

Oracle Utilities Business Intelligence

Database Administrator's Guide

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Preface

This guide provides instructions for installing and maintaining the database for Oracle Utilities Business Intelligence.

This preface contains these topics:

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

Audience

Oracle Utilities Business Intelligence Database Administrator's Guide is intended for database administrators who will be installing and maintaining the database for the Oracle Utilities Business Intelligence product.

Related Documents

For more information, see the following Oracle documentation:

- *Oracle Utilities Advanced Spatial and Operational Analytics Quick Install Guide*
- *Oracle Utilities Business Intelligence Installation Guide*

Additional related documentation is online at:

- <http://www.oracle.com/technology/documentation/warehouse.html>
- <http://www.oracle.com/technology/documentation/oem.html>
- <http://www.oracle.com/technology/documentation>

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 the 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 Business Intelligence database, including:

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

Supported Database Platforms

This section defines the platforms on which Oracle Utilities Business Intelligence is verified to operate.

Supported Platforms Summary Table

Oracle Utilities Business Intelligence is certified on the following platforms:

Platform	Database Version
AIX 6.1 TL4 (POWER 64-bit)	Oracle Database Server 11.2.0.2 (64-bit)
Oracle Linux 5.6 (64-bit) x86_64 (64-bit)	Oracle Database Server 11.2.0.2 (64-bit)
Red Hat Enterprise Linux 5.5 (64-bit) x86_64 (64-bit)	Oracle Database Server 11.2.0.2 (64-bit)
Sun Solaris 10 (SPARC 64-bit)	Oracle Database Server 11.2.0.2 (64-bit)
Windows Server 2008 Enterprise Edition SP2 (x86_32 32-bit)	Oracle Database Server 11.2.0.2 (32-bit)

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 Business Intelligence has been tested with.

If it is necessary to apply an upgrade, please do that in a test environment prior to updating the Oracle Utilities Business Intelligence production environment.

The only exception from this rule is Hibernate software. For this the exact version mentioned in this guide must be installed. Please always check with Oracle Utilities Business Intelligence support prior to installing Hibernate updates.

Always contact Oracle Utilities Business Intelligence 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 Business Intelligence database, including:

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

Installation Overview

Note: This installation is for:

- An initial install of Oracle Utilities Business Intelligence v2.4
- The upgrade of Oracle Utilities Business Intelligence v2.3.2.1 to v2.4

The following type of installation is available for Oracle Utilities Business Intelligence:

- **Initial Install** - a database installation
- **Upgrade Install** - a database upgrade.

Note: 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 Business Intelligence 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 Advanced Spatial and Operational Analytics 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 Business Intelligence 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. The default value is 1.

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

Tablespace and parallel information is 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 Business Intelligence.

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

Populating Language Data

Please note that this database contains data in the ENGLISH language only. If you use any other supported language, you must first run the F1-LANG batch program to duplicate the data entries for that language. For more information on running this batch program, refer to the User Documentation, Defining Background Processes.

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

Initial Installation

This section describes the initial installation of the database.

Note: You must have a supported version of the Java Development Kit installed on the Windows 32-bit desktop where you stage and run the database installation package. Refer to the Oracle Utilities Business Intelligence Installation Guide for more information.

Installing Oracle Utilities Application Framework V4.1.0

Install Oracle Utilities Application Framework V4.1.0 prior to Oracle Utilities Business Intelligence 2.4.0. The files for Oracle Utilities Application Framework installation are located in the FW410 folder.

Install base FW V4.1.0 by running the CdxDBI.exe from the Install-Upgrade folder under FW410. The FW4.1.0 installation process prompts you for the following:

- A user that will own the application schema (for example, SPLADM).
- A user that has read-write (select/update/insert/delete) privileges to the objects in the application schema (for example, SPLUSER). The application will access the database as this user.
- A user with read-only privileges to the objects in the application schema (for example, SPLREAD).
- 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, SPL_USER).
- A database role with read-only privileges to the objects in the application schema (for example, SPL_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 these steps:

1. Review and edit the Storage.xml file to set the tablespace names.
2. Run CDXDBI.exe from BI240/SPLADM/FW410/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 Jar files.
 - 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.
 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 until the step executes successfully or you choose to exit from current step.

Installing BI V2.4.0

Follow these steps to install BI V2.4:

1. Review and edit the Storage.xml file to set the tablespace names.
2. Run CDXDBI.exe from BI240/SPLADM/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 Jar files.
 - 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. 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.
4. 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 until the step executes successfully or you choose to exit from current step.

CDXDBI performs the following tasks:

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

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

Post-Install Tasks:

Refer to **Populating Language Data** on page 2-3 if the application is to run in another language other than English.

Database Statistics Generation

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

Upgrade Install

This section describes the upgrade installation of the database.

Upgrading the Application Framework

Install Oracle Utilities Application Framework V4.1.0 prior to upgrading to Oracle Utilities Business Intelligence V2.4.0.

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

1. Upgrade FW 4.1.0 by running the CdxDBI.exe from the Install-Upgrade folder under FW410.
2. Apply any prerequisite Framework DB single fixes. See the *Oracle Utilities Business Intelligence Installation Guide* for more details.
3. Once the target database is successfully upgraded to FW V4.1.0, proceed with BI V2.4.0 upgrade.
4. Files for the BI V2.4.0 Install are located in the BIV240\Install-Upgrade folder.

Installing Application Framework Version 4.1.0

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.

The process prompts you for the following:

- A user that will own the application schema (for example, SPLADM).
- 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, SPLUSER).
- A user with read-only privileges to the objects in the application schema (for example, SPLREAD).
- 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, SPL_USER).
- A database role with read-only privileges to the objects in the application schema (for example, SPL_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).

Perform the following steps:

1. Review and edit the Storage.xml file to set the tablespace names.
2. Run CDXDBI.exe from BI240/SPLADM/FW410/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
 - TUGBU Jar files 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. 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.
 4. 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 until the step executes successfully or you choose to exit from current step.

Installing BI V2.4.0

Perform the following steps:

1. Review and edit the Storage.xml file to set the tablespace names.
2. Run CDXDBI.exe from BI240/SPLADM/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 Jar files.
 - 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.

CDXDBI performs the following tasks:

1. Interacts with the user to collect information about the name of Oracle account that will own the application schema (for example, SPLADM), 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, SPLUSER), and the name of the Oracle account that will be assigned read-only privileges to the application schema (for example, SPLREAD).
2. Connects to the database as SYSTEM account, checks whether the user already has the application schema installed to verify whether this is an initial installation.
3. Verifies whether the upgrade path from the current release ID to the target release ID is supported by the upgrade.
4. Verifies whether tablespace names already exist in Storage.xml file (if not, the process will abort).
5. Installs the schema, installs the system data, and configures security.
6. Maintains upgrade log tables in the database.
7. Updates release ID when the upgrade is completed successfully.
8. If an error occurs while executing a SQL script or another utility, it logs and displays the error message and allows you to re-execute the current step. Log files CDXDBI###.log are

created in the same folder as CDXDBI and contains all the SQL commands executed against the database along with the results. The log files are incremental so that the results are never overwritten. If warning messages are generated during the upgrade, CDXDBI prompts the user at the end of the process. Users should check the log files to verify the warning messages. Warning messages are only alerts and do not necessarily mean a problem exists.

9. Stores the Schema owner and password in the feature configuration table. The password is stored in encrypted format.
10. Configures security for the SPLADM schema objects.

Post-Install

Refer to the **Populating Language Data** on page 2-3 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 Business Intelligence user documentation. Please refer to this documentation before executing the environment registration utility EnvSetup.exe included in the post-install folder.

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

Database Implementation Guidelines

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

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

Note: Refer to My Oracle Support for more information.

Configuration Guidelines

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

Index

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

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

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

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

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

Table Partitioning Recommendations

Oracle Utilities has the following recommendation for partitioning tables.

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

Transparent Data Encryption Recommendations

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

Please consider the following when implementing TDE:

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

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

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

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

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

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

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

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

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

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

Data Compression Recommendations

Oracle Utilities supports Advanced Data Compression. 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 any 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 4-4 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

Oracle Database Implementation Guidelines

This section provides guidelines for implementing the Oracle database.

Oracle Partitioning

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

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

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

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

Appendix A

Upgrades to the Oracle Utilities Application Framework Database

This document describes the database upgrade process for the Oracle Utilities Application Framework database from V4.0.2 to V4.1.0. It highlights changes made to the administrative tables and how those changes should be applied to the data in order for a V4.0.2 database to work with the V4.1.0 application, and to preserve the business logic implemented in the previous version of the application. The changes that do not require data upgrade are not described in this document. The tasks that need to be performed after running the upgrade scripts are included.

The added functionality of V4.1.0 is not the scope of this documentation. The upgrade scripts do not turn on the newly added functionality by default. For new functionality, refer the V4.1.0 User Guides. In the last section of this document you will find a list of the new tables that are added in V4.1.0.

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.

Search For Old Style Entities

Searches for old style entities design introduces new search zones and updates existing FK references with the new zone searches. As Zone Code is a Ctable column on CI_FK_REF Table so an upgrade script is used to update the new search zone code for the existing FKs where Zone code is not yet populated.

Table Classification Flags

Two new Fields are added to CI_MD_TBL to make explicit Classification of Tables. First is table classification flag (TBL_CLASSIFICATION_FLG) and the second is table volume flag (TBL_VOLUME_FLG). The valid values for Table Classification flag are Admin System Table (F1AS), Admin Non System Table (F1AN), Master Table (F1MT), Transaction Table (F1TT) and Unclassified (F1UC). The valid values for Table Volume flag (which can be modified by the customer) are Low Volume (F1LV), Medium Volume (F1MV), High Volume (F1HV) and Unclassified (F1UC). The UI and the Metadata for these columns are under development and would be release as a part of BUG- 10309972. As a part of the upgrade script the Initial values would be populated in these columns

Schema Change

New Tables

The following new tables are added to Oracle Utilities Application Framework V4.1.0.

Tables	Description
F1_ATTACHMENT	Attachment
F1_ATTACHMENT_CHAR	Attachment Characteristics
F1_SYNC_REQ_IN	Inbound Sync Request
F1_SYNC_REQ_IN_CHAR	Inbound Sync Request Characteristic
F1_SYNC_REQ_IN_EXCP	Inbound Sync Request Exception
F1_SYNC_REQ_IN_EXCP_PARM	Inbound Sync Request Exception Parameters
F1_SYNC_REQ_IN_K	Inbound Sync Request Key Table
F1_SYNC_REQ_IN_LOG	Inbound Sync Request Log
F1_SYNC_REQ_IN_LOG_PARM	Inbound Sync Request Log Parameter
F1_SYNC_REQ_IN_REL_OBJ	Inbound Sync Request Related Object
F1_WEB_SVC	Web Service Adapter
F1_WEB_SVC_CHAR	Web Service Adapter Characteristics

Tables	Description
F1_WEB_SVC_GTT	Web Services Global Temporary Table
F1_WEB_SVC_L	Web Service Adapter Language
F1_WEB_SVC_LOG	Web Service Adapter Log
F1_WEB_SVC_LOG_PARM	Web Service Adapter Log Parameter
F1_WEB_SVC_OPERATIONS	Web Service Adapter Operations

Dropped Tables

The following tables are dropped in this release.

- CI_XAI_SVC_VERS
- CI_XAI_SVC_VERS_L

Unsupported Tables

The following tables would be deprecated in a future release.

- CI_MD_LOOKUP

Added Columns

The following Table Columns are added to Oracle Utilities Application Framework V4.1.0.

None

Dropped Columns

The following columns are dropped in this release.

- CI_XAI_IN_SVC: XAI_VERSION_ID column.
- CI_XAI_JDBC_CON: DATABASE_NAME column.

Unsupported Table Columns

These columns will be deprecated in a future release.

None

Column Format Change

None

Metadata Changes in FW for Successful Upgrade

The Following Metadata is changed in FW40 for a successful Upgrade.

Metadata Description	Action Items for Products
CACHE_FLG and KEY_VALIDATION_FLG in CI_MD_TBL and F1_BATCH_CTGY_FLG in CI_BATCH_CTRL Table are Cmable and require Initial data to be populate.	Refer to the upgrade script and add similar to that for your product - // Release_Services/DBA/4.1.0/FW/ Upgrade/Oracle/Install-Upgrade/ FW410_apData25.sql.

The INIT.inp file for the language pack needs to be updated based on the latest System Data upgrade Input file of the edge product.

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 V4.1.0.

Algorithm Type	Description
F1-ACTIVEWS	Web Service - Verify Active Operations
F1-COMPSNAPS	Compare Initial and Final Snapshots
F1-GCHG-CDCP	Generic Change Data Capture
F1-SYNC-INFO	Sync Information
F1-SYNRCLREX	Clear Exceptions on Sync Request
F1-TDCREATE	Generic To Do Entry Creation
F1-TODOCOMPL	Generic To Do Completion
F1-TODORETRY	Retry for To Dos
F1-WAITRELSR	Wait For Related Sync To Complete

Algorithm

The following Algorithms are Framework Owned system data in V4.1.0.

Algorithm	Description
F1-ACTIVEWS	Web Service - Verify Active Operations
F1-COMPSNAPS	Compare Initial and Final Snapshots
F1-GCHG-CDCP	Generic Change Data Capture

Algorithm	Description
F1-SYNC-INFO	Sync Information
F1-SYNRCLREX	Clear Exceptions on Sync Request
F1-TODOCOMPL	Generic To Do Completion
F1-TRN-DF-NS	Generic Business Object Status Monitor
F1-WAITRELSR	Wait For Related Sync To Complete

Application Service

The following Application Services are new to V4.1.0.

Application Service	Description
F1-SYNCREQ	Sync Request MO
F1-SYNCREQIN	Inbound Sync Request MO
F1-SYNCREQUESTBOAS	Sync Request BO
F1-WEBSVCBOAS	Web Service Adapter BO
F1STRDIS	Status Reason Display Portal
F1SYNCRM	Sync Request Portal
F1SYNCRQ	Sync Request Query Portal
F1WBSVCM	Web Service Adapter
F1WBSVCS	Web Service Adapter Query Portal
F1WEBSVC	Web Service
F1_BTST	Batch Run Statistics Portal
F1-DECRPTBOAS	Decision Report BO
F1ATTACHMENT	Attachment
F1_USRSCR	Favorite Scripts Zone

Batch Control

The following Batch Controls are new to V4.1.0.

Batch Control	Description
F1-FLUSH	Flush All Caches
F1-IDCSV	User Extract for Identity Manager(CSV)
F1-SAKRQ	Sync Request Allocate Keys Monitor

Batch Control	Description
F1-SRLRQ	Sync Request Load Records Monitor
F1-SYNRQ	Sync Request Monitor Process
F1-SYSRQ	Sync Request Sampling Monitor (Deferred)

Business Object

The following Business Objects are Framework Owned system data in V4.1.0.

Business Object	Description
F1-BatchRunStatistics	Batch Run Statistics Snapshot
F1-DecRpt	Decision Report
F1-IDMUser	User Object for OIM
F1-MOREvisionControl	MO - Enable/Disable Revision Control
F1-OpaWebSvc	Rulebase Web Service Adapter
F1-OutcomeStyleLookup	Outcome Style
F1-SyncCfgBO	Master Data Synchronization Configuration
F1-SyncRequest	Sync Request
F1-WebSvc	Web Service Adapter

FK Reference

The following FK References are new to V4.1.0.

FK Reference	Description
C1-BOMO	Business Objects for MO
F1-BTCCT	Batch Control w/ context menu
F1-CHARV	Characteristic Value
F1-ESSRC	External System with Search Zone
F1-FKSRC	Foreign Key Reference with Search Zone
F1-MOSRC	MO with Search Zone
F1-STRDS	Status Reason Display
F1-SYNRQ	Sync Request
F1-TBSRC	Table with Search Zone

FK Reference	Description
F1-WBSVC	Web Service Adapter
F1MP-BO	Business Service
F1OM-BO	BO Option - Outbound Message Type
F1PD-BO	BO Option - Request Preview Script
F1PV-BO	BO Option - Request Preview Map
F1SB-MO	MO Option - Sync Request BO

Lookups

The following Lookups are added to Oracle Utilities Application Framework V4.1.0.

Lookup Field Name	Field Value	Language	Description
ACCESS_MODE	F1AA	ENG	Awaiting Acknowledgement
ACCESS_MODE	F1DC	ENG	Discarded
ACCESS_MODE	F1DS	ENG	Determine If Sync Needed
ACCESS_MODE	F1ER	ENG	Sync Error
ACCESS_MODE	F1SR	ENG	Send Request
ACCESS_MODE	F1SY	ENG	Synchronized
BO_ACTION_FLG	RWOV	ENG	ReadwithoutVersion
BO_OPT_FLG	F1MR	ENG	ToDoMaximumRetries
BO_OPT_FLG	F1RF	ENG	ToDoRetryFrequency
BO_TR_COND_FLG	F1CN	ENG	Cancel
BUS_OBJ_OPT_FLG	F121	ENG	Framework Version 2.1 Compatibility Mode
BUS_OBJ_OPT_FLG	F1EX	ENG	ExternalSystem
BUS_OBJ_OPT_FLG	F1MP	ENG	WSDL Mapping Business Service
BUS_OBJ_OPT_FLG	F1OM	ENG	Outbound Message Type
BUS_OBJ_OPT_FLG	F1OS	ENG	Oracle Web Determinations Server Location
BUS_OBJ_OPT_FLG	F1RB	ENG	Oracle Policy Automation Rulebase Location

LookUp Field Name	Field Value	Language	Description
BUS_OBJ_OPT_FLG	F1SR	ENG	Status Reason Business Object
BUS_OBJ_OPT_FLG	F1WT	ENG	WebService Type
CHAR_ENTITY_FLG	F1AT	ENG	Attachment
CHAR_ENTITY_FLG	F1SE	ENG	Sync Request Inbound Exception
CHAR_ENTITY_FLG	F1SG	ENG	Sync Request Inbound Log
CHAR_ENTITY_FLG	F1SI	ENG	SyncRequestInbound
CHAR_ENTITY_FLG	F1SR	ENG	Sync Request Log
CHAR_ENTITY_FLG	F1SY	ENG	Sync Request
CHAR_ENTITY_FLG	F1WL	ENG	WebService Log
CHAR_ENTITY_FLG	F1WS	ENG	Web Service
F1_COMPOSITE_SYNC_FLG	F1CS	ENG	Composite Sync Request
F1_COMPOSITE_SYNC_FLG	F1CS	ENG	Single Sync Request
F1_DATA_SYNC_FLG	F1CM	ENG	Conversion Mode
F1_DATA_SYNC_FLG	F1EA	ENG	Execute Validation Algorithm
F1_DATA_SYNC_FLG	F1RK	ENG	Resolve Keys
F1_DATA_SYNC_FLG	F1VS	ENG	Validate Schema
F1_FORCE_SYNC_FLG	F1FS	ENG	ForceSynchronization
F1_INITIAL_LOAD_SYNC_FLG	F1IC	ENG	Incremental Synchronization
F1_INITIAL_LOAD_SYNC_FLG	F1IL	ENG	Initial Load Synchronization
F1_STATE_CONDITION_FLG	F1AA	ENG	Awaiting Acknowledgement
F1_STATE_CONDITION_FLG	F1CN	ENG	Cancel
F1_STATE_CONDITION_FLG	F1DC	ENG	Discarded
F1_STATE_CONDITION_FLG	F1DS	ENG	Determine If Sync Needed
F1_STATE_CONDITION_FLG	F1ER	ENG	Error

Lookup Field Name	Field Value	Language	Description
F1_STATE_CONDITION_FLG	F1PE	ENG	Pending
F1_STATE_CONDITION_FLG	F1RS	ENG	Request Sent
F1_STATE_CONDITION_FLG	F1SY	ENG	Synchronized
F1_SYNC_REQUIRED_FLG	F1NQ	ENG	Synchronization not required
F1_SYNC_REQUIRED_FLG	F1RQ	ENG	Synchronization required
F1_SYNC_REQ_DISCARD_RSN_FLG	F1NC	ENG	No changes detected
F1_SYNC_REQ_DISCARD_RSN_FLG	F1NS	ENG	SP not linked to active service
F1_SYNC_REQ_DISCARD_RSN_FLG	F1SA	ENG	Synchronization not required for SA Type
F1_SYNC_REQ_DISCARD_RSN_FLG	F1SP	ENG	Synchronization not required for SP Type
LOG_ENTRY_TYPE_FLG	F1TD	ENG	To Do
MAINT_OBJ_OPT_FLG	F1SB	ENG	Sync Request BO
OPERATION_ACTIVE_FLG	F1AC	ENG	Active
OPERATION_ACTIVE_FLG	F1IA	ENG	Inactive
SCR_ENGINE_VER_FLG	F11C	ENG	Framework Version 2.1 Compatibility Mode
WEBSVC_STATUS_FLG	F1FL	ENG	Active
WEBSVC_STATUS_FLG	F1IN	ENG	Pending
WEB_SVC_SECURITY_TYPE_FLG	F1HB	ENG	HTTP Basic
WEB_SVC_SECURITY_TYPE_FLG	F1NO	ENG	None
WEB_SVC_SECURITY_TYPE_FLG	F1WS	ENG	WS-Security
ZONE_HPRM_USG_FLG	ZTOR	ENG	Zone Type - Override Allowed

Maintenance Object

The following Maintenance Objects are new to V4.1.0.

MO code	Description
F1-ATCHMT	Attachment
F1-SYNC REQ	Sync Request
F1-SYNCREQIN	Inbound Sync Request
F1-WEBSVC	Web Service Adapter

Script

The following Scripts are Framework-owned system data in V4.1.0.

Script	Description
F1-ACTIVEWS	Web Service Adapter - Verify Active Operations
F1-BRGetStat	Retrieve batch run statistics from the fact holding the batch run's stats
F1-BRStatGra	Update and retrieve batch run statistics
F1-CompSnaps	Compare Initial and Final Snapshots
F1-GenDss	Retrieve Business Object, Display Map and Script
F1-GenWsOpDA	Web Service Adapter Operation - Generate Mapping Data Areas
F1-GetBRStat	Get Batch Run Statistics
F1-GetThdSta	Get Thread Statistics
F1-GnChgDCap	Generic Change Data Capture
F1-GncActnDZ	Generic Action Derivation
F1-GncDsMpDZ	Generic Display Map Derivation
F1-MORevCPos	Enable MO Revision Control - Post-processing
F1-MORevCPre	Enable MO Revision Control - Pre-processing
F1-MORevCtl	Enable/Disable MO Revision Control
F1-MainSynRq	Sync Request - Maintain
F1-SReqQryV	Validate Sync Request Query filters
F1-StRsnDspD	Status Reason Display Derivation Script
F1-SynRClrEx	Sync Request - Clear Exception Info

Script	Description
F1-SyncInfo	Sync Request - Information
F1-SyncRActn	SyncRequest - Retrieve Action Details
F1-SyncRqLog	Sync Request - Add User Log Entry
F1-ViewWSDL	WSDL Source Viewer
F1-WaitRelSR	Wait For Related Sync To Complete
F1-WbSvcLgAd	Web Service - Add User Log Entry
F1-WbSvcMain	Web Service Adapter - Maintain
F1-WebSvcDtl	Web Service Adapter - Retrieve Details for Display

To do Type

The following To Do type is new to V4.1.0.

To Do Type	Description
F1-SYNRQ	Sync Request Error

Portal

The following Portal is new to V4.1.0.

Portal	Description
F1STRDIS	Status Reason Display
F1SYNCRL	Sync Request Log
F1SYNCRM	Sync Request
F1SYNCRQ	Sync Request Query
F1WBSVCL	Web Service Log
F1WBSVCM	Web Service Adapter
F1WBSVCS	Web Service Query
F1_BTST	Batch Run Statistics

Portal Zone

The following Portal Zones are added to V4.1.0

Portal	Zone
F1STRDIS	F1-STRDS

Portal	Zone
F1SYNCRL	F1-SYNCRQSTL
F1SYNCRM	F1-SYNCRQSTA
F1SYNCRM	F1-SYNCRQSTD
F1SYNCRQ	F1-SYNREQQRY
F1WBSVCL	F1-WBSVCLOG
F1WBSVCM	F1-WBSVCDISP
F1WBSVCS	F1-WBSVCQ
F1_BTST	F1-BATCHCTL
F1_BTST	F1-BATCHRUN
F1_BTST	F1-BRSTATGRA

UI Map

The following UI Maps are Framework Owned system data in V4.1.0.

Map	Description
F1-AddSyncRequestLog	Sync Request - Add User Log Entry
F1-BatchRunStatisticsGraph	Batch Run Statistics
F1-CharAddDeleteButton	Characteristics Add/Delete Button
F1-CharValueDisplay	Characteristic Value Display
F1-CharValueMaint	Characteristic Value Maintenance
F1-CharacteristicTypeInfo	Characteristic Type Information
F1-DisplayRecordActionHeader	Record Actions Header
F1-DisplayRecordActions	Record Actions HTML Fragment
F1-EnableMOREvisionControlMap	Enable MO Revision Control UI Map
F1-ExtLookupLeftColumnDisplay	Extendable Lookup Left Column - Display
F1-ExtLookupRightColumnDisplay	Extendable Lookup Right Column - Display
F1-ExtendedLookupCommonMaint	Extendable Lookup Common - Maintenance
F1-GenDA	Generate Mapping Data Areas
F1-MessageQueryFilter	Message Query Filter
F1-OkCancelButton	Submit Ok or Cancel buttons
F1-OutcomeStyleLookupDisplay	Outcome Style - Display

Map	Description
F1-OutcomeStyleLookupMaint	Outcome Style - Maintenance
F1-RecordInfo	Record Information Fragment
F1-RecordInfoHeader	Record Information Header Fragment
F1-SaveCancelButtons	Save and Cancel Buttons
F1-StatusReasonDisplay	Status Reason - Display
F1-SyncCfgBOMaint	Master Data Synchronization Configuration
F1-SyncReqCancelReasonInput	Sync Request - Enter Cancel Reason
F1-SyncRequestActions	Sync Request - Actions
F1-WSDLViewer	WSDL Source Viewer
F1-WbSvcSearchFilter	Web Service Adapter - Query Filters
F1-WebSvcDisplay	Web Service Adapter - Display
F1-WebSvcLogAdd	Web Service Adapter - Add User Log Entry
F1-WebSvcMain	Web Service Adapter - Maintenance

XAI Inbound Service

The following XAI Inbound Service is new to V4.1.0.

XAI Inbound Service name	Description
F1-UpdateAndTransitionSyncRequest	Update and Transition Master Data Sync Request

Zone

The following new Zones are added to V4.1.0.

Zone	Zone Type	Description
F1-ALGSQ1	F1-DE-QUERY	Algorithm Code/ Description
F1-ALGSRCH	F1-DE-MULQRY	Algorithm Search
F1-APSVCSRCH	F1-DE-QUERY	Application Service Search
F1-BATCHCTL	F1-DE-QUERY	Batch Control Query
F1-BATCHRUN	F1-DE-SINGLE	Batch Runs (Last 20)
F1-BATCHRUNS	F1-DE-SINGLE	Thread Statistics
F1-BATCHSTAT	F1-DE-SINGLE	Batch Run Statistics

Zone	Zone Type	Description
F1-BOMOSRCH	F1-DE-QUERY	Business Object Search for Add
F1-BRFACT	F1-DE-SINGLE	Get Fact Id for a Batch Run's Statistics
F1-BRSTATGRA	F1-MAPEXPL	Batch Run, RPS Graph, and Thread Statistics
F1-CHVAL	F1-DE-QUERY	Predefined Characteristic Value/Description
F1-DBBATSTAT	F1-DE-SINGLE	Batch Run Statistics (DB)
F1-ESSRCH	F1-DE-QUERY	External System Search
F1-FKSRC	F1-DE-QUERY	Foreign Key Search
F1-FLDSRCH	F1-DE-MULQRY	Field Search
F1-FLDSRCHQ1	F1-DE-QUERY	Field Name/ Description
F1-GETINITSR	F1-DE-SINGLE	Get Initial Sync Requests
F1-GETMAXEND	F1-DE-SINGLE	Get Maximum End for the batch run
F1-GETMAXTHR	F1-DE-SINGLE	Get Maximum Thread Number for Batch Run
F1-GETMINSTR	F1-DE-SINGLE	Get Minimum Start for the batch run
F1-GETNONFSR	F1-DE-SINGLE	Get Non-Final Sync Requests
F1-GETTHDEND	F1-DE-SINGLE	Get Thread End
F1-GETTHDSTR	F1-DE-SINGLE	Get Thread Start
F1-MOSRCH	F1-DE-QUERY	Maintenance Object Search
F1-MSGCATSCH	F1-DE-QUERY	Message Category Search
F1-MSGSRCH	F1-DE-MULQRY	Message Search
F1-MSGSRCHQ1	F1-DE-QUERY	Message Category/ Number/ Description
F1-STRDS	F1-MAPDERV	Status Reason Display
F1-SYNCRQSTA	F1-MAPDERV	Actions
F1-SYNCRQSTD	F1-MAPDERV	Sync Request
F1-SYNCRQSTL	F1-DE	Sync Request Log
F1-SYNREQQ3	F1-DE-QUERY	Maintenance Object
F1-SYNREQQRY	F1-DE-MULQRY	Sync Request Search
F1-SYNRQALRT	F1-DE-SINGLE	Retrieve Outstanding Sync Request
F1-TBLSRCH	F1-DE-QUERY	Table Search
F1-USGRSRCH	F1-DE-QUERY	User Group Search
F1-WBSVCDISP	F1-MAPDERV	Web Service Adapter
F1-WBSVCLOG	F1-DE	Web Service Adapter Log

Zone	Zone Type	Description
F1-WBSVCQ	F1-DE-MULQRY	Web Service Adapter Search
F1-WBSVCQ1	F1-DE-QUERY	Web Service Adapter Name/Description/ Status
F1HRBOTREE	F1-DE	BOs Linked To The MO
F1_MOREVCTRL	F1-DE	Get the list of MOs that have physical BOs

Appendix B

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

Display Profile

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

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

Installation Options

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

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

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

Language Code

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

Properties	Description
Tables	CI_LANGUAGE

Properties	Description
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, F1_BUS_OBJ_ALG, F1_BUS_OBJ_OPT, F1_BUS_OBJ_STATUS, F1_BUS_OBJ_STATUS_L, F1_BUS_OBJ_STATUS_ALG, F1_BUS_OBJ_STATUS_OPT, F1_BUS_OBJ_STATUS_RSN, F1_BUS_OBJ_STATUS_RSN_L, F1_BUS_OBJ_STATUS_RSN_CHAR F1_BUS_OBJ_TR_RULE, F1_BUS_OBJ_TR_RULE_L
Standard Data Fields	Business Object (BUS_OBJ_CD)
Customer Modification	Batch Control (BATCH_CD), Alert (BO_ALERT_FLG), Sequence (SORT_SEQ5), Status Reason (STATUS_REASON_FLG) fields on Busi- ness Object Status Table (F1_BUS_OBJ_STATUS). Instance Con- trol (INSTANCE_CTRL_FLG), Applica- tion Service (APP_SVC_ID) on Business Object Table (F1_BUS_OBJ). Status Rea- son Selection (STATUS_REASON_SELECT_FLG) on Status Reason Table (F1_BUS_OBJ_STATUS_RSN)

Business Service

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

Characteristics

Properties	Description
Tables	CI_CHAR_TYPE, CI_CHAR_TYPE_L, CI_CHAR_ENTITY, CI_CHAR_VAL, CI_CHAR_VAL_L
Standard Data Fields	Characteristic Type (CHAR_TYPE_CD)

Properties	Description
Customer Modification	Adhoc Characteristic Value Validation Rule (ADHOC_VAL_ALG_CD) on Characteristic Entity Table (CI_CHAR_ENTITY)

Data Area

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

Display Icon

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

Foreign Key Reference

Properties	Description
Tables	CI_FK_REF, CI_FK_REF_L
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, CI_LOOKUP_VAL, CI_LOOKUP_VAL_L, F1_EXT_LOOKUP_VAL, F1_EXT_LOOKUP_VAL_L

Properties	Description
Standard Data Fields	<p>Field Name (FIELD_NAME)</p> <ul style="list-style-type: none"> A lookup field name must have corresponding field metadata. The name of the lookup field column must be assigned to avoid conflicts among different products. If you follow the standards for database field names, a Customer Modification lookup field name will be automatically Customer Modification prefixed. <p>Field Value (FIELD_VALUE)</p> <ul style="list-style-type: none"> If a lookup field is customizable, Customer Modification can insert new lookup values. X or Y must prefix when implementers introduce a new lookup value. Product development can extend the Oracle Utilities Application Framework owned lookup field's value with caution. When it needs to be extended, prefix the first letter of the Owner Flag to the value. For example, when adding a new value to the algorithm entity flag (ALG_ENTITY_FLG), prefix with C1 if you are developing an Oracle Utilities Customer Care and Billing product. <p>Introduced in V 4.0.1: Value (F1_EXT_LOOKUP_VALUE)</p> <ul style="list-style-type: none"> This will allow storing longer value keys rather than the normal 4byte lookup values.
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, F1_MANAG_CONTENT_L
Standard Data Fields	Managed Content (MANAG_CONTENT_CD)
Customer Modification	None

Messages

Properties	Description
Tables	CI_MSG_CATEGORY, CI_MSG_CATEGORY_L, CI_MSG, CI_MSG_L

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

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

Meta Data - Table and Field

Properties	Description
Tables	CI_MD_TBL, CI_MD_TBL_FLD, CI_MD_TBL_L, CI_MD_TBL_FLD_L, CI_MD_FLD, CI_MD_FLD_L, F1_DB_OBJECTS_REPO
Standard Data Fields	<p>Table Name (TBL_NAME)</p> <ul style="list-style-type: none"> Table names must match with the physical table name or view name in the database. Field Name (FLD_NAME) Field name must match with the physical column name in the database unless the field is a work field. Field name does not have to follow the prefixing standard unless the field is a work field or customer modification field. F1_DB_OBJECTS_REPO Table stores information about Indexes, Sequences, Triggers and other database objects excluding Tables and Fields (as they are already stored in the other Metadata tables)
Customer Modification	<p>Audit Switches (AUDIT_INSERT_SW, AUDIT_UPDATE_SW, AUDIT_DELETE_SW), Override label (OVRD_LABEL) on MD Table Field Table (CI_MD_TBL_FLD). Audit Program Name (AUDIT_PGM_NAME), Audit Table Name (AUDIT_TBL_NAME), Audit Program Type (AUDIT_PGM_TYPE_FLG), Key Validation (KEY_VALIDATION_FLG) and Caching strategy (CACHE_FLG) on MD Table (CI_MD_TBL). Override Label (OVRD_LABEL) and Customer Specific Description (DESCRLONG_OVRD) on Field Table.</p>

Meta Data - Constraints

Properties	Description
Tables	CI_MD_CONST, CI_MD_CONST_FLD
Standard Data Fields	Constraint Id (CONST_ID) <ul style="list-style-type: none"> Index Name for Primary Constraints <Index Name>Rnn for Foreign Key Constraints Where <ul style="list-style-type: none"> nn: integer, 01 through 99
Customer Modification	None

Meta Data - Menu

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

Properties	Description
Tables	CI_MD_MENU, CI_MD_MENU_L, CI_MD_MENU_ITEM, CI_MD_MENU_ITEM_L, CI_MD_MENU_LINE, CI_MD_MENU_LINE_L
Standard Data Fields	Menu Name (MENU_NAME), Menu Item Id (MENU_ITEM_ID), Menu Line Id (MENU_LINE_ID)
Customer Modification	Override Label (OVRD_LABEL) on Menu Line Language Table (CI_MD_MENU_LINE_L)

Meta Data - Program, Location and Services

Properties	Description
Tables	CI_MD_PRG_COM, CI_MD_PRG_LOC, CI_MD_SVC, CI_MD_SVC_L, CI_MD_SVC_PRG, CI_MD_PRG_REF, CI_MD_PRG_MOD, CI_MD_PRG_EL_AT, CI_MD_PRG_ELEM, CI_MD_PRG_SEC, CI_MD_PRG_SQL, CI_MD_PRG_VAR, CI_MD_PRG_TAB

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_SOCG, CI_MD_SOCG_FLD, CI_MD_SOCG_FLDAT, CI_MD_SOCG_L, CI_MD_SOCG_SORT
Standard Data Fields	Search Object (SO_CD)

Properties	Description
Customer Modification	None

Navigation Option

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

Portal and Zone

Properties	Description
Tables	CI_PORTAL, CI_PORTAL_L, CI_PORTAL_ZONE, CI_ZONE, CI_ZONE_L, CI_ZONE_PRM, CI_ZONE_HDL, CI_ZONE_HDL_L, CI_ZONE_HDL_PRM, CI_ZONE_HDL_PRM_L, CI_UI_ZONE
Standard Data Fields	Portal Code (PORTAL_CD), Zone Code (ZONE_CD), Zone Type Code (ZONE_HDL_CD) <ul style="list-style-type: none"> A new Zone can be added to the Product owned Portal Pages. The existing Zones cannot be removed from the Product owned Portal Pages.
Customer Modification	Sort Sequence (SORT_SEQ) on Context Sensitive Zone Table (CI_UI_ZONE). Show on Portal Preferences (USER_CONFIG_FLG) on Portal Table (CI_PORTAL). Override Sequence (SORT_SEQ_OVRD) on Portal Zone Table (CI_PORTAL_ZONE). Customer Specific Description (DESCRLONG_OVRD) on Zone Language Table (CI_ZONE_L). Override Parameter Value (ZONE_HDL_PARM_OVRD) on Zone Type Parameters Table (CI_ZONE_HDL_PRM). Override Parameter Value (ZONE_PARM_VAL_OVRD) on Zone Parameters Table (CI_ZONE_PRM).

Sequence

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

Schema

Script

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

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

To Do Type

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

XAI configuration

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

The following XAI tables might have system data installed upon the initial installation but a 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, CI_XAI_SVC_PARM
Standard Data Fields	XAI Inbound Service Id (XAI_IN_SVC_ID), XAI Inbound Ser- vice Name (XAI_IN_SVC_NAME)
Customer Modification	XAI Version (XAI_VERSION_ID), Trace (TRACE_SW), Debug (DEBUG_SW), Request XSL (INPUT_XSL), Response XSL (RESPONSE_XSL), Record XSL (RECORD_XSL and Post Error (POST_ERROR_SW) on XAI Inbound Service Table (CI_XAI_IN_SVC)

Oracle Utilities Application Framework Only Tables

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

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

System Table List

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

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

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

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

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

Table Name	Upgrade Action	Description
CI_ALG	MG	Algorithm
CI_ALG_L	MG	Algorithm Language
CI_ALG_PARM	MG	Algorithm Parameters
CI_ALG_TYPE	MG	Algorithm Type
CI_ALG_TYPE_L	MG	Algorithm Type Language
CI_ALG_TYPE_PRM	MG	Algorithm Type Parameter
CI_ALG_TYPE_PRM_L	MG	Algorithm Type Parameter Language
CI_ALG_VER	MG	Algorithm Version
CI_APP_SVC_ACC	MG	Application Service Access Mode
CI_BATCH_CTRL	MG	Batch Control
CI_BATCH_CTRL_ALG	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 G	MG	Business Object Status Algorithm
F1_BUS_OBJ_STATUS_L	MG	Business Object Status Language
F1_BUS_OBJ_STATUS_OP T	MG	Business Object Status Option
F1_BUS_OBJ_STATUS_RS N	MG	Status Reason
F1_BUS_OBJ_STATUS_RS N_CHAR	KP	Status Reason Characteristic
F1_BUS_OBJ_STATUS_RS 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 Language
F1_BUS_SVC	MG	Business Service
F1_BUS_SVC_L	MG	Business Service Language
F1_DATA_AREA	MG	Data Area
F1_DATA_AREA_L	MG	Data Area Language
F1_DB_OBJECTS_REPO	MG	Database Objects Repository
F1_EXT_LOOKUP_VAL	MG	Extendable Lookup
F1_EXT_LOOKUP_VAL_ L	MG	Extendable Lookup Language
F1_INSTALLATION	KP	Installation Option - Framework
F1_MANAG_CONTENT	MG	Managed Content
F1_MANAG_CONTENT_ L	MG	Managed Content Language
F1_MAP	MG	UI Map
F1_MAP_L	MG	UI Map Language
F1_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

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