHAR_VAL VARCHAR2(254 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 CHAR_VAL_FK1 VARCHAR2(50 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 CHAR_VAL_FK2 VARCHAR2(50 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 CHAR_VAL_FK3 VARCHAR2(50 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 CHAR_VAL_FK4 VARCHAR2(50 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 CHAR_VAL_FK5 VARCHAR2(50 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 DESCRLONG VARCHAR2(4000 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 LOG_DTTM DATE NOT NULL ENABLE,
 LOG_ENTRY_TYPE_FLG CHAR(4 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 MESSAGE_CAT_NBR NUMBER(5,0) DEFAULT 0 NOT NULL ENABLE,
 MESSAGE_NBR NUMBER(5,0) DEFAULT 0 NOT NULL ENABLE,
 USER_ID CHAR(8 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 VERSION NUMBER(5,0) DEFAULT 1 NOT NULL ENABLE
) TABLESPACE <Tablespace_Name>
ENABLE ROW MOVEMENT
PARTITION BY RANGE (INIT_MSRMT_DATA_ID)
```

```

(PARTITION PART1 values less than (12499999999999),
PARTITION PART2 values less than (24999999999999),
PARTITION PART3 values less than (37499999999999),
PARTITION PART4 values less than (49999999999999),
PARTITION PART5 values less than (62499999999999),
PARTITION PART6 values less than (74499999999999),
PARTITION PART7 values less than (87499999999999),
PARTITION PART8 values less than (maxvalue)) ;

CREATE UNIQUE INDEX D1T306P0 ON D1_INIT_MSRMT_DATA_LOG
(
 INIT_MSRMT_DATA_ID, SEQNO
) TABLESPACE <Tablespace_Name>LOCAL COMPRESS 1;

ALTER TABLE D1_INIT_MSRMT_DATA_LOG ADD CONSTRAINT D1T306P0 PRIMARY KEY
(INIT_MSRMT_DATA_ID, SEQNO) USING INDEX TABLESPACE <Tablespace_Name>;

```

## D1\_INIT\_MSRMT\_DATA\_LOG\_PARM

```

CREATE TABLE D1_INIT_MSRMT_DATA_LOG_PARM
(
 INIT_MSRMT_DATA_ID CHAR(14 BYTE),
 SEQNO NUMBER(5,0),
 PARM_SEQ NUMBER(3,0),
 MSG_PARM_VAL VARCHAR2(30 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 MSG_PARM_TYP_FLG CHAR(4 BYTE) DEFAULT ' ' NOT NULL ENABLE,
 VERSION NUMBER(5,0) DEFAULT 1 NOT NULL ENABLE
) TABLESPACE <Tablespace_Name>
ENABLE ROW MOVEMENT
PARTITION BY RANGE (INIT_MSRMT_DATA_ID)
(PARTITION PART1 values less than (12499999999999),
PARTITION PART2 values less than (24999999999999),
PARTITION PART3 values less than (37499999999999),
PARTITION PART4 values less than (49999999999999),
PARTITION PART5 values less than (62499999999999),
PARTITION PART6 values less than (74499999999999),
PARTITION PART7 values less than (87499999999999),
PARTITION PART8 values less than (maxvalue)) ;

CREATE UNIQUE INDEX D1T307P0 ON D1_INIT_MSRMT_DATA_LOG_PARM
(INIT_MSRMT_DATA_ID, SEQNO, PARM_SEQ) TABLESPACE <Tablespace_Name>
LOCAL COMPRESS 1;

ALTER TABLE D1_INIT_MSRMT_DATA_LOG_PARM ADD CONSTRAINT D1T307P0
PRIMARY KEY (INIT_MSRMT_DATA_ID, SEQNO, PARM_SEQ) USING INDEX
TABLESPACE <Tablespace_Name>;

```



# Appendix D

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  8. commons-cli-1.1.jar
  9. commons-codec-1.4.jar
  10. commons-collections-3.1.jar
  11. commons-fileupload-1.2.1.jar
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  13. commons-io-1.3.2.jar
  14. commons-lang-2.2.jar
  15. ehcache-1.2.3.jar
  16. log4j-1.2.15.jar
  17. qdox.1.6.1.jar
  18. serializer-2.7.1.jar
  19. stax2.jar
  20. velocity.1.4.jar
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