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Database Administrator's Guide

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Preface

About This Document

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

Intended Audience

This document is intended for the following audience:

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

Organization of the Document

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

Section No.	Section Name	Description
Section 1	Database Overview	Lists the database server supported on each platform. It also lists the dos and don'ts while maintaining a database.
Section 2	Installing Oracle Revenue Management and Billing Version 5.1.0.0.0 Database	Explains how to install the Oracle Revenue Management and Billing database.
Section 3	Database Design	Lists the naming conventions for various database objects. It also lists and describes the column data types and foreign key constraints.
Section 4	Exadata Database Settings	Lists a set of activities that you need to perform if you are using the Oracle Exadata Database machine as the database server.
Section 5	Database Implementation Guidelines	Lists and describes the general guidelines for configuring various objects in the database and implementing Oracle Database.
Appendix A	New Objects in the Oracle Revenue Management and Billing V5.1.0.0.0 Database	Lists the objects that are newly added in the Oracle Revenue Management and Billing V5.1.0.0.0 database.

Section No.	Section Name	Description
Appendix B	Application Services Configured for Default User Group	Lists the application services configured for the default user groups shipped with Oracle Revenue Management and Billing Version 5.1.0.0.0.
Appendix C	Changing the DB User Password	Explains how to change the database user password.
Appendix D	New Objects in the Oracle Utilities Application Framework V4.5.0.0.0 Database	Lists the objects that are newly added in the Oracle Utilities Application Framework V4.5.0.0.0 database.
Appendix E	Oracle Utilities Application Framework System Table Guide	Lists the system tables owned by Oracle Utilities Application Framework V4.5.0.0.0 and explains the standards and guidelines to be followed while updating the data in the system tables.
Appendix F	ORMB V5.1.0.0.0 Rollup Packs	Lists the rollup packs available for Oracle Revenue Management and Billing Version 5.1.0.0.0. It also explains how to apply a rollup pack.
Appendix G	Framework Table Partitioning Scripts	Explains how to create partitioning scripts for the F1_MO_UPD and F1_MO_UPD_BACKLOG tables.
Appendix H	License and Copyright Notices	Lists all notices with reference to usage of third-party products.

Conventions

The following conventions are used across this document:

Convention	Meaning
boldface	Boldface indicates graphical user interface elements associated with an action, or terms defined in the text.
<i>italic</i>	Italic indicates a document or book title.
<code>monospace</code>	Monospace indicates commands within a paragraph, URLs, code in examples, text that appears on the screen or entered in the application.

Acronyms

The following acronyms are used in this document:

Acronym	Meaning
ORMB	Oracle Revenue Management and Billing
RDS	Reliable Datagram Sockets
UAT	User Acceptance Testing
DBCA	Database Configuration Assistant
OUI	Oracle Utilities Application Framework
FW	Framework
TDE	Transparent Data Encryption
ASSM	Automatic Segment Space Management
AMM	Automatic Memory Management
ASMM	Automatic Shared Memory Management
PDB	Pluggable Database
CDB	Container Database
LOB	Large Object
AWR	Automatic Workload Repository
CBO	Cost-Based Optimizer
USD	United States Dollar
NORTHAM	North America
EURO	Europe
CM	Customer Modification
ENG	English
UTC	Coordinated Universal Time
ICU4J	International Components for Unicode
OSDC	Oracle Software Delivery Cloud

Related Documents

You can refer to the following documents for more information:

Document Name	Description
<i>Oracle Revenue Management and Billing Version 5.1.0.0.0 Release Notes</i>	Provides a brief description about the new features, enhancements, and UI level changes introduced in the current release. The new features and enhancements are classified under three distinct heads – Generic (which is intended for both domains), Financial Services, and Health Insurance. It also contains high-level information about the supported platforms, framework upgrade, supported upgrades, and documentation updates. In addition, it contains a list of discontinued features, planned deprecation notices, customer bugs fixed or forward ported and known issues in the current release.
<i>Oracle Revenue Management and Billing Installation Guide</i>	Provides an overview about the application architecture. It contains detailed information about the software and hardware requirements, supported platforms, application server and database space requirements, and application server pre-requisites for supported platforms. It explains the installation and configuration menu options which are available during installation and advanced menu options which are available post installation. It also explains how to configure WebSphere application server and how to install OUAF, OUAF rollup packs, ORMB, and ORMB patches or rollup packs. It contains appendices which lists ORMB rollup packs and notices about third-party JAR and other components.
<i>Oracle Revenue Management and Billing Quick Installation Guide</i>	Provides information about the media packs which are available for the current release. It contains information about the supported platforms, space requirements, and release-specific documentation library. In addition, it contains high-level information on how to install ORMB and selected additional software.

Document Name	Description
<i>Oracle Revenue Management and Billing Server Administration Guide</i>	<p>Provides detailed information about the product architecture, native support, directory structures, environment variables, logs, etc. It explains various concepts related to the batch server and lists and describes the scripts required for installing and configuring ORMB. It explains how to monitor the system and configure Web browser, Web application server, business application server, inbound web services, and batch server. It explains how to provide Oracle Cloud Support and how to integrate and monitor Oracle Scheduler.</p> <p>It contains various appendices which lists and describes the parameters available in the ENVIRON.INI, Web.xml, spl.properties, hibernate.properties, submitbatch.properties, threadpoolworker, coherence-cache.config.xml, and tangosol-coherence-override.xml files.</p>
<i>Oracle Revenue Management and Billing Security Guide</i>	<p>Highlights what's new in security! Describes all the security features available in ORMB for authentication, authorization, user access, database access, LDAP and SSO integration, audit, encryption, web services, and JNDI access. It also describes how to provide support for data masking, Oracle cloud object storage, groovy, HTTP proxy, keystore, truststore, whitelist, federated architecture, and object erasure. In addition, it explains how to garble the customer information.</p>
<i>Oracle Revenue Management and Billing Direct Database Upgrade Guide</i>	<p>Explains how to directly upgrade the ORMB database from 2.5.0.1.0 or any later version to the current release. It also highlights any known issues during direct database upgrade and how to handle these issues in the database.</p>

Change Log

Revision	Last Update	Updated Section	Comments
24.1	24-Apr-2023	Section 2.3.1.12: Post Installation Tasks	Updated Information
		Appendix F: ORMB V5.1.0.0.0 Rollup Packs	Updated Information
24.2	29-May-2023	Section 2.1: Installation Overview	Updated Information
		Section 2.2: Creating the Database	Updated Information
		Section 2.3: Oracle Database Installation	Updated Information

Revision	Last Update	Updated Section	Comments
		Section 2.3.2: Demo Install	Added Section
		Section 2.2.1: Creating Tablespace, Roles, and Users for ORMB Schema	Updated Information
24.3	20-July-2023	Section 5.2.3: Table Partitioning Strategy	Updated Information
		Section 5.2.4: Performance Tuning	Added Section
24.4	18-Sep-2023	Intended Audience	Removed Information
		Section 2.3.1: Initial Install or Installing Version 5.1.0.0.0 for the First Time	Updated Information
		Section 2.3.1.1: Pre-requisites	Added Section
		Section 2.3.1.2: Downloading the OUAF Database Package	Updated Information
		Section 2.3.1.4: Downloading the OUAF Rollup Package	Updated Information
		Section 2.3.1.5: Decompressing the OUAF Rollup Package	Updated Information
		Section 2.3.1.6: Downloading the ORMB Database Package	Updated Information
		Section 2.3.1.7: Decompressing the ORMB Database Package	Updated Information
24.5	22-Jan-2024	Section 4: Exadata Database Settings	Updated Information

Contents

1.	Database Overview	1
1.1	Supported Database Platforms	1
1.1.1	Supported Platforms Summary Table	1
1.1.2	Support for Software Patches and Upgrades	2
1.2	Database Maintenance Rules	3
1.2.1	Permitted Database Changes	3
1.2.2	Non-Permitted Database Changes	3
2.	Installing Oracle Revenue Management and Billing Version 5.1.0.0.0 Database	4
2.1	Installation Overview	4
2.2	Creating the Database	4
2.2.1	Creating Tablespace, Roles, and Users for ORMB Schema	5
2.2.2	Creating Tablespace and User for ORMB ML Schema	8
2.3	Oracle Database Installation	9
2.3.1	Initial Install or Installing Version 5.1.0.0.0 for the First Time	9
2.3.2	Demo Install	26
2.3.3	Populating Language Data	33
3.	Database Design	34
3.1	Database Object Standard	34
3.1.1	Categories of Data	34
3.1.2	Naming Standards	34
3.2	Column Data Type and Constraints	38
3.2.1	User Defined Code	38
3.2.2	System Assigned Identifier	38
3.2.3	Date/Time/Timestamp	38
3.2.4	Number	38
3.2.5	Fixed Length/Variable Length Character Columns	38
3.2.6	Null Column Support	39
3.2.7	XML Type Support	39
3.2.8	Cache and Key Validation Flags	39
3.2.9	Table Classification and Table Volume Flags	39
3.2.10	Default Value Setting	40
3.2.11	Foreign Key Constraints	40
3.3	Standard Columns	40
3.3.1	Owner Flag	40
3.3.2	Version	40
4.	Exadata Database Settings	41
5.	Database Implementation Guidelines	42

5.1	Configuration Guidelines	42
5.1.1	Index.....	42
5.1.2	Table Partitioning Recommendations	43
5.1.3	Temporary and Undo Tablespace	44
5.1.4	Transparent Data Encryption Recommendations.....	44
5.1.5	Data Compression Recommendations.....	44
5.1.6	Database Vault Recommendations.....	45
5.1.7	Information Lifecycle Management (ILM) and Data Archiving Support	45
5.1.8	Storage Recommendations.....	45
5.1.9	Database Configuration Recommendations	46
5.1.10	Database Syntax.....	46
5.1.11	Database Initialization Parameters	47
5.1.12	Shrink Tables	50
5.1.13	Listener.ora Settings	51
5.2	Implementation Guidelines.....	52
5.2.1	Materialized View	52
5.2.2	Increase INITRANS Values	53
5.2.3	Table Partitioning Strategy	55
5.2.4	Performance Tuning.....	62
5.2.5	Performance Monitoring	62
5.2.6	Local Undo Mode in Oracle Database.....	63
5.2.7	Memory Resource Management for PDBs in Oracle Database	63
5.2.8	Global Optimizer Statistics Settings	64
5.2.9	Optimizer Statistics Advisor	66
5.2.10	Using the Segment Advisor	69
Appendix A :	New Objects in the Oracle Revenue Management and Billing V5.1.0.0.0 Database	72
A.1	Schema Changes.....	72
A.1.1	New Tables.....	72
A.1.2	Added Columns.....	72
A.1.3	Dropped Tables.....	74
A.1.4	Dropped Columns	74
A.1.5	Added Views	75
A.1.6	Column Format Change	75
A.2	New System Data	75
A.2.1	Algorithm Types	75
A.2.2	Algorithms.....	75
A.2.3	Business Services	75
A.2.4	Portals	76
A.2.5	Batch Controls.....	76

A.2.6	Foreign Key References.....	76
A.2.7	Scripts.....	77
A.2.8	New Zones in Existing Portals	78
A.2.9	Zones.....	78
A.2.10	UI Maps.....	79
A.2.11	Lookups.....	80
A.2.12	Characteristic Types.....	81
A.2.13	Feature Configurations	81
A.2.14	Zone Types.....	81
A.2.15	Business Objects	81
A.2.16	Maintenance Objects.....	81
A.2.17	To Do Types.....	81
A.2.18	Application Services.....	82
Appendix B :	Application Services Configured for Default User Group.....	83
B.1	ALL_SERVICES	83
B.2	C1_BSERVICES.....	99
B.3	HCADMIN.....	112
B.4	INADMIN.....	123
Appendix C :	Changing the DB User Password	135
Appendix D :	New Objects in the Oracle Utilities Application Framework V4.5.0.0.0 Database.....	136
D.1	Schema Changes.....	136
D.1.1	New Tables.....	136
D.1.2	Added Views	137
D.1.3	Dropped Tables.....	137
D.1.4	Unsupported Tables.....	137
D.1.5	Added Columns.....	137
D.1.6	Dropped Columns	140
D.1.7	Dropped Lookups.....	140
D.1.8	Column Format Change	140
D.2	New System Data	141
D.2.1	Algorithms.....	141
D.2.2	Algorithm Types.....	141
D.2.3	Zones.....	142
D.2.4	Zone Types	143
D.2.5	New Zones in Existing Portals	143
D.2.6	UI Maps.....	144
D.2.7	Maintenance Objects.....	145
D.2.8	To Do Types.....	145
D.2.9	Business Services	145

D.2.10	Portals	146
D.2.11	Business Objects	146
D.2.12	Lookups	147
D.2.13	Foreign Key References.....	148
D.2.14	Batch Controls.....	149
D.2.15	Application Services	149
D.2.16	Characteristic Types.....	150
D.2.17	Scripts.....	150
Appendix E :	Oracle Utilities Application Framework System Table Guide.....	152
E.1	About the Application Framework System Tables	152
E.2	System Table Standards	152
E.3	Guidelines for System Table Updates.....	153
E.3.1	Business Configuration Tables	153
E.3.2	Development and Implementation System Tables.....	155
E.4	System Table List	168
Appendix F :	ORMB V5.1.0.0.0 Rollup Packs	182
F.1	Applying a Rollup Pack.....	182
Appendix G :	Framework Table Partitioning Scripts	183
G.1	F1_MO_UPD_INT_PART	183
G.2	F1_MO_UPD_BACKLOG_INT_PART.....	184
Appendix H :	License and Copyright Notices.....	185
H.1	Third-Party Products.....	186
H.1.1	Notice Concerning Usage of ANTLR and ANTLR4	186
H.1.2	Notice Concerning Usage of Apache Software	186
H.1.3	Notice Concerning Usage of ASM	191
H.1.4	Notice Concerning Usage of Bouncy Castle Crypto API	192
H.1.5	Notice Concerning Usage of CodeMirror.....	192
H.1.6	Notice Concerning Usage of Concurrent	193
H.1.7	Notice Concerning Usage of Cordova Plugin Pin Check.....	193
H.1.8	Notice Concerning Usage of Cordova Plugin Fingerprint aio.....	193
H.1.9	Notice Concerning Usage of Cordova Plugin Secure Keystore	194
H.1.10	Notice Concerning Usage of Cordova Plugin Shared Preferences.....	194
H.1.11	Notice Concerning Usage of DOM4J.....	195
H.1.12	Notice Concerning Usage of FullCalendar	195
H.1.13	Notice Concerning Usage of ICU and ICU4J	196
H.1.14	Notice Concerning Usage of Jaxen.....	203
H.1.15	Notice Concerning Usage of JfreeChart Library	203
H.1.16	Notice Concerning Usage of JQuery (3.5.1)	212
H.1.17	Notice Concerning Usage of JQueryMobile	212

H.1.18 Notice Concerning Usage of JQuery UI	212
H.1.19 Notice Concerning Usage of JSignature	213
H.1.20 Notice Concerning Usage of JSON	213
H.1.21 Notice Concerning Usage of Knockout	214
H.1.22 Notice Concerning Usage of Microsoft .NET.....	214
H.1.23 Notice Concerning Usage of Moment.js	218
H.1.24 Notice Concerning Usage of QR Code.....	218
H.1.25 Notice Concerning Usage of SLF4J	219
H.1.26 Notice Concerning Usage of Staxmate	219
H.1.27 Notice Concerning Usage of Swagger-UI	220
H.1.28 Notice Concerning Usage of XMLPULL.....	225
H.1.29 Notice Concerning Usage of XStream	225
H.1.30 Notice Concerning Usage of natCompare.js.....	226

1. Database Overview

This section provides an overview of the Oracle Revenue Management and Billing database. It includes the following topics:

- [Supported Database Platforms](#)
- [Database Maintenance Rules](#)

1.1 Supported Database Platforms

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

1.1.1 Supported Platforms Summary Table

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

Platform	Database Server
AIX 7.2 TL3+ (64-bit) Note: Version numbers suffixed with "+" are the MINIMUM version supported. That version and all future 4 th digit updates will be supported.	Oracle Database Server 19c
Oracle Linux 8.x (64-bit) Note: Here, x represents the vendor supported version.	Oracle Database Server 19c
Red Hat Enterprise Linux 8.x (64-bit) Note: Oracle Revenue Management and Billing is tested and certified on Oracle Linux 8.x. Oracle Linux is 100% user space-compatible with Red Hat Enterprise Linux, and therefore Oracle Revenue Management and Billing is supported on Red Hat Enterprise Linux.	Oracle Database Server 19c
Microsoft Windows Server 2016+ (64-bit)	Oracle Database Server 19c

Points to Note:

Oracle Corporation distributes Oracle Linux with the following two kernels:

>> **Red Hat Compatible Kernel** – This kernel is identical to the kernel shipped in Red Hat Enterprise Linux.

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

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

The following Oracle Database Server Editions are supported:

- Oracle Database Enterprise Edition

Oracle Database Client 19c is required as a pre-requisite for installing the Oracle Revenue Management and Billing application.

Points to Note:

Oracle Database Enterprise Edition with the **Advanced Compression and Partitioning** options is strongly recommended in all situations.

We strongly recommend you install Oracle Revenue Management and Billing (ORMB) on Microsoft Windows platform only for non-production activities, such as User Acceptance Testing (UAT), development setup, and so on.

1.1.2 Support for Software Patches and Upgrades

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

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

The exceptions from this rule are Hibernate Version 4.1.0 GA and Oracle Database Client 19c. These should not be upgraded.

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

1.2 Database Maintenance Rules

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

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

The installation instructions are outlined in the installation section of this document.

1.2.1 Permitted Database Changes

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

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

1.2.2 Non-Permitted Database Changes

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, removed, or added in anyway.
 - 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.

2. Installing Oracle Revenue Management and Billing Version 5.1.0.0.0 Database

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

- [Installation Overview](#)
- [Creating the Database](#)
- [Oracle Database Installation](#)

2.1 Installation Overview

Refer to the [Supported Database Platforms](#) section for information about the supported platforms on which Oracle Revenue Management and Billing is verified to operate.

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

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

The database installation requires Java Development Kit Version 8.0 and Oracle Database Client 19c 32-bit on the Windows 32-bit or 64-bit desktop where the install package is staged and run.

2.2 Creating the Database

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

To create the database:

1. Create the database using the Database Configuration Assistant (DBCA). Refer to the [Master Note: Overview of Database Configuration Assistant \(DBCA\)](#) (Document ID: 1488770.1) article on [My Oracle Support](#) for more information.
2. Ensure that you set the database character set to AL32UTF8 and national character set (NLS_NCHAR_CHARACTERSET) to AL16UTF16.

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

3. Enable the following mandatory software options:
 - Oracle Spatial OR Oracle Locator
 - Oracle Text
4. Execute the following SQL command to verify whether the above mandatory software options are enabled:
 - ```
SELECT COMP_NAME, STATUS FROM DBA_REGISTRY WHERE COMP_NAME IN ('Spatial','Oracle Text');
```

**Note:** From OUAF V4.4.0.0 onwards, the database users are assigned only the minimum set of privileges required to perform their necessary job functions. This privilege assignment is based on 'Principle of Least Privilege' and is implemented with a view to make the application more secure.

5. Enable the extended data types by setting the `MAX_STRING_SIZE` parameter to `EXTENDED`. For more information, refer to the [Setting the MAX\\_STRING\\_SIZE Parameter to EXTENDED](#) section.

## 2.2.1 Creating Tablespace, Roles, and Users for ORMB Schema

Once you create the database, you need to do the following:

1. Create the default tablespace named `CISTS_01` using the following command:

```
CREATE BIGFILE TABLESPACE CISTS_01 LOGGING DATAFILE
'<db_file_location>/oradata/<DB_NAME>/cists01.dbf' SIZE 5G REUSE
AUTOEXTEND ON EXTENT MANAGEMENT LOCAL AUTOALLOCATE;
```

2. Create the `CIS_ADM`, `CIS_USER`, and `CIS_READ` roles using the following commands:

```
CREATE ROLE CIS_ADM NOT IDENTIFIED;
CREATE ROLE CIS_USER NOT IDENTIFIED;
CREATE ROLE CIS_READ NOT IDENTIFIED;
```

3. Assign the privileges to the `CIS_USER` role using the following command:

```
GRANT CREATE SYNONYM TO CIS_USER;
```

4. Assign the privileges to the `CIS_READ` role using the following command:

```
GRANT CREATE SYNONYM TO CIS_READ;
```

5. Assign the privileges to the `CIS_ADM` role using the following commands:

```
GRANT CREATE TABLE TO CIS_ADM;
GRANT CREATE VIEW TO CIS_ADM;
GRANT CREATE SYNONYM TO CIS_ADM;
GRANT CREATE MATERIALIZED VIEW TO CIS_ADM;
GRANT CREATE SEQUENCE TO CIS_ADM;
GRANT CREATE INDEXTYPE TO CIS_ADM;
GRANT CREATE ROLE TO CIS_ADM;
GRANT CREATE TRIGGER TO CIS_ADM;
GRANT CREATE PROCEDURE TO CIS_ADM;
GRANT CREATE TYPE TO CIS_ADM;
GRANT CREATE ANY SYNONYM TO CIS_ADM;
GRANT DROP ANY SYNONYM TO CIS_ADM;
```

6. Enable the `DBMS_CRYPTO` package by executing the following command as `SYS`:

```
GRANT EXECUTE ON DBMS_CRYPTO TO CISADM;
```

7. Create the `CISADM` user using the following commands:

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

```
ALTER USER CISADM QUOTA UNLIMITED ON CISTS_01;
```

8. Assign the privileges to the CISADM user using the following commands:

```
GRANT CREATE SESSION TO CISADM;
GRANT EXECUTE ON DBMS_UTILITY TO CISADM;
GRANT SELECT_CATALOG_ROLE TO CISADM;
GRANT EXECUTE_CATALOG_ROLE TO CISADM;
GRANT CIS_ADM TO CISADM;
```

9. Assign the scheduler privileges to the CISADM user using the following commands:

```
GRANT EXECUTE, DEBUG ON DBMS_SCHEDULER TO CISADM;
GRANT MANAGE_SCHEDULER TO CISADM;
GRANT CREATE ANY JOB TO CISADM;
BEGIN
DBMS_RULE_ADM.GRANT_SYSTEM_PRIVILEGE(SYS.DBMS_RULE_ADM.ALTER_ANY_
EVALUATION_CONTEXT, 'CISADM');
DBMS_RULE_ADM.GRANT_SYSTEM_PRIVILEGE(SYS.DBMS_RULE_ADM.ALTER_ANY_
RULE, 'CISADM');
DBMS_RULE_ADM.GRANT_SYSTEM_PRIVILEGE(SYS.DBMS_RULE_ADM.ALTER_ANY_
RULE_SET, 'CISADM');
DBMS_RULE_ADM.GRANT_SYSTEM_PRIVILEGE(SYS.DBMS_RULE_ADM.CREATE_ANY_
EVALUATION_CONTEXT, 'CISADM');
DBMS_RULE_ADM.GRANT_SYSTEM_PRIVILEGE(SYS.DBMS_RULE_ADM.CREATE_EVA
LUATION_CONTEXT_OBJ, 'CISADM');
DBMS_RULE_ADM.GRANT_SYSTEM_PRIVILEGE(SYS.DBMS_RULE_ADM.CREATE_ANY_
RULE, 'CISADM');
DBMS_RULE_ADM.GRANT_SYSTEM_PRIVILEGE(SYS.DBMS_RULE_ADM.CREATE_RUL
E_OBJ, 'CISADM');
DBMS_RULE_ADM.GRANT_SYSTEM_PRIVILEGE(SYS.DBMS_RULE_ADM.CREATE_ANY_
RULE_SET, 'CISADM');
DBMS_RULE_ADM.GRANT_SYSTEM_PRIVILEGE(SYS.DBMS_RULE_ADM.CREATE_RUL
E_SET_OBJ, 'CISADM');
DBMS_RULE_ADM.GRANT_SYSTEM_PRIVILEGE(SYS.DBMS_RULE_ADM.DROP_ANY_E
VALUATION_CONTEXT, 'CISADM');

DBMS_RULE_ADM.GRANT_SYSTEM_PRIVILEGE(SYS.DBMS_RULE_ADM.DROP_ANY_R
ULE, 'CISADM');
DBMS_RULE_ADM.GRANT_SYSTEM_PRIVILEGE(SYS.DBMS_RULE_ADM.DROP_ANY_R
ULE_SET, 'CISADM');
DBMS_RULE_ADM.GRANT_SYSTEM_PRIVILEGE(SYS.DBMS_RULE_ADM.EXECUTE_AN
Y_EVALUATION_CONTEXT, 'CISADM');
```

```
DBMS_RULE_ADM.GRANT_SYSTEM_PRIVILEGE (SYS.DBMS_RULE_ADM.EXECUTE_ANY_RULE, 'CISADM');
DBMS_RULE_ADM.GRANT_SYSTEM_PRIVILEGE (SYS.DBMS_RULE_ADM.EXECUTE_ANY_RULE_SET, 'CISADM');
END;
/
```

10. Create the CISUSER user using the following commands:

```
CREATE USER CISUSER PROFILE DEFAULT IDENTIFIED BY CISUSER DEFAULT
TABLESPACE CISTS_01 TEMPORARY TABLESPACE TEMP;
ALTER USER CISUSER QUOTA UNLIMITED ON CISTS_01;
```

11. Assign the privileges to the CISUSER user using the following commands:

```
GRANT CIS_USER to CISUSER;
GRANT CREATE SESSION TO CISUSER;
```

12. Create the CISREAD user using the following commands:

```
CREATE USER CISREAD IDENTIFIED BY CISREAD DEFAULT TABLESPACE
CISTS_01 TEMPORARY TABLESPACE TEMP;
ALTER USER CISREAD QUOTA UNLIMITED ON CISTS_01;
```

13. Assign the privileges to the CISREAD user using the following commands:

```
GRANT CIS_READ to CISREAD;
GRANT CREATE SESSION TO CISREAD;
```

14. Create the CISOPR user using the following command:

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

15. Assign the privileges to the CISOPR user using the following command:

```
GRANT CREATE SESSION,EXP_FULL_DATABASE TO CISOPR;
```

**Note:** Oracle Utilities Application Framework and Oracle Revenue Management and Billing do not use the database edition feature. Hence, the product does not make schema (CISADM) explicitly editionable.

16. Review the `Storage.xml` file in the `TEMPDIR/Install-Upgrade` folder prior to an initial install.

This file allocates all base tables and indexes to the default tablespace (CISTS\_01) and the required users and roles. Information in this file is used by `spl-oradbi-4.5.0.0.0.jar` while installing the Oracle Revenue Management and Billing database objects. Refer to the [Updating Storage.xml](#) section for more information on how to update the `Storage.xml` file.

**Note:** You will need to review the `Storage.xml` file, prior to an initial install, to update the default values to custom values (for example, TableSpace Name). The `spl-oradbi-4.5.0.0.0.jar` can be executed by a non-schema owner to upgrade the database. The Initial Install still needs to be done by the schema owner.

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

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

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

For optimum storage allocation, database administrators should create multiple tablespaces with extents sized to store different types of tables/indexes. They can then edit the `storage.xml` file before install process, to spread tables and indexes across these tablespaces. Tables and indexes can be created in parallel by editing degree of parallelism. Tablespace, storage options, secure file options, Advanced Compression, and parallel information are used only for new objects. Therefore, for initial installs, information for each object should be reviewed. Be careful while editing this file. Make sure that tablespace names being used exist in the database. Do not change the basic format of this file.

**Note:** Prior to the installation of the database schema for the product, ensure that the Database Management System software is installed according to your site standards and the installation guide provided by the database vendor. Also, make sure that you have necessary licenses to use some of the advanced database features, such as Advanced Compression.

## 2.2.2 Creating Tablespace and User for ORMB ML Schema

If you want to implement the Machine Learning feature for ORMB, you need to do the following:

1. Create the tablespace named `CISADM_ML_01` using the following command:

```
CREATE BIGFILE TABLESPACE CISADM_ML_01 DATAFILE
'TABLESPACE_PATH_FOR_CISADM_ML/CISADM_ML_01.dbf' SIZE 5G
AUTOEXTEND ON EXTENT MANAGEMENT LOCAL AUTOALLOCATE
```

2. Create the `CISADM_ML` user and assign privileges using the following commands:

```
CREATE USER CISADM_ML IDENTIFIED BY <PASSWORD> DEFAULT TABLESPACE
CISADM_ML_01 TEMPORARY TABLESPACE TEMP PROFILE DEFAULT;

GRANT CREATE SESSION TO CISADM_ML
GRANT SELECT ANY TABLE TO CISADM_ML
GRANT CREATE ANY TABLE TO CISADM_ML
GRANT CREATE PROCEDURE TO CISADM_ML
GRANT CREATE SEQUENCE TO CISADM_ML
GRANT UNLIMITED TABLESPACE TO CISADM_ML
GRANT CREATE MINING MODEL TO CISADM_ML
GRANT CREATE ANY MINING MODEL TO CISADM_ML
GRANT ALTER ANY MINING MODEL TO CISADM_ML
GRANT DROP ANY MINING MODEL TO CISADM_ML
GRANT SELECT ANY MINING MODEL TO CISADM_ML
GRANT COMMENT ANY MINING MODEL TO CISADM_ML
```

```
GRANT AUDIT ANY TO CISADM_ML
GRANT CREATE VIEW TO CISADM_ML
GRANT CREATE MATERIALIZED VIEW TO CISADM_ML
GRANT CREATE SYNONYM TO CISADM_ML
GRANT CREATE JOB TO CISADM_ML
GRANT CREATE ANY JOB TO CISADM_ML
GRANT MANAGE SCHEDULER to CISADM_ML;
```

## 2.3 Oracle Database Installation

This section describes how to install Oracle Database for Oracle Revenue Management and Billing Version 5.1.0.0.0. It contains the following topics:

- [Initial Install or Installing Version 5.1.0.0.0 for the First Time](#)
- [Demo Install](#)
- [Populating Language Data](#)

**Note:** The installation tools outlined in this guide run on Windows, UNIX, and Linux only. Please refer to the [Supported Database Platforms](#) section for more information on supported platforms.

### 2.3.1 Initial Install or Installing Version 5.1.0.0.0 for the First Time

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

- [Pre-requisites](#)
- [Downloading the OUAF Database Package](#)
- [Decompressing the OUAF Database Package](#)
- [Downloading the OUAF Rollup Package](#)
- [Decompressing the OUAF Rollup Package](#)
- [Downloading the ORMB Database Package](#)
- [Decompressing the ORMB Database Package](#)
- [Creating the Database](#)
- [Setting the MAX\\_STRING\\_SIZE Parameter to EXTENDED](#)
- [Enabling the DBMS\\_CRYPTO Package](#)
- [Installing Oracle Utilities Application Framework](#)
- [Installing Oracle Revenue Management and Billing](#)
- [Post Installation Tasks](#)

**Points to Note:**

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

Before you begin with the installation, ensure that you have Oracle Database Client installed on the Microsoft Windows desktop.

### 2.3.1.1 Pre-requisites

Before installing Oracle Utilities Application Framework Version 4.5.0.0.0, you need to do the following:

- Set the **MAX\_STRING\_SIZE** parameter to **EXTENDED** – For more information, refer to the [Setting the MAX\\_STRING\\_SIZE Parameter to EXTENDED](#) section.
- Assign the **Execute** privilege for the **DBMS\_CRYPTO** package to the **CISADM** user - For more information, refer to the [Enabling the DBMS\\_CRYPTO Package](#) section.
- Set the interval partitioning for the **F1\_MO\_UPD** and **F1\_MO\_UPD\_BACKLOG** tables – For more information, refer to the [Partitioning F1\\_MO\\_UPD and F1\\_MO\\_UPD\\_BACKLOG Tables](#) section.


### 2.3.1.2 Downloading the OUAF Database Package

Oracle Utilities Application Framework 4.5.0.0.0 media pack can be installed on the following supported platforms:

- AIX (64-bit)
- Microsoft Windows (64-bit)
- Linux (64-bit)

The media pack includes the following packages - **Oracle Utilities Application Framework 4.5.0.0.0 - Database Installation Media** and **Oracle Utilities Application Framework 4.5.0.0.0 - Application Installation Media**.

To download the OUAF database package:

1. Login to [Oracle Software Delivery Cloud](#).
2. Select the **Release** option from the **All Categories** list.
3. Type **Oracle Utilities Application Framework** in the corresponding text box.
4. Click **Search**. A list of media packs appears in the search results.
5. Click the **Select** (  ) icon corresponding to the **Oracle Utilities Application Framework 4.5.0.0.0** media pack.
6. If required, you can verify the media pack which is selected by clicking the **View Items** link.
7. Click the **Continue** link. A page appears.
8. Select the required platform from the **Platforms/Languages** list.
9. Click **Continue**. A page appears with the license agreement.
10. Scroll and read the entire license agreement and then click the **I reviewed and accept the Oracle License Agreement** option.
11. Click **Continue**. The **File Download** page appears.



12. Select the **Oracle Utilities Application Framework 4.5.0.0.0 - Database Installation Media** package from the media pack and then click **Download**. An executable file is downloaded on your local machine.
13. Run the executable file. The **Oracle Download Manager** window appears.
14. Browse to the location where you want to download the package and then click **Next**. A zip file is downloaded on your local machine.

### 2.3.1.3 Decompressing the OUAF Database Package


To decompress the OUAF database package:

1. Create a temporary folder named `TEMPDIR` on your local machine.
2. Copy the **Oracle Utilities Application Framework 4.5.0.0.0 - Database Installation Media** package (i.e. downloaded zip file) to the `TEMPDIR` folder.
3. Unzip the downloaded file in the `TEMPDIR` folder. The contents include the following sub-folders:
  - `Install-Upgrade`
  - `jarfiles`

### 2.3.1.4 Downloading the OUAF Rollup Package

The rollup pack for Oracle Utilities Application Framework Version 4.5.0.0.0 is shipped in the **Oracle Financial Services Revenue Management and Billing 5.1.0.0.0** and **Oracle Insurance Revenue Management and Billing 5.1.0.0.0** media packs.

To download the OUAF Rollup package:

1. Login to [Oracle Software Delivery Cloud](#).
2. Select the **Release** option from the **All Categories** list.
3. Type **Oracle Financial Services Revenue Management and Billing** or **Oracle Insurance Revenue Management and Billing** in the corresponding text box.
4. Click **Search**. A list of media packs appears in the search results.
5. Click the **Select** () icon corresponding to the **Oracle Financial Services Revenue Management and Billing 5.1.0.0.0** or **Oracle Insurance Revenue Management and Billing 5.1.0.0.0** media pack.
6. If required, you can verify the media pack which is selected by clicking the **View Items** link.
7. Click the **Continue** link. A page appears.
8. Select the required platform from the **Platforms/Languages** list.
9. Click **Continue**. A page appears with the license agreement.
10. Scroll and read the entire license agreement and then click the **I reviewed and accept the Oracle License Agreement** option.
11. Click **Continue**. The **File Download** page appears.
12. Select the **Oracle Financial Services Revenue Management and Billing 5.1.0.0.0 - Oracle Utilities Application Framework (4.5.0.0.0) Single Fix Prerequisite Rollup** package from the media pack and then click **Download**. An executable file is downloaded on your local machine.
13. Run the executable file. The **Oracle Download Manager** window appears.
14. Browse to the location where you want to download the package and then click **Next**. The package is downloaded on your local machine.

### 2.3.1.5 Decompressing the OUAF Rollup Package

To decompress the OUAF Rollup package:

1. Copy the **Oracle Financial Services Revenue Management and Billing 5.1.0.0.0 - Oracle Utilities Application Framework (4.5.0.0.0) Single Fix Prerequisite Rollup** package (i.e. downloaded zip file) to the `TEMPDIR` folder.
2. Unzip the downloaded file in the `TEMPDIR` folder. The contents include the `ORMB-V51000-FW-PREREQ-MultiPlatform.jar` file.


### 2.3.1.6 Downloading the ORMB Database Package

Oracle Financial Services Revenue Management and Billing 5.1.0.0.0 and Oracle Insurance Revenue Management and Billing 5.1.0.0.0 media packs can be installed on the following supported platforms:

- AIX (64-bit)
- Microsoft Windows (64-bit)
- Linux (64-bit)

The media pack includes multiple packages. For more information, refer to the **Media Pack Contents** section in the *Oracle Revenue Management and Billing Version 5.1.0.0.0 Quick Installation Guide*.

To download the ORMB database package:

1. Login to [Oracle Software Delivery Cloud](#).
2. Select the **Release** option from the **All Categories** list.
3. Type **Oracle Financial Services Revenue Management and Billing** or **Oracle Insurance Revenue Management and Billing** in the corresponding text box.
4. Click **Search**. A list of media packs appears in the search results.
5. Click the **Select** () icon corresponding to the **Oracle Financial Services Revenue Management and Billing 5.1.0.0.0** or **Oracle Insurance Revenue Management and Billing 5.1.0.0.0** media pack.
6. If required, you can verify the media pack which is selected by clicking the **View Items** link.
7. Click the **Continue** link. A page appears.
8. Select the required platform from the **Platforms/Languages** list.
9. Click **Continue**. A page appears with the license agreement.
10. Scroll and read the entire license agreement and then click the **I reviewed and accept the Oracle License Agreement** option.
11. Click **Continue**. The **File Download** page appears.
12. Select the **Oracle Financial Services Revenue Management and Billing 5.1.0.0.0 - Oracle Database** package from the media pack and then click **Download**. An executable file is downloaded on your local machine.
13. Run the executable file. The **Oracle Download Manager** window appears.
14. Browse to the location where you want to download the package and then click **Next**. The package is downloaded on your local machine.

### 2.3.1.7 Decompressing the ORMB Database Package

To decompress the ORMB database package:

1. Copy the **Oracle Financial Services Revenue Management and Billing 5.1.0.0.0 - Oracle Database** package (i.e. downloaded zip file) to the `TEMPDIR` folder.
2. Unzip the downloaded file in the `TEMPDIR` folder. The contents include the following sub-folder:
  - `RMB`

### 2.3.1.8 Creating the Database

#### Points to Note:

You must have Oracle Database Server 19c installed on your machine to create the database.

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

#### Creating the Database on UNIX

Create the database using the Database Configuration Assistant (DBCA). Refer to the [Master Note: Overview of Database Configuration Assistant \(DBCA\) \(Document ID: 1488770.1\)](#) article on [My Oracle Support](#) for more information. Ensure that you set the database character set to `AL32UTF8` and national character set (NLS\_NCHAR\_CHARACTERSET) to `AL16UTF16`.

For more information on how to create the database, refer to the [Creating the Database](#) section.

#### Creating the Database on Windows

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

Create the database using the Database Configuration Assistant (DBCA). Refer to the [Master Note: Overview of Database Configuration Assistant \(DBCA\) \(Document ID: 1488770.1\)](#) article on [My Oracle Support](#) for more information. Ensure that you set the database character set to `AL32UTF8` and national character set (NLS\_NCHAR\_CHARACTERSET) to `AL16UTF16`.

For more information on how to create the database, refer to the [Creating the Database](#) section.

### 2.3.1.9 Setting the MAX\_STRING\_SIZE Parameter to EXTENDED

Some of the Oracle Utilities Application Framework application table VARCHAR2 fields require byte size beyond 4000 bytes to store data for new application requirements. To support this requirement, the Oracle Utilities Application Framework database should use the Extended Data Types feature. You can enable the Extended Data Types feature by setting the `MAX_STRING_SIZE` parameter to `EXTENDED`.

**Note:** This change in your database environment is mandatory. If you do not set the `MAX_STRING_SIZE` parameter to `EXTENDED`, it will lead to errors during the upgrade process.

If you have created a non-container database, you need to perform the following steps to set the `MAX_STRING_SIZE` parameter to `EXTENDED`:

1. Set the `ORACLE_HOME` and `ORACLE_SID` environment variables.

2. Shutdown the target database using the following command:  

```
shutdown immediate
```
3. Start the database in the Upgrade mode using the following command:  

```
startup upgrade
```
4. Set the MAX\_STRING\_SIZE parameter to EXTENDED using the following command:  

```
alter system set max_string_size=extended scope=both;
```
5. Execute the utl32k.sql file using the following command:  

```
@?/rdbms/admin/utl32k.sql;
```
6. Restart the database in the Normal mode using the following commands:  

```
shutdown immediate
startup
```

However, if you have created a container database, you need to perform the following steps to set the MAX\_STRING\_SIZE parameter to EXTENDED:

1. Set the ORACLE\_HOME and ORACLE\_SID environment variables.

**Note:** You need to connect as system administrator while executing the below steps.

2. Set the MAX\_STRING\_SIZE parameter to EXTENDED using the following command:  

```
alter system set max_string_size=extended scope=spfile;
```
3. Start all pluggable databases in the Upgrade mode using the following command:  

```
shutdown immediate
startup upgrade
alter pluggable database all open upgrade;
exit
```
4. Create the utl32k\_cdb\_pdb\_output folder to store the log files using the following command:  

```
mkdir /scratch/mydir/utl32k_cdb_pdb_output
```
5. Execute the utl32k.sql from the catcon.pl file for all pluggable databases using the following command:  

```
cd $ORACLE_HOME/rdbms/admin
$ORACLE_HOME/perl/bin/perl $ORACLE_HOME/rdbms/admin/catcon.pl -u
SYS -d $ORACLE_HOME/rdbms/admin -
l '/scratch/mydir/utl32k_cdb_pdb_output' -b
utl32k_cdb_pdb_output utl32k.sql
```
6. Restart the database in the Normal mode using the following commands:  

```
shutdown immediate
startup
alter pluggable database all open read write;
```

### 2.3.1.10 Enabling the DBMS\_CRYPTO Package

Before installing Oracle Utilities Application Framework Version 4.5.0.0.0, ensure that you provide the execute privilege for the DBMS\_CRYPTO package to the CISADM user. You can assign the required privileges by executing the following command as SYS:

```
GRANT EXECUTE ON DBMS_CRYPTO TO CISADM;
```

### 2.3.1.11 Installing Oracle Utilities Application Framework

You need to install Oracle Utilities Application Framework Version 4.5.0.0.0 prior to Oracle Revenue Management and Billing Version 5.1.0.0.0. The files for Oracle Utilities Application Framework installer are in the `TEMPDIR/Install-Upgrade` folder. The installation process prompts you for the following information:

- The target database name in which the product is to be installed.
- A database user that will own the application schema (for example, `CISADM`).
- A database user that has read-write (select, update, insert, and delete) privileges to the objects in the application schema (for example, `CISUSER`). The application will access the database as this user.
- A database user with read-only privileges to the objects in the application schema (for example, `CISREAD`).
- A database role that has read-write (select, update, insert, and delete) privileges to the objects in the application schema. 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 of the jar files. (The Jar files are bundled with the database package.)
- Java Home (for example, `C:\Java\jdk1.8.0_351`)

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

1. [Oracle Utilities Application Framework Version 4.5.0.0.0](#)
2. [Rollup Pack for Oracle Utilities Application Framework Version 4.5.0.0.0](#)

#### **Installing Oracle Utilities Application Framework Version 4.5.0.0.0**

To install the schema for Oracle Utilities Application Framework Version 4.5.0.0.0, you should have the following:

- Java Development Kit 8.0
- Oracle Database
- Schema such as CISADM should exist in the database
- MAX\_STRING\_SIZE parameter set to EXTENDED

To install Oracle Utilities Application Framework (OUAF) Version 4.5.0.0.0:

1. Set the `JAVA_HOME` environment variable using the following command:

**Windows:**

```
SET JAVA_HOME=<JAVA_HOME_PATH>
```

**AIX, Linux:**

```
export JAVA_HOME=<JAVA_HOME_PATH>
```

**Note:** The <JAVA\_HOME\_PATH> is the location where Java Development Kit Version 8.0 is installed.

2. Set the JAR\_PATH environment variable using the following command:

**AIX, Linux:**

```
export JAR_PATH=TEMPDIR/jarfiles
```

**Points to Note:**

The above command is applicable only for AIX and Linux platforms.

The TEMPDIR folder is the location where you have extracted the contents of the **Oracle Utilities Application Framework 4.5.0.0.0 - Database Installation Media** package.

3. Set the CLASS\_PATH environment variable using the following command:

**Windows:**

```
SET CLASS_PATH=TEMPDIR\jarfiles*
```

**AIX, Linux:**

```
export CLASS_PATH=$JAR_PATH/commons-cli-1.4-c12260c.jar:$JAR_PATH/commons-codec-1.15.jar:$JAR_PATH/commons-collections-3.2.2.jar:$JAR_PATH/jackson-annotations-2.12.2.jar:$JAR_PATH/jackson-core-2.12.2.jar:$JAR_PATH/jackson-databind-2.12.2.jar:$JAR_PATH/log4j-api-2.17.1.jar:$JAR_PATH/log4j-core-2.17.1.jar:$JAR_PATH/ojdbc8-19.3.0.0.0.jar:$JAR_PATH/spl-oradbi-4.5.0.0.0.jar:$JAR_PATH/spl-shared-4.5.0.0.0.jar
```

4. Change to the Install-Upgrade folder using the following command:

**Windows:**

```
cd TEMPDIR\Install-Upgrade
```

**AIX, Linux:**

```
cd TEMPDIR/Install-Upgrade
```

5. Execute the OraDBI (Java) utility using the following command:

**Windows:**

```
%JAVA_HOME%\bin\java -Xmx1500M -cp %CLASS_PATH% com.oracle.ouaf.oem.install.OraDBI -d jdbc:oracle:thin:@<DB_SERVER_NAME>:<DB_PORT>:<DB_NAME>, <SCHEMA_NAME>, <SCHEMA_PASSWORD>, <READWRITE_USER>, <READONLY_USER>, <READWRITE_ROLE>, <READONLY_ROLE>, <SCHEMA_NAME> -p <READWRITE_USER_PASSWORD>, <READONLY_USER_PASSWORD> -l 1,2 -q true
```

**AIX, Linux:**

```
$JAVA_HOME/bin/java -Xmx1500M -cp $CLASS_PATH com.oracle.ouaf.oem.install.OraDBI -d jdbc:oracle:thin:@<DB_SERVER_NAME>:<DB_PORT>:<DB_NAME>, <SCHEMA_NAME>
```

```
<SCHEMA_PASSWORD>, <READWRITE_USER>, <READONLY_USER>,
<READWRITE_ROLE>, <READONLY_ROLE>, <SCHEMA_NAME> -p
<READWRITE_USER_PASSWORD>, <READONLY_USER_PASSWORD> -l 1,2 -q
true
```

A message appears indicating that the process is completed successfully. This process generates log files in the `TEMPDIR/Install-Upgrade/Logs` directory.

6. Ensure that you check the log files for any errors.

#### Points to Note:

While executing the `OraDBI` utility, you may receive the following message in the display output or logs. This error can be safely ignored, and the process should proceed to completion.

```
- 2016-05-23 16:31:38,315 [main] ERROR
(common.cryptography.KeyStoreWrapperFactory) The keystore file
'<filename>' does not exist...
```

...

This file is either provided by the `com.oracle.ouaf.system.keystore.file` property or expected to exist at the default file location null attempting to use the legacy cryptography.

```
- 2016-05-23 16:31:38,566 [main] INFO (oem.install.OraDBI)
```

On installing Oracle Utilities Application Framework Version 4.5.0.0.0, various objects are created in the database under CISADM schema. The following table lists the number of objects that are created when you install framework:

| Object Type  | Count |
|--------------|-------|
| FUNCTION     | 1     |
| INDEX        | 1045  |
| LOB          | 93    |
| PACKAGE      | 1     |
| PACKAGE BODY | 1     |
| SEQUENCE     | 4     |
| TABLE        | 686   |
| TRIGGER      | 1     |
| VIEW         | 21    |

**Note:** You should use the above object count for verification only when you are doing fresh installation on the database server and not when you are upgrading the database.

Ideally, the Oracle Utilities Application Framework Version 4.5.0.0.0 installation should approximately finish in 5 minutes. The execution time can vary to great extent depending on network speed between local machine and server location.

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.

**Points to Note:**

OraDBI performs the following tasks:

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

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

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

>> Maintains upgrade log tables in the database.

>> Updates release ID when the upgrade is completed successfully.

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

>> Warning messages are only alerts and do not necessarily mean a problem exists.

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

>> OraDBI can be executed by a non-schema owner.

**Installing Rollup Pack for Oracle Utilities Application Framework Version 4.5.0.0.0**

You can install the rollup pack for Oracle Utilities Application Framework Version 4.5.0.0.0 from a Windows machine or Linux Standalone server. To install the rollup pack for Oracle Utilities Application Framework Version 4.5.0.0.0:

1. Change to the `TEMPDIR` folder which contains the `ORMB-V51000-FW-PREREQ-MultiPlatform.jar` file.
2. Decompress the JAR file using the following command:  

```
jar -xvf ORMB-V51000-FW-PREREQ-MultiPlatform.jar
```

A sub-folder named `FW-V4.5.0.0.0-Rollup` is extracted. It contains the following two sub-folders:

- `Application`
  - `Database`
3. Create a folder named `dbpatch_tools` in the `TEMPDIR` folder.
  4. Create the `db_patch_standalone.jar` file on the application server. For more information, refer to the **Database Patching Process** section in the *Oracle Revenue Management and Billing Installation Guide*.
  5. Copy the `db_patch_standalone.jar` file from the `SPLEBASE/tools/dbstandalone` folder to the `dbpatch_tools` folder.



- Decompress the JAR file using the following command:

**Windows:**

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

**AIX, Linux:**

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

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

- `bin`
- `config`
- `lib`

- Set the `TOOLS_BIN` environment variable using the following command:

**Windows:**

```
SET TOOLS_BIN=TEMPDIR\dbpatch_tools\bin
```

**AIX, Linux:**

```
export TOOLS_BIN=/TEMPDIR/dbpatch_tools/bin
```

- Change to the `Database` folder using the following command:

**Windows:**

```
cd TEMPDIR\FW-V4.5.0.0.0-Rollup\Database
```

**AIX, Linux:**

```
cd TEMPDIR/FW-V4.5.0.0.0-Rollup/Database
```

- Execute the `ouafDatabasePatch` utility using the following command:

**Windows:**

```
ouafDatabasePatch.cmd
```

**AIX, Linux:**

```
ouafDatabasePatch.sh
```

**Points to Note:**

On the AIX and Linux platforms, ensure that you grant the execute permission for the `ouafDatabasePatch.sh` utility using the following command:

```
chmod 755 ouafDatabasePatch.sh
```

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

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

| Parameter                                               | Value                                                                   |
|---------------------------------------------------------|-------------------------------------------------------------------------|
| Enter the target database type (O/M/D) [O]              | O (if you have Oracle database)<br>OR<br>M (if you have MySQL database) |
| Enter the username that owns the schema                 | <DB_USER><br>Example: CISADM                                            |
| Enter the password for the <DB_USER> user               | <DB_USER_PASSWORD>                                                      |
| Enter the name of the Oracle Database Connection String | <DB_SERVER:DB_PORT:DB_SID><br>OR<br><DB_SERVER:DB_PORT/SERVICE_NAME>    |

**Note:** If you have changed the database user password, you will not be able to install the rollup pack for Oracle Utilities Application Framework Version 4.5.0.0.0. You will have to first change the database user password. For more information on how to change the database user password, refer to [Appendix C: Changing the DB User Password](#).

10. Enter the required parameter value. The following message appears in the command line:  
Ready to process patches, Do you want to continue? (Y/N)
11. Type **Y** and then press **Enter**. A message appears indicating that the patches are applied successfully.

On installing the rollup pack for Oracle Utilities Application Framework Version 4.5.0.0.0, various objects are created in the database under CISADM schema. The following table lists the number of objects that are created when you install the framework rollup pack:

| Object Type  | Count |
|--------------|-------|
| FUNCTION     | 1     |
| INDEX        | 1048  |
| LOB          | 93    |
| PACKAGE      | 1     |
| PACKAGE BODY | 1     |
| SEQUENCE     | 4     |
| TABLE        | 686   |
| TRIGGER      | 1     |
| VIEW         | 21    |

**Note:** You should use the above object count for verification only when you are doing fresh installation on the database server and not when you are upgrading the database.

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

### 2.3.1.12 Installing Oracle Revenue Management and Billing

To install Oracle Revenue Management and Billing (ORMB) Version 5.1.0.0.0:

1. Set the `JAVA_HOME` environment variable using the following command:

**Windows:**

```
SET JAVA_HOME=<JAVA_HOME_PATH>
```

**AIX, Linux:**

```
export JAVA_HOME=<JAVA_HOME_PATH>
```

**Note:** The `<JAVA_HOME_PATH>` is the location where Java Development Kit Version 8.0 is installed.

2. Set the `JAR_PATH` environment variable using the following command:

**AIX, Linux:**

```
export JAR_PATH=TEMPDIR/RMB/jarfiles
```

**Points to Note:**

The above command is applicable only for AIX and Linux platforms.

The `TEMPDIR` folder is the location where you have extracted the contents of the **Oracle Revenue Management and Billing V5.1.0.0.0 Oracle Database** package.

3. Set the `CLASS_PATH` environment variable using the following command:

**Windows:**

```
SET CLASS_PATH=TEMPDIR\RMB\jarfiles*
```

**AIX, Linux:**

```
export CLASS_PATH=$JAR_PATH/commons-cli-1.4-c12260c.jar:$JAR_PATH/commons-codec-1.15.jar:$JAR_PATH/commons-collections-3.2.2.jar:$JAR_PATH/jackson-annotations-2.14.0-rc2.jar:$JAR_PATH/jackson-core-2.14.0-rc2.jar:$JAR_PATH/jackson-databind-2.14.0-rc2.jar:$JAR_PATH/log4j-api-2.17.1.jar:$JAR_PATH/log4j-core-2.17.1.jar:$JAR_PATH/ojdbc8-19.3.0.0.0.jar:$JAR_PATH/spl-oradbi-4.5.0.0.1.jar:$JAR_PATH/spl-shared-4.5.0.0.0.jar
```

4. Change to the `Install-Upgrade` folder using the following command:

**Windows:**

```
cd TEMPDIR\RMB\Upgrade\Oracle\Install-Upgrade
```

**AIX, Linux:**

```
cd TEMPDIR/RMB/Upgrade/Oracle/Install-Upgrade
```

5. Execute the `OraDBI (Java)` utility using the following command:

**Windows:**

```
%JAVA_HOME%\bin\java -Xmx1500M -cp %CLASS_PATH%
com.oracle.ouaf.oem.install.OraDBI -d jdbc:oracle:thin:
@<DB_SERVER_NAME>:<DB_PORT>:<DB_NAME>, <SCHEMA_NAME>,
<SCHEMA_PASSWORD>, <READWRITE_USER>, <READONLY_USER>,
<READWRITE_ROLE>, <READONLY_ROLE>, <SCHEMA_NAME> -p
<READWRITE_USER_PASSWORD>, <READONLY_USER_PASSWORD> -l 1,2 -q
true
```

**AIX, Linux:**

```
$JAVA_HOME/bin/java -Xmx1500M -cp $CLASS_PATH
com.oracle.ouaf.oem.install.OraDBI -d jdbc:oracle:thin:
@<DB_SERVER_NAME>:<DB_PORT>:<DB_NAME>, <SCHEMA_NAME>,
<SCHEMA_PASSWORD>, <READWRITE_USER>, <READONLY_USER>,
<READWRITE_ROLE>, <READONLY_ROLE>, <SCHEMA_NAME> -p
<READWRITE_USER_PASSWORD>, <READONLY_USER_PASSWORD> -l 1,2 -q
true
```

A message appears indicating that the process is completed successfully. This process generates log files in the `TEMPDIR/RMB/Upgrade/Oracle/Install-Upgrade/Logs` directory.

6. Ensure that you check the log files for any errors.

**Points to Note:**

While executing the `OraDBI` utility, you may receive the following message in the display output or logs. This error can be safely ignored, and the process should proceed to completion.

```
- 2016-05-23 16:31:38,315 [main] ERROR
(common.cryptography.KeyStoreWrapperFactory) The keystore file
'<filename>' does not exist....
```

...

This file is either provided by the `com.oracle.ouaf.system.keystore.file` property or expected to exist at the default file location null attempting to use the legacy cryptography.

```
- 2016-05-23 16:31:38,566 [main] INFO (oem.install.OraDBI)
```

On installing Oracle Revenue Management and Billing Version 5.1.0.0.0, various objects are created in the database under CISADM schema. The following table lists the number of objects that are created when you install ORMB:

| Object Type  | Count |
|--------------|-------|
| FUNCTION     | 63    |
| INDEX        | 4245  |
| LOB          | 317   |
| PACKAGE      | 6     |
| PACKAGE BODY | 6     |
| PROCEDURE    | 2     |

| Object Type | Count |
|-------------|-------|
| SEQUENCE    | 48    |
| TABLE       | 2605  |
| TRIGGER     | 1     |
| TYPE        | 19    |
| TYPE BODY   | 1     |
| VIEW        | 191   |

**Note:** You should use the above object count for verification only when you are doing fresh installation on the database server and not when you are upgrading the database.

Ideally, the Oracle Revenue Management and Billing Version 5.1.0.0.0 installation should approximately finish in 15 minutes. The execution time can vary to great extent depending on network speed between local machine and server location.

### 2.3.1.13 Post Installation Tasks

Once you install the Oracle Revenue Management and Billing Version 5.1.0.0.0 database, you need to do the following:

1. [Apply the ORMB Patches](#) or [Apply the ORMB Rollup Packs](#)
2. [Enable USER\\_LOCK Package](#)
3. [Grant Permissions to the DBMS\\_LOCK Package and Recompile Database Objects](#)
4. [Generate Database Statistics](#)

#### Points to Note:

To view the list of patches that you need to apply on the database, refer to the [ORMB V5.1.0.0.0 Patch Guide](#) (Document ID: 2941754.1) on [My Oracle Support](#).

Alternatively, instead of individually applying the patches, you can download and install the rollup packs, if available, to apply a set of patches at once. For more information about the rollup packs, refer to [Appendix F: ORMB V5.1.0.0.0 Rollup Packs](#).

#### **Apply the ORMB Patches**

Once you install Oracle Revenue Management and Billing Version 5.1.0.0.0, you need to apply all patches listed in the [ORMB V5.1.0.0.0 Patch Guide](#) (Document ID: 2941754.1). You can apply a patch from a Windows machine and UNIX Standalone server.

To apply a patch:

1. Download the patch from [My Oracle Support](#). A zip file is downloaded.
2. Unzip the downloaded file in your local folder. The contents include three files - `README.txt`, `MultiPlatform.zip`, and `Bug_<PATCH_NUMBER>_Product_Fix_Design.pdf`.
3. Unzip the `MultiPlatform.zip` file in your local folder. The contents include the `V5.1.0.0.0-<PATCH_NUMBER>_MultiPlatform` folder.
4. Change to the `V5.1.0.0.0-<PATCH_NUMBER>_MultiPlatform` folder using the following command:

**AIX, Linux:**

```
cd <DESTINATION_FOLDER_1>/V5.1.0.0.0-<PATCH_NUMBER>_MultiPlatform
```

**Windows:**

```
cd <DESTINATION_FOLDER_1>\V5.1.0.0.0-<PATCH_NUMBER>_MultiPlatform
```

**Note:** The <DESTINATION\_FOLDER\_1> folder is the location where you have extracted the contents of the MultiPlatform.zip file.

The contents include a file named CCB.V5.1.0.0.0-<PATCH\_NUMBER>.jar and a folder named database.

5. Change to the ORACLE folder using the following command:

**AIX, Linux:**

```
cd database/ORACLE
```

**Windows:**

```
cd database\ORACLE
```

The contents include a zip file named CDXPatch.

6. Unzip the CDXPatch file using the following command:

**AIX, Linux:**

```
unzip CDXPatch.zip -d <PATH>/<DESTINATION_FOLDER_2>
```

**Windows:**

```
unzip CDXPatch.zip -d <PATH>\<DESTINATION_FOLDER_2>
```

The contents of the zip file are extracted in the <DESTINATION\_FOLDER\_2> folder. The contents include utility files and a folder named <PATCH\_NUMBER>.

7. Execute the ouafDatabasePatch utility using the following command:

**Windows:**

```
ouafDatabasePatch.cmd
```

**AIX, Linux:**

```
ouafDatabasePatch.sh
```

**Note:** On the AIX and Linux platforms, ensure that you grant the execute permission for the ouafDatabasePatch.sh utility using the following command:

```
chmod 755 ouafDatabasePatch.sh
```

**Enable USER\_LOCK Package**

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

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

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

  3. Grant permission using the following SQL command:
 

```
GRANT EXECUTE ON USER_LOCK TO PUBLIC;
```

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

### **Grant Permissions to the DBMS\_LOCK Package and Recompile Database Objects**

To grant permissions to the DBMS\_LOCK package, execute the following commands:

#### **AIX, Linux:**

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

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

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

#### **Points to Note:**

These commands should be executed using Oracle SQL Developer.

If you have created the database using any user other than CISADM, you need to specify the respective username in the above grant statement.

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

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

#### **Windows:**

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

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

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

#### **Points to Note:**

These commands should be executed using Oracle SQL Developer.

If you have created the database using any user other than CISADM, you need to specify the respective username in the above alter and grant statements.

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

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

## **Generate Database Statistics**

During the installation process, new database objects may be added to the target database. Before you use the target database, we recommend you gather statistics for the database objects. You should gather statistics periodically for database objects where the statistics become stale over time because of changing data volumes or changes in column values. New statistics should be gathered after a schema object's data or structure are modified in ways that make the previous statistics inaccurate. For example, after loading a significant number of rows into a table, collect new statistics on the number of rows. After updating data in a table, you do not need to collect new statistics on the number of rows, but you might need new statistics on the average row length.

You can gather schema level statistics using the following statement:

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

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

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

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

## **2.3.2 Demo Install**

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

- [Copying and Decompressing Demo Dump Patch](#)
- [Creating the Database](#)
- [Setting the MAX\\_STRING\\_SIZE Parameter to EXTENDED](#)
- [Enabling the DBMS\\_CRYPTO Package](#)
- [Importing the Demo Dump File](#)
- [Post Demo Database Creation Tasks](#)

### **2.3.2.1 Copying and Decompressing Demo Dump Patch**

To download and decompress the demo dump patch:

1. Download the domain-specific demo dump patch from [My Oracle Support](#):

| If you belong to...       | Then download...                                                                         |
|---------------------------|------------------------------------------------------------------------------------------|
| Financial Services domain | BANKING DEMO DATA DUMP FOR RMB 5.1.0.0.0 Patch (Patch Number: <a href="#">35327071</a> ) |



| If you belong to...     | Then download...                                                                    |
|-------------------------|-------------------------------------------------------------------------------------|
| Health Insurance domain | HC DEMO DATA DUMP FOR RMB 5.1.0.0.0 Patch (Patch Number: <a href="#">35367993</a> ) |

A zip file is downloaded.

2. Create a temporary directory named `TEMPDIR` on your local machine.
3. Unzip the downloaded file in the `TEMPDIR` directory. The financial services specific demo dump patch contains the `GTB51000_demodump.zip` and `README.txt` files and the health insurance specific demo dump patch contains the `HC51000_demodump.zip` and `README.txt` files.
4. Unzip the demo dump zip file in the `TEMPDIR` directory. The contents include the `GTB51000_demodump.dmp` or `HC51000_demodump.dmp` file, respectively.

### 2.3.2.2 Creating the Database

**Note:** You must have Oracle Database Server 19c installed on your machine to create the database.

#### **Creating the Database on UNIX**

Create the database using the Database Configuration Assistant (DBCA). Refer to the [Master Note: Overview of Database Configuration Assistant \(DBCA\)](#) (Document ID: 1488770.1) article on [My Oracle Support](#) for more information. Ensure that you set the database character set to `AL32UTF8` and national character set (NLS\_NCHAR\_CHARACTERSET) to `AL16UTF16`.

For more information on how to create the database, refer to the [Creating the Database](#) section.

#### **Creating the Database on Windows**

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

Create the database using the Database Configuration Assistant (DBCA). Refer to the [Master Note: Overview of Database Configuration Assistant \(DBCA\)](#) (Document ID: 1488770.1) article on [My Oracle Support](#) for more information. Ensure that you set the database character set to `AL32UTF8` and national character set (NLS\_NCHAR\_CHARACTERSET) to `AL16UTF16`.

For more information on how to create the database, refer to the [Creating the Database](#) section.

### 2.3.2.3 Setting the MAX\_STRING\_SIZE Parameter to EXTENDED

Some of the Oracle Utilities Application Framework application table `VARCHAR2` fields require byte size beyond 4000 bytes to store data for new application requirements. To support this requirement, the Oracle Utilities Application Framework database should use the Extended Data Types feature. You can enable the Extended Data Types feature by setting the `MAX_STRING_SIZE` parameter to `EXTENDED`.

**Note:** This change in your database environment is mandatory. If you do not set the `MAX_STRING_SIZE` parameter to `EXTENDED`, it will lead to errors during the upgrade process.

If you have created a non-container database, you need to perform the following steps to set the `MAX_STRING_SIZE` parameter to `EXTENDED`:

1. Set the `ORACLE_HOME` and `ORACLE_SID` environment variables.

2. Shutdown the target database using the following command:  

```
shutdown immediate
```
3. Start the database in the Upgrade mode using the following command:  

```
startup upgrade
```
4. Set the `MAX_STRING_SIZE` parameter to `EXTENDED` using the following command:  

```
alter system set max_string_size=extended scope=both;
```
5. Execute the `utl32k.sql` file using the following command:  

```
@?/rdbms/admin/utl32k.sql;
```
6. Restart the database in the Normal mode using the following commands:  

```
shutdown immediate
startup
```

However, if you have created a container database, you need to perform the following steps to set the `MAX_STRING_SIZE` parameter to `EXTENDED`:

1. Set the `ORACLE_HOME` and `ORACLE_SID` environment variables.

**Note:** You need to connect as system administrator while executing the below steps.

2. Set the `MAX_STRING_SIZE` parameter to `EXTENDED` using the following command:  

```
alter system set max_string_size=extended scope=spfile;
```
3. Start all pluggable databases in the Upgrade mode using the following command:  

```
shutdown immediate
startup upgrade
alter pluggable database all open upgrade;
exit
```
4. Create the `utl32k_cdb_pdb_output` folder to store the log files using the following command:  

```
mkdir /scratch/mydir/utl32k_cdb_pdb_output
```
5. Execute the `utl32k.sql` from the `catcon.pl` file for all pluggable databases using the following command:  

```
cd $ORACLE_HOME/rdbms/admin
$ORACLE_HOME/perl/bin/perl $ORACLE_HOME/rdbms/admin/catcon.pl -u
SYS -d $ORACLE_HOME/rdbms/admin -
l '/scratch/mydir/utl32k_cdb_pdb_output' -b
utl32k_cdb_pdb_output utl32k.sql
```
6. Restart the database in the Normal mode using the following commands:  

```
shutdown immediate
startup
alter pluggable database all open read write;
```

### 2.3.2.4 Enabling the DBMS\_CRYPTO Package

Before installing Oracle Utilities Application Framework Version 4.5.0.0.0, ensure that you provide the execute privilege for the DBMS\_CRYPTO package to the CISADM user. You can assign the required privileges by executing the following command as SYS:

```
GRANT EXECUTE ON DBMS_CRYPTO TO CISADM;
```

### 2.3.2.5 Importing the Demo Dump File

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

1. Create a database directory named `data_pump_dir` (if not available) and then copy the `GTB51000_demodump.dmp` or `HC51000_demodump.dmp` file from the `TEMPDIR` folder to the `data_pump_dir` folder.

**Note:** If you belong to the financial services domain, use the `GTB51000_demodump.dmp` file. And, if you belong to the health insurance domain, use the `HC51000_demodump.dmp` file.

2. Set the `ORACLE_SID` and `ORACLE_HOME` environment variables.
3. If the target schema is `CISADM`, then use the following command to import demo dump:

```
impdp system/<pwd>@<dbname> NOLOGFILE=N DIRECTORY=DATA_PUMP_DIR
DUMPFILE=<dumpFilename>.dmp SCHEMAS=CISADM
```
4. If the target schema is other than `CISADM` (for example, `TRGSCHM`), then use the following command to import demo dump:

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

### 2.3.2.6 Post Demo Database Creation Tasks

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

1. [Apply the ORMB Patches](#) or [Apply the ORMB Rollup Packs](#)
2. [Enable USER\\_LOCK Package](#)
3. [Grant Permissions to the DBMS\\_LOCK Package and Recompile Database Objects](#)
4. [Generate Database Statistics](#)

#### Points to Note:

To view the list of patches that you need to apply on the database, refer to the [ORMB V5.1.0.0.0 Patch Guide](#) (Document ID: 2941754.1) on [My Oracle Support](#).

Alternatively, instead of individually applying the patches, you can download and install the rollup packs, if available, to apply a set of patches at once. For more information about the rollup packs, refer to [Appendix F: ORMB V5.1.0.0.0 Rollup Packs](#).

## **Apply the ORMB Patches**

Once you install Oracle Revenue Management and Billing Version 5.1.0.0.0, you need to apply all patches listed in the [ORMB V5.1.0.0.0 Patch Guide](#) (Document ID: 2941754.1). You can apply a patch from a Windows machine and UNIX Standalone server.

To apply a patch:

1. Download the patch from [My Oracle Support](#). A zip file is downloaded.
2. Unzip the downloaded file in your local folder. The contents include three files - `README.txt`, `MultiPlatform.zip`, and `Bug_<PATCH_NUMBER>_Product_Fix_Design.pdf`.
3. Unzip the `MultiPlatform.zip` file in your local folder. The contents include the `V5.1.0.0.0-<PATCH_NUMBER>_MultiPlatform` folder.
4. Change to the `V5.1.0.0.0-<PATCH_NUMBER>_MultiPlatform` folder using the following command:

**AIX, Linux:**

```
cd <DESTINATION_FOLDER_1>/V5.1.0.0.0-<PATCH_NUMBER>_MultiPlatform
```

**Windows:**

```
cd <DESTINATION_FOLDER_1>\V5.1.0.0.0-<PATCH_NUMBER>_MultiPlatform
```

**Note:** The `<DESTINATION_FOLDER_1>` folder is the location where you have extracted the contents of the `MultiPlatform.zip` file.

The contents include a file named `CCB.V5.1.0.0.0-<PATCH_NUMBER>.jar` and a folder named `database`.

5. Change to the `ORACLE` folder using the following command:

**AIX, Linux:**

```
cd database/ORACLE
```

**Windows:**

```
cd database\ORACLE
```

The contents include a zip file named `CDXPatch`.

6. Unzip the `CDXPatch` file using the following command:

**AIX, Linux:**

```
unzip CDXPatch.zip -d <PATH>/<DESTINATION_FOLDER_2>
```

**Windows:**

```
unzip CDXPatch.zip -d <PATH>\<DESTINATION_FOLDER_2>
```

The contents of the zip file are extracted in the `<DESTINATION_FOLDER_2>` folder. The contents include utility files and a folder named `<PATCH_NUMBER>`.

7. Execute the `ouafDatabasePatch` utility using the following command:

**Windows:**

```
ouafDatabasePatch.cmd
```

**AIX, Linux:**

```
ouafDatabasePatch.sh
```

**Note:** On the AIX and Linux platforms, ensure that you grant the execute permission for the `ouafDatabasePatch.sh` utility using the following command:

```
chmod 755 ouafDatabasePatch.sh
```

**Enable USER\_LOCK Package**

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

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

```
@?/rdbms/admin/userlock.sql
```
3. Grant permission using the following SQL command:  

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

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

**Grant Permissions to the DBMS\_LOCK Package and Recompile Database Objects**

To grant permissions to the DBMS\_LOCK package, execute the following commands:

**UNIX:**

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

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

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

**Points to Note:**

These commands should be executed using Oracle SQL Developer.

If you have created the database using any user other than CISADM, you need to specify the respective username in the above alter and grant statements.

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

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

**Windows:**

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

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

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

**Points to Note:**

These commands should be executed using Oracle SQL Developer.

If you have created the database using any user other than CISADM, you need to specify the respective username in the above alter and grant statements.

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

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

### **Generate Database Statistics**

During the installation process, new database objects may be added to the target database. Before you use the target database, we recommend you gather statistics for the database objects. You should gather statistics periodically for database objects where the statistics become stale over time because of changing data volumes or changes in column values. New statistics should be gathered after a schema object's data or structure are modified in ways that make the previous statistics inaccurate. For example, after loading a significant number of rows into a table, collect new statistics on the number of rows. After updating data in a table, you do not need to collect new statistics on the number of rows, but you might need new statistics on the average row length.

You can gather schema level statistics using the following statement:

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

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

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

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

### 2.3.3 Populating Language Data

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.”

Please contact your Oracle representative to receive information on these packages.

## 3. Database Design

---

This section provides a standard for database objects such as tables, columns, and indexes, for products using Oracle Utilities Application Framework. This standard helps in 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 the following topics:

- [Database Object Standard](#)
- [Column Data Type and Constraints](#)
- [Standard Columns](#)

### 3.1 Database Object Standard

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

#### 3.1.1 Categories of Data

A table can belong to one of the three categories:

- Control (admin)
- Master
- Transaction

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

Example of tables in each category:

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

All tables have the category information in their index name. The second letter of the index carries this information. Refer to the [Indexes](#) section for more information.

#### 3.1.2 Naming Standards

The following naming standards must be applied to database objects.

##### Table

Table names are prefixed with the owner flag value of the product. For customer modification, CM must be prefixed in 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. For customer modification, CM must be prefixed in the column name. The following conventions apply when you define special types of columns in the database.

- Use the suffix FLG to define a lookup table field. Flag columns must be CHAR (4). Choose lookup field names carefully as these column names are defined in the lookup table (CI\_LOOKUP\_FIELD) and must be prefixed by the product owner flag value.
- Use the suffix CD to define user-defined codes. User-defined codes are primarily found as the key column of the admin tables.
- Use the suffix ID to define system assigned key columns.
- Use the suffix SW to define Boolean columns. The valid values of the switches are 'Y' or 'N'. The switch columns must be CHAR(1)
- Use the suffix DT to define Date columns.
- Use the suffix DTTM to define Date Time columns.
- Use the suffix TM to define Time columns.

Some examples are:

- ADJ\_STATUS\_FLG
- CAN\_RSN\_CD

## Indexes

Index names are composed of the following parts:

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

- OF- Owner Flag. The standard is to use the two characters of the product's owner flag. Note that there may be some older indexes that use only the first character of the owner flag. For client specific implementation of index, use CM for Owner Flag. If implementation creates a CM index on table-columns for which the base product already provides an index, then the CM index will be overridden by the base index.
- Application specific prefix could be C, F, T or another letter.
- C/M/T - The second character can be either C or M or T. C is used for control tables

- (Admin tables). M is for the master tables. T is reserved for the transaction tables.
- NNN - A three-digit number that uniquely identifies the table on which the index is defined.
- P/S - P indicates that this index is the primary key index. S is used for indexes other than primary keys.
- n is the index number, unique across all indexes on a given table (0 for primary and 1, 2, etc., for the secondary indexes).

Some examples are:

- F1C066P0
- F1C066S1
- XT206C2
- CMT206S2

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

### Updating Storage.xml

The `storage.xml` file that comes with the product allocates all base tables and indexes to the default tablespace CISTS\_01. If you decide to allocate some tables or indexes outside of the default tablespace, then this must 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.

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

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

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

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

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

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

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

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

## Sequence

We recommend you use the following settings while creating a sequence:

- Set minimum CACHE size to 5000 to enhance performance
- Use NOORDER option so that the database does not generate sequence numbers in order of request

The base sequence name must be prefixed with the owner flag value of the product. For customer modification, CM must be prefixed in the sequence name. The sequence numbers should be named as below:

1. If the sequence is used for a specific table, then use the following sequence name:  
[OF] [C/M/T]NNN\_SEQ
  - OF stands for Owner Flag. For example, for OUAF, it is F1 and for ORMB, it is C1.
  - 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, for OUAF, it is F1 and for ORMB, it is C1.
  - 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, for OUAF, it is F1 and for ORMB, it is C1.

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.

## 3.2 Column Data Type and Constraints

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

### 3.2.1 User Defined Code

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

### 3.2.2 System Assigned Identifier

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

### 3.2.3 Date/Time/Timestamp

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

### 3.2.4 Number

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

### 3.2.5 Fixed Length/Variable Length Character Columns

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

### 3.2.6 Null Column Support

The product supports Nullable columns. This means that the application can write NULLs instead of a blank space or zero (for numeric columns) by using `NULLABLE_SW` on `CI_MD_TBL_FLD`. If `REQUIRED_SW` is set to 'N' and the `NULLABLE_SW` is set to 'Y', the application will write a NULL in that column. The artifact generator will create hibernate mapping files with appropriate parameters so that the framework hibernate mapping types will know if a given property supports a null value.

`NULLABLE_SW` is not new, but has previously been used for certain fields such as dates, and some string and number foreign-key columns. Because of this, there is the possibility that there is incorrect metadata for some columns, and that turning on this new feature could result in incorrect behavior when using that metadata. The upgrade script fixes the metadata to make sure that the existing tables will not be affected.

This new feature only supports tables maintained by Java and does not support tables maintained by a Java program converted from COBOL. Thus, enhancing any existing tables to use null columns must be done only after ensuring that the tables are maintained by Java, and not by Java converted COBOL programs.

### 3.2.7 XML Type Support

The product supports XML Type. XML Type provides following advantages:

1. The ability to use XQuery for querying nodes in the XML document stored within a column defined as XMLType.
2. The option to use the XML engine, which is built into the Oracle Database, to create indexes using nodes within the XML document stored in the XMLType column.

### 3.2.8 Cache and Key Validation Flags

By default, the Cache Flag is set to NONE. For most of the admin tables the CACHE Flag should be 'Cached for Batch'. This specifies that the table is cached as L2 cache to reduce database trips.

By default the Key Validation Flag is set to ALL. For tables which have the user defined keys, the `KEY_VALIDATION_FLG` should be set as 'ALL'. This checks the existence of the key before inserting a new one.

### 3.2.9 Table Classification and Table Volume Flags

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

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

### 3.2.10 Default Value Setting

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

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

### 3.2.11 Foreign Key Constraints

Referential integrity is enforced by the application. You should not define foreign key constraints in the database except for the tables where the partition is required. Indexes are created on most of Foreign Key columns to increase performance. However, in the specific case of ILM implementation, some of the tables require Foreign Key constraints due to the referential partitioning.

## 3.3 Standard Columns

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

### 3.3.1 Owner Flag

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

### 3.3.2 Version

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

## 4. Exadata Database Settings

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

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

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

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

```
CREATE BIGFILE TABLESPACE CISTS_01 DATAFILE
'+DATAAC1/DBNAME/datafile/cists01.dbf' SIZE 100G AUTOEXTEND ON
EXTENT MANAGEMENT LOCAL AUTOALLOCATE;
```

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

## 5. Database Implementation Guidelines

This section outlines the general implementation guidelines for the database components. It includes the following topics:

- [Configuration Guidelines](#)
- [Implementation Guidelines](#)

### 5.1 Configuration Guidelines

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

- [Index](#)
- [Table Partitioning Recommendations](#)
- [Temporary and Undo Tablespace](#)
- [Transparent Data Encryption Recommendations](#)
- [Data Compression Recommendations](#)
- [Database Vault Recommendations](#)
- [Information Lifecycle Management \(ILM\) and Data Archiving Support](#)
- [Storage Recommendations](#)
- [Database Configuration Recommendations](#)
- [Database Syntax](#)
- [Database Initialization Parameters](#)
- [Shrink Tables](#)
- [Listener.ora Settings](#)

#### 5.1.1 Index

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

1. Indexes on a table should be created according to the functional requirements of the table and not to perform SQL tuning.

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

Table indexes become fragmented over time. This affects the database performance. Therefore, you need to rebuild indexes periodically using the following SQL commands:

```
ALTER INDEX MY_IDX REBUILD ONLINE PARALLEL 63 NOLOGGING;
ALTER INDEX MY_IDX NOPARALLEL;
ALTER INDEX MY_IDX LOGGING;
```



## 5.1.2 Table Partitioning Recommendations

Oracle Utilities Application Framework recommends using a minimum of 'n' partitions for selective database objects, where 'n' is the number of RAC nodes.

### 5.1.2.1 Partitioning F1\_MO\_UPD and F1\_MO\_UPD\_BACKLOG Tables

Performance tests conducted on the **Generalized Data Export (GDE)** batches showed that interval partitioning of the **F1\_MO\_UPD** and **F1\_MO\_UPD\_BACKLOG** tables improved performance. Hence, it is recommended by the product to partition the **F1\_MO\_UPD** and **F1\_MO\_UPD\_BACKLOG** tables using Oracle's interval partition scheme.

To set interval partitioning for the **F1\_MO\_UPD** table, you need to do the following:

1. Login to the database either using the schema owner account or as **SYS**.
2. Make sure that the **Generalized Data Export (GDE)** batches are not running.
3. Check the record count for the **F1\_MO\_UPD** table.
4. Execute the **F1\_MO\_UPD\_INT\_PART** SQL script to create an interval-partitioned table.

**Note:** For more information on how to create the **F1\_MO\_UPD\_INT\_PART** SQL script, refer to [Appendix G: Framework Table Partitioning Scripts](#).

5. Check the **F1\_MO\_UPD** table to verify whether it has the partition clause "PARTITION BY RANGE ("ENT\_KEY\_HASH") INTERVAL (1)" using the following command:

```
SELECT DBMS_METADATA.GET_DDL('TABLE', 'F1_MO_UPD') FROM DUAL;
```

6. Drop the backup table **<table\_name>\_OLD** created by the script after verifying whether data in the partitioned table is correct.

Similarly, you need to set the interval partitioning for the **F1\_MO\_UPD\_BACKLOG** table. To set interval partitioning for the **F1\_MO\_UPD\_BACKLOG** table, you need to do the following:

1. Check the record count for the **F1\_MO\_UPD\_BACKLOG** table.
2. Execute the **F1\_MO\_UPD\_BACKLOG\_INT\_PART** SQL script to create an interval-partitioned table.

**Note:** For more information on how to create the **F1\_MO\_UPD\_BACKLOG\_INT\_PART** SQL script, refer to [Appendix G: Framework Table Partitioning Scripts](#).

3. Check the **F1\_MO\_UPD\_BACKLOG** table to verify whether it has the partition clause "PARTITION BY RANGE ("ENT\_KEY\_HASH") INTERVAL (1)" using the following command:

```
SELECT DBMS_METADATA.GET_DDL('TABLE', 'F1_MO_UPD_BACKLOG') FROM DUAL;
```

4. Drop the backup table **<table\_name>\_OLD** created by the script after verifying whether data in the partitioned table is correct.

### 5.1.3 Temporary and Undo Tablespace

To begin with, we recommend you set the temporary tablespace to at least 100 GB auto extendable till 500 GB and the undo tablespace to at least 100 GB auto extendable till 600 GB. The upper limit of both the tablespaces will vary as per the volume of the data and preferred chunk size of the batch. In addition, we recommend you set the value of undo retention to 50000.

### 5.1.4 Transparent Data Encryption Recommendations

Oracle Utilities supports Oracle Transparent Data Encryption (TDE). Oracle TDE is available by default in Oracle Database Enterprise Edition, but you must purchase an Oracle Advanced Security license to use it. The application supports tablespace level encryption for all application data. Make sure that the hardware resources are sufficiently sized for this as TDE uses additional hardware resources. The Oracle Advanced Security license is a prerequisite for using TDE.

Please consider the following when implementing TDE:

- Create a wallet folder to store the master key. By default, the wallet folder should be created under `$ORACLE_BASE/admin/<sid>`.
- The wallet containing the master key can be created using the following command:  

```
ALTER SYSTEM SET ENCRYPTION KEY AUTHENTICATED BY "KEYPASSWD"
```
- The wallet can be closed or opened using the following commands:  

```
ALTER SYSTEM SET WALLET OPEN IDENTIFIED BY "KEYPASSWD";
ALTER SYSTEM SET WALLET CLOSE;
```
- Column level encryption can be achieved using the following commands:  

```
CREATE TABLE <TABLE_NAME> NAME VARCHAR2(200) DEFAULT ' ' NOT
NULL, BO_DATA_AREA CLOB ENCRYPT USING 'AES128', BO_STATUS_CD
CHAR(12) ENCRYPT USING 'AES128') LOB (BO_DATA_AREA) STORE AS
SECUREFILE (CACHE COMPRESS) TABLESPACE <TABLESPACE_NAME>;
```
- AES128 is the default encryption algorithm.
- Tablespace level encryption is also supported using the following command:  

```
CREATE TABLESPACE <TABLESPACE_NAME> LOGGING DATAFILE '<DATAFILE
LOCATION>' SIZE <INITIAL SIZE> REUSE AUTOEXTEND ON NEXT <NEXT SIZE>
MAXSIZE UNLIMITED EXTENT MANAGEMENT LOCAL UNIFORM SIZE <UNIFORM
SIZE> ENCRYPTION USING 'AES128' DEFAULT STORAGE(ENCRYPT);
```
- Indexed columns can only be encrypted using the NO SALT Option. Salt is a way to strengthen the security of encrypted data. It is a random string added to the data before it is encrypted, causing repetition of text in the clear to appear different when encrypted.

### 5.1.5 Data Compression Recommendations

Oracle Utilities supports Advanced Data Compression, available with Oracle 11gR1 onwards, to reduce the database storage footprint. Make sure that your resources are sufficiently sized for this as it uses additional system resources. Compression can be enabled at the Tablespace level or at the Table level.

### 5.1.5.1 Non-Exadata Hardware

For non-Exadata hardware the recommendations are the same as above, except that you cannot use HCC compression (it is only available in Exadata database machine). Instead of HCC, you can use any other compression tool available to you for non-Exadata hardware.

### 5.1.5.2 CLOB Fields

All CLOB fields should be stored as SecureFiles and Medium compressed. This requires a separate license for Advanced Data Compression. As a part of the schema, we create the product- owned tables with compression turned OFF at the LOB level. If you have the license for Advanced Data Compression, you can enable compression by updating the storage.xml.

From Oracle 12c onwards:

- Admin and Master Data tables and their indexes will NOT be compressed.
- All Transactional Tables, including ILM enabled MOs shall be compressed.
- Compression will be done at the tablespace level.
- All multicolumn indexes on transactional/ILM tables will be compressed.
- Use 'compress advanced low'

## 5.1.6 Database Vault Recommendations

The product supports Database Vault. All non-application User IDs can be prevented from using DDL or DML statements against the application schema. So SYS and SYSTEM cannot issue DDL or DML statements against C<sub>I</sub>SADM schema. The application-specific administration account can issue DDL statements but should not be able to perform any DML or DCL statements. Application user must be given DML only permissions. Database Vault can be used to control access during patch process and Install/Upgrade process.

## 5.1.7 Information Lifecycle Management (ILM) and Data Archiving Support

The product supports data archiving based on Information Lifecycle Management (ILM). For more information, refer to the *Oracle Revenue Management and Billing Information Lifecycle Management Implementation Guide*.

## 5.1.8 Storage Recommendations

This section specifies recommended options for storing the database objects.

### 5.1.8.1 SecureFile for Storing LOBs

The DB\_SECUREFILE parameter is used to specify how to store large objects (LOBs) in the database. LOBs can now be stored as SecureFiles or BasicFiles. By default, the value for this parameter is set to PERMITTED in Oracle Database Server 12c or higher. It means the LOBs are allowed to be created as SecureFiles.

**Points to Note:**

- 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, ensure that the `db_securefile` initialization parameter is set to `ALWAYS`.
- The Tablespace where you are creating the SecureFiles should be enabled with Automatic Segment Space Management (ASSM). In Oracle Database 11g, the default mode of Tablespace creation is ASSM so it may already be set for the Tablespace. If it's not, then you have to create the SecureFiles on a new ASSM Tablespace.

**Points to Note:**

To enable compression on SecureFiles, you must have an Oracle Advanced Compression license in addition to Oracle Database Enterprise Edition.

If you are using Oracle Database Enterprise Edition, you must ensure that the COMPRESS flag is set to Y in the `Storage.xml` file. Refer to the [Database Syntax](#) section for more information on SecureFiles.

## 5.1.9 Database Configuration Recommendations

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

### 5.1.9.1 Large Redo Log File Sizes

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

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

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

### 5.1.10 Database Syntax

This section contains the following topic:

- [SecureFile](#)

### 5.1.10.1 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);
```

### 5.1.11 Database Initialization Parameters

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

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

| Parameter               | Recommended Value                                                                                                                                                                                 | Modifiable in Pluggable Database (PDB) |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| DB_CACHE_SIZE           | 4G                                                                                                                                                                                                | Yes                                    |
| LOG_CHECKPOINT_INTERVAL | 0                                                                                                                                                                                                 | No                                     |
| MEMORY_MAX_TARGET       | 40-50% of total available RAM on the node                                                                                                                                                         | No                                     |
| MEMORY_TARGET           | Value should be less than or equal to the value set for the MEMORY_MAX_TARGET parameter and at the same time it should be greater than or equal to the sum of SGA_TARGET and PGA_AGGREGATE_TARGET | Yes                                    |
| OPTIMIZER_INDEX_CACHING | 0<br><br><b>Note:</b> The value for this parameter should not be changed because it can drastically degrade the batch performance.                                                                | Yes                                    |

| Parameter                     | Recommended Value                                                                                                                | Modifiable in Pluggable Database (PDB) |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| OPTIMIZER_INDEX_COST_ADJ      | 100<br><b>Note:</b> The value for this parameter should not be changed because it can drastically degrade the batch performance. | Yes                                    |
| PGA_AGGREGATE_TARGET          | 2G                                                                                                                               | Yes                                    |
| PROCESSES                     | 3000                                                                                                                             | No                                     |
| SESSION_CACHED_CURSORS        | 500                                                                                                                              | Yes                                    |
| SESSIONS                      | 4500                                                                                                                             | Yes                                    |
| SGA_MAX_SIZE                  | 70-80% of the value defined for the MEMORY_MAX_TARGET parameter                                                                  | No                                     |
| SGA_TARGET                    | 50-70% of the value defined for the MEMORY_TARGET parameter                                                                      | Yes                                    |
| STATISTICS_LEVEL              | TYPICAL or ALL<br><b>Note:</b> This parameter is mandatory when you want to use automatic memory management.                     | Yes                                    |
| TRANSACTIONS                  | 3000                                                                                                                             | No                                     |
| OPEN_CURSORS                  | 500                                                                                                                              | Yes                                    |
| STREAMS_POOL_SIZE             | 200M                                                                                                                             | Yes                                    |
| OPTIMIZER_ADAPTIVE_PLANS      | TRUE<br><b>Note:</b> By default, the value is set to TRUE. We recommend you set the value to TRUE from 12.2 onwards.             | Yes                                    |
| OPTIMIZER_ADAPTIVE_STATISTICS | FALSE<br><b>Note:</b> By default, the value is set to FALSE. We recommend you set the value to FALSE from 12.2 onwards.          | Yes                                    |

| Parameter                     | Recommended Value                                                                                                                                                                                                                                                                                                   | Modifiable in Pluggable Database (PDB) |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| PARALLEL_DEGREE_POLICY        | Manual<br><b>Note:</b> By default, the value is set to <b>Manual</b> . We recommend you use the default value. Otherwise, an error might occur while installing ORMB.                                                                                                                                               | Yes                                    |
| CURSOR_SHARING                | EXACT<br><b>Note:</b> By default, the value is set to <b>EXACT</b> . We recommend you use the default value. Otherwise, the system performance would be impacted.                                                                                                                                                   | Yes                                    |
| CPU_MIN_COUNT                 | Value should be specific to the server. Client DBA should decide the value.<br><b>Note:</b> This parameter specifies the minimum number of CPUs required by a pluggable database (PDB) at any given time. This enables you to control each PDBs minimum share of CPU utilization within a container database (CDB). | Yes                                    |
| MAX_DATAPUMP_PARALLEL_PER_JOB | Recommend range of values - 1 to 1024<br><b>Note:</b> This parameter specifies the maximum number of parallel Oracle Data Pump jobs per PDB. By default, the value is set to 50. You can change the value and set it as per the requirement.                                                                        | Yes                                    |

| Parameter            | Recommended Value                                                                                                                                                               | Modifiable in Pluggable Database (PDB) |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| LOB_SIGNATURE_ENABLE | TRUE<br><b>Note:</b> If this parameter is set to <b>TRUE</b> , then when you create a large object (LOB), Oracle Database automatically assigns a signature to the LOB locator. | Yes                                    |

For example, we recommend you specify the following values for 100 GB of RAM when the Automatic Memory Management (AMM) is enabled:

```
MEMORY_MAX_TARGET = 60G
MEMORY_TARGET = 60G
STATISTICS_LEVEL = TYPICAL
```

For example, we recommend you specify the following values for 100 GB of RAM when the Automatic Shared Memory Management (ASMM) is enabled:

```
SGA_TARGET = 40G
SGA_MAX_SIZE = 40G
DB_CACHE_SIZE = 4G
PGA_AGGREGATE_TARGET = 20G
STATISTICS_LEVEL = TYPICAL
```

### 5.1.12 Shrink Tables

Many rows are inserted and then deleted from the following three tables:

- CI\_TXN\_DTL\_PRITM\_SUMMARY
- CI\_TXN\_DETAIL\_STG
- CI\_ROLLBACK\_TXN\_DETAIL

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

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

```
ALTER TABLE CI_TXN_DTL_PRITM_SUMMARY ENABLE ROW MOVEMENT;
ALTER TABLE CI_TXN_DTL_PRITM_SUMMARY SHRINK COMPACT;
ALTER TABLE CI_TXN_DETAIL_STG ENABLE ROW MOVEMENT;
ALTER TABLE CI_TXN_DETAIL_STG SHRINK COMPACT;
ALTER TABLE CI_ROLLBACK_TXN_DETAIL ENABLE ROW MOVEMENT;
ALTER TABLE CI_ROLLBACK_TXN_DETAIL SHRINK COMPACT;
```



Alternatively, you can shrink the tables by executing the following statements during the non-peak hours which will adjust high water mark to reclaim the space:

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

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

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

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

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

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

### 5.1.13 Listener.ora Settings

In the Oracle 12c container database, the client must specify a service name in order to connect to the pluggable database. If you have hard-coded connect descriptors to use SID to connect to the database, then the following error occurs:

“ORA-12505: TNS: LISTENER DOES NOT CURRENTLY KNOW OF SID GIVEN IN CONNECT DESCRIPTOR TIPS”

It means the database connection has failed. You can resolve the problem using the `USE_SID_AS_SERVICE_listener_name` parameter in the `listener.ora` file. If you set the `USE_SID_AS_SERVICE_listener_name` parameter to `on`, it instructs the listener to use the SID in the connect descriptor as a service name and connect the client to the specified database. By default, the parameter is set to `off`.

Once you set the parameter to `on`, you need to bounce or reload the listener.

## 5.2 Implementation Guidelines

This section provides specific guidelines for implementing Oracle Database.

### 5.2.1 Materialized View

Oracle Database Enterprise Edition supports query rewrite using Materialized view. If you use Oracle Database Enterprise Edition, you can create the following Materialized Views to improve the performance of the Monitor batch jobs.

#### Prerequisite:-

Please make sure the following:

1. Set the `QUERY_REWRITE_ENABLED` parameter to `TRUE` at database level using either of the following command:

```
ALTER SYSTEM SET QUERY_REWRITE_ENABLED=TRUE;
```

OR

```
ALTER SYSTEM SET QUERY_REWRITE_ENABLED=TRUE SCOPE=BOTH;
```

2. To create a materialized view in another user's schema: You must have the `CREATE ANY MATERIALIZED VIEW` system privilege. The owner of the materialized view must have the `CREATE TABLE` system privilege. The owner must also have access to any master tables of the materialized view that the schema owner does not own (for example, if the master tables are on a remote database) and to any materialized view logs defined on those master tables, either through a `SELECT` object privilege on each of the tables or through the `SELECT ANY TABLE` system privilege.
3. To create a refresh-on-commit materialized view (`ON COMMIT REFRESH` clause), in addition to the preceding privileges, you must have the `ON COMMIT REFRESH` object privilege on any master tables that you do not own, or you must have the `ON COMMIT REFRESH` system privilege.

To create the materialized view with query rewrite enabled, in addition to the preceding privileges: If the schema owner does not own the master tables, then the schema owner must have the `GLOBAL QUERY REWRITE` privilege or the `QUERY REWRITE` object privilege on each table outside the schema.

```
CREATE MATERIALIZED VIEW F1_BO_LIFECYCLE_STATUS_MVW
(
 BUS_OBJ_CD,
 LIFE_CYCLE_BO_CD,
 BO_STATUS_CD,
 BATCH_CD
)
BUILD IMMEDIATE REFRESH ON COMMIT ENABLE QUERY REWRITE AS SELECT
BO2.BUS_OBJ_CD, BO.LIFE_CYCLE_BO_CD, BOSA.BO_STATUS_CD,
LCBOS.BATCH_CD AS
LC_BATCH_CD
FROM
F1_BUS_OBJ BO2,
```

```

F1_BUS_OBJ BO,
F1_BUS_OBJ_STATUS LCBOS,
F1_BUS_OBJ_STATUS_ALG BOSA
WHERE
BO2.LIFE_CYCLE_BO_CD = BO.LIFE_CYCLE_BO_CD AND
BO.BUS_OBJ_CD = BOSA.BUS_OBJ_CD AND
BOSA.BO_STATUS_SEVT_FLG = 'F1AT' AND
LCBOS.BUS_OBJ_CD = BO.LIFE_CYCLE_BO_CD AND
LCBOS.BO_STATUS_CD = BOSA.BO_STATUS_CD
/
CREATE SYNONYM SPLUSR.F1_BO_LIFECYCLE_STATUS_MVW FOR
SPLADM.F1_BO_LIFECYCLE_STATUS_MVW;
GRANT SELECT ON F1_BO_LIFECYCLE_STATUS_MVW TO FW_DEV;
GRANT SELECT ON F1_BO_LIFECYCLE_STATUS_MVW TO SPL_USER;
GRANT SELECT ON F1_BO_LIFECYCLE_STATUS_MVW TO SPL_READ;

```

For more information, refer to the following documents:

| Topic                                                   | Reference URL                                                                                                                                         |
|---------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Basic Query Rewrite (Oracle 11g)                        | <a href="https://docs.oracle.com/cd/B28359_01/server.111/b28313/qrbasic.htm">https://docs.oracle.com/cd/B28359_01/server.111/b28313/qrbasic.htm</a>   |
| Basic Query Rewrite for Materialized Views (Oracle 12c) | <a href="https://docs.oracle.com/database/121/DWHSQG/qrbasic.htm#DWHSQG01813">https://docs.oracle.com/database/121/DWHSQG/qrbasic.htm#DWHSQG01813</a> |
| Troubleshooting Materialized Views                      | <a href="http://docs.oracle.com/database/121/ARPLS/d_mvview.htm#ARPLS67193">http://docs.oracle.com/database/121/ARPLS/d_mvview.htm#ARPLS67193</a>     |
| Debugging Materialized Views                            | <a href="http://docs.oracle.com/cd/B28359_01/server.111/b28313/qradv.htm">http://docs.oracle.com/cd/B28359_01/server.111/b28313/qradv.htm</a>         |

#### Known Issues:

The following are some of the known issues at the time of release. For more information, refer to these articles on [My Oracle Support](#):

- [Query Did Not Rewrite For A User Other Than The Owner Of the Materialized View](#) (Document ID: 1594725.1) - A patch is available for the 14772096 bug for some platforms.
- [Query rewrite not working as expected with SELECT DISTINCT](#) (Document ID: 7661113.8) – A bug reported in Oracle Database 11.2.0.1 and 11.1.0.7 and fixed in Oracle Database 12.1.0.1 (Base Release), 11.2.0.2 (Server Patch Set).

## 5.2.2 Increase INITRANS Values

It has been observed that while executing few batches in ORMB, customers encounter deadlock issue. Therefore, we strongly recommend to increase the INITRANS value of tables with high concurrent DML. The INITRANS values can be set as per the customer's data volume. To increase the INITRANS values of the required tables and indexes:

1. Connect to the ORMB database using any SQL client (such as Oracle SQL Developer or PL/SQL Developer) and the `cisadm` credentials.
2. Use the ALTER statement to modify the INITRANS values of the required tables.

For example, you can increase the INITRANS value of the CI\_BILL table using the following SQL statement:

```
ALTER TABLE CISADM.CI_BILL INITRANS 20;
```

3. Use the ALTER statement to modify the INITRANS values of the required indexes.

For example, you can increase the INITRANS value of the indexes using the following SQL statement:

```
ALTER INDEX XT033P0 INITRANS 40;
ALTER INDEX XT033S1 INITRANS 40;
ALTER INDEX XT033S2 INITRANS 40;
ALTER INDEX XT033S3 INITRANS 40;
ALTER INDEX XT033S4 INITRANS 40;
ALTER INDEX XT033S5 INITRANS 40;
```

With the above ALTER statements, the INITRANS applies only to the data blocks subsequently allocated for the table. It will not modify the existing data blocks. To apply the changes to the existing data blocks/extents, use the ALTER statement with MOVE command during the maintenance period. With the MOVE command, all indexes of the table become unusable and therefore, you will have to rebuild the indexes of the tables. For example, you can increase the INITRANS value of the CI\_BILL table using the following ALTER TABLE MOVE command:

```
ALTER TABLE CI_BILL MOVE ONLINE INITRANS 20 NOLOGGING;
```

And, you can increase the INITRANS value of the indexes using the following ALTER INDEX REBUILD command:

```
ALTER INDEX XT033P0 REBUILD ONLINE INITRANS 40 NOLOGGING;
ALTER INDEX XT033S1 REBUILD ONLINE INITRANS 40 NOLOGGING;
ALTER INDEX XT033S2 REBUILD ONLINE INITRANS 40 NOLOGGING;
ALTER INDEX XT033S3 REBUILD ONLINE INITRANS 40 NOLOGGING;
ALTER INDEX XT033S4 REBUILD ONLINE INITRANS 40 NOLOGGING;
ALTER INDEX XT033S5 REBUILD ONLINE INITRANS 40 NOLOGGING;
```

### 5.2.3 Table Partitioning Strategy

Partitioning is powerful functionality that allows tables, indexes, and index-organized tables to be subdivided into smaller pieces, enabling these database objects to be managed and accessed at a finer level of granularity. Oracle provides a comprehensive range of partitioning schemes to address every business requirement. We recommend you partition those tables where the customers have considerable amount of data. This helps to manage data and ensure consistent system performance with the increasing data.

You need to partition the master and child tables in such a way that the referential integrity is not hampered. There are many partitioning strategies which can be used to partition tables. However, we recommend you partition the following tables using the partition type and keys as mentioned in the below table:

**Note:** An out of box sample release-specific table partitioning scripts are provided by Oracle Revenue Management and Billing on [My Oracle Support](#). You can partition the tables using these sample scripts. For more information, refer to *Oracle Revenue Management and Billing ILM Implementation Guide*.

| Module Name                       | Table Name               | Child Table Name | Partition Type        | Partition Key     | Sub-Partition Key |
|-----------------------------------|--------------------------|------------------|-----------------------|-------------------|-------------------|
| Transaction Feed Management (TFM) | CI_TXN_DETAIL            |                  | RANGE (DATE INTERVAL) | CURR_SYS_PRCES_DT | -                 |
|                                   | CI_TXN_DTL_PRITM         |                  | RANGE (DATE INTERVAL) | CURR_SYS_PRCES_DT | -                 |
|                                   | CI_ROLLBACK_TXN_DETAIL   |                  | RANGE (DATE INTERVAL) | CURR_SYS_PRCES_DT | -                 |
|                                   | CI_TXN_DETAIL_EXCP       |                  | RANGE (DATE INTERVAL) | CURR_SYS_PRCES_DT | -                 |
|                                   | CI_TXN_CALC              |                  | RANGE (DATE INTERVAL) | ILM_DT            | -                 |
|                                   | CI_TXN_SQ                |                  | RANGE (DATE INTERVAL) | ILM_DT            | -                 |
|                                   | CI_TXN_CALC_LN           |                  | RANGE (DATE INTERVAL) | ILM_DT            | -                 |
|                                   | CI_TXN_CALC_LN_CHARACTER |                  | RANGE (DATE INTERVAL) | ILM_DT            | -                 |
| Billing                           | CI_BILL                  |                  | RANGE (DATE INTERVAL) | ILM_DT            | BILL_ID           |
|                                   |                          | CI_BILL_CHAR     | REFERENCE             | BILL_ID           | -                 |
|                                   |                          | CI_BILL_EXCP     | REFERENCE             | BILL_ID           | -                 |

| Module Name | Table Name | Child Table Name    | Partition Type | Partition Key         | Sub-Partition Key |         |
|-------------|------------|---------------------|----------------|-----------------------|-------------------|---------|
|             |            | CI_BILL_MSG_PR<br>M | REFERENCE      | BILL_ID               | -                 |         |
|             |            | CI_BILL_ROUTING     | REFERENCE      | BILL_ID               | -                 |         |
|             |            | CI_BILL_SA          | REFERENCE      | BILL_ID               | -                 |         |
|             |            | CI_BILL_ACH         | REFERENCE      | BILL_ID               | -                 |         |
|             |            | CI_BILL_MSGS        | REFERENCE      | BILL_ID               | -                 |         |
|             |            | CI_BILL_LOG         | REFERENCE      | BILL_ID               | -                 |         |
|             | CI_BSEG    |                     |                | RANGE (DATE INTERVAL) | ILM_DT            | BSEG_ID |
|             |            | CI_BSEG_CALC        | REFERENCE      | BSEG_ID               | -                 |         |
|             |            | CI_BSEG_CALC_LN     | REFERENCE      | BSEG_ID               | -                 |         |
|             |            | CI_BSEG_CL_CHAR     | REFERENCE      | BSEG_ID               | -                 |         |
|             |            | CI_BSEG_EXCP        | REFERENCE      | BSEG_ID               | -                 |         |
|             |            | CI_BSEG_ITEM        | REFERENCE      | BSEG_ID               | -                 |         |
|             |            | CI_BSEG_MSG         | REFERENCE      | BSEG_ID               | -                 |         |
|             |            | CI_BSEG_READ        | REFERENCE      | BSEG_ID               | -                 |         |
|             |            | CI_BSEG_SQ          | REFERENCE      | BSEG_ID               | -                 |         |
|             |            | CI_BSEG_EXT         | REFERENCE      | BSEG_ID               | -                 |         |
|             | CI_ADJ     |                     |                | RANGE (DATE INTERVAL) | ILM_DT            | ADJ_ID  |
|             |            | CI_ADJ_APREQ        | REFERENCE      | ADJ_ID                | -                 |         |
|             |            | CI_ADJ_CALC_LN      | REFERENCE      | ADJ_ID                | -                 |         |
|             |            | CI_ADJ_CHAR         | REFERENCE      | ADJ_ID                | -                 |         |
|             |            | CI_ADJ_CL_CHAR      | REFERENCE      | ADJ_ID                | -                 |         |

| Module Name | Table Name            | Child Table Name | Partition Type        | Partition Key         | Sub-Partition Key |
|-------------|-----------------------|------------------|-----------------------|-----------------------|-------------------|
|             | CI_BILL_CHG           |                  | RANGE (DATE INTERVAL) | ILM_DT                | BILLABLE_CHG_ID   |
|             |                       | CI_BCHG_READ     | REFERENCE             | BILLABLE_CHG_ID       | -                 |
|             |                       | CI_BCHG_SQ       | REFERENCE             | BILLABLE_CHG_ID       | -                 |
|             |                       | CI_BILL_CHG_CHAR | REFERENCE             | BILLABLE_CHG_ID       | -                 |
|             |                       | CI_B_CHG_LINE    | REFERENCE             | BILLABLE_CHG_ID       | -                 |
|             |                       | CI_B_LN_CHAR     | REFERENCE             | BILLABLE_CHG_ID       | -                 |
| Payment     | CI_PAY                |                  | RANGE (DATE INTERVAL) | ILM_DT                | PAY_ID            |
|             |                       | CI_PAY_CHAR      | REFERENCE             | PAY_ID                | -                 |
|             |                       | CI_PAY_EXCP      | REFERENCE             | PAY_ID                | -                 |
|             |                       | CI_PAY_SEG       | REFERENCE             | PAY_ID                | -                 |
|             | CI_PAY_EVENT          |                  | RANGE (DATE INTERVAL) | ILM_DT                | PAY_EVENT_ID      |
|             |                       | CI_PAY_EVT_EXCP  | REFERENCE             | PAY_EVENT_ID          | -                 |
|             |                       | CI_PEVT_DST_DTL  | REFERENCE             | PAY_EVENT_ID          | -                 |
|             |                       | CI_PAY_TNDR      | REFERENCE             | PAY_EVENT_ID          | -                 |
|             | CI_PAY_TNDR           |                  | REFERENCE             | PAY_EVENT_ID          | -                 |
|             |                       | CI_APAY_CLR_STG  | REFERENCE             | PAY_TENDER_ID         | -                 |
|             |                       | CI_PAY_TNDR_CHAR | REFERENCE             | PAY_TENDER_ID         | -                 |
|             | Financial Transaction | CI_FT            |                       | RANGE (DATE INTERVAL) | ILM_DT            |
| CI_FT_GL    |                       |                  | REFERENCE             | FT_ID                 | -                 |

| Module Name  | Table Name     | Child Table Name       | Partition Type        | Partition Key  | Sub-Partition Key |
|--------------|----------------|------------------------|-----------------------|----------------|-------------------|
|              |                | CI_FT_PROC             | REFERENCE             | FT_ID          | -                 |
|              |                | CI_FT_GL_EXT           | REFERENCE             | FT_ID          | -                 |
|              |                | C1_FT_EXT_CHAR         | REFERENCE             | FT_ID          | -                 |
|              |                | C1_FT_EXT              | REFERENCE             | FT_ID          | -                 |
| Membership   | CI_MEMBERSHIP  |                        | RANGE (DATE INTERVAL) | ILM_DT         | MEMBERSHIP_ID     |
|              |                | CI_MEMBERSHIP_CHAR     | REFERENCE             | MEMBERSHIP_ID  | -                 |
|              |                | CI_MEMBERSHIP_PER_CHAR | REFERENCE             | MEMBERSHIP_ID  | -                 |
|              |                | CI_MEMBERSHIP_LOG      | REFERENCE             | MEMBERSHIP_ID  | -                 |
|              |                | CI_MEMBERSHIP_PER      | REFERENCE             | MEMBERSHIP_ID  | -                 |
|              |                | CI_MEMBERSHIP_SA       | REFERENCE             | MEMBERSHIP_ID  | -                 |
|              |                | CI_MEMBERSHIP_LOG_PARM | REFERENCE             | MEMBERSHIP_ID  | -                 |
| Entity Audit | C1_AUDIT_EVENT |                        | RANGE (DATE INTERVAL) | ILM_DT         | AUDIT_EVENT_ID    |
|              |                | C1_AUDIT_EVENT_CHAR    | REFERENCE             | AUDIT_EVENT_ID | -                 |



| Module Name          | Table Name          | Child Table Name            | Partition Type        | Partition Key         | Sub-Partition Key     |
|----------------------|---------------------|-----------------------------|-----------------------|-----------------------|-----------------------|
|                      |                     | C1_AUDIT_EVENT_LOG          | REFERENCE             | AUDIT_EVENT_ID        | -                     |
|                      |                     | C1_AUDIT_EVENT_LOG_PARM     | REFERENCE             | AUDIT_EVENT_ID        | -                     |
| Inbound Message      | C1_INBOUND_MESSAGE  |                             | RANGE (DATE INTERVAL) | ILM_DT                | C1_INBOUND_MESSAGE_ID |
|                      |                     | C1_INBOUND_MESSAGE_CHAR     | REFERENCE             | C1_INBOUND_MESSAGE_ID | -                     |
|                      |                     | C1_INBOUND_MESSAGE_LOG      | REFERENCE             | C1_INBOUND_MESSAGE_ID | -                     |
|                      |                     | C1_INBOUND_MESSAGE_LOG_PARM | REFERENCE             | C1_INBOUND_MESSAGE_ID | -                     |
| Pricing Calculation  | CI_PRCE_CALC        |                             | RANGE (DATE INTERVAL) | ILM_DT                | PRCE_CALC_ID          |
|                      |                     | CI_PRCE_CALC_LN             | REFERENCE             | PRCE_CALC_ID          | -                     |
|                      |                     | CI_PRCE_CALC_PARAMS         | REFERENCE             | PRCE_CALC_ID          | -                     |
| Match Event          | CI_MATCH_EVT        |                             | RANGE                 | MATCH_EVT_ID          | -                     |
| Membership Repricing | CI_REPRC_REQ_DTL    |                             | RANGE                 | REPRC_ENTITY_ID       | -                     |
|                      | CI_REPRC_ENTITY_DTL |                             | RANGE                 | PREPRCS_REQ_ID        | -                     |
| Trial Billing        | CI_TRL_BILL         |                             | RANGE (DATE INTERVAL) | ILM_DT                | BILL_ID               |
|                      |                     | CI_TRL_BILL_CHAR            | REFERENCE             | BILL_ID               | -                     |
|                      |                     | CI_TRL_BILL_MESSAGES        | REFERENCE             | BILL_ID               | -                     |

| Module Name | Table Name  | Child Table Name    | Partition Type | Partition Key         | Sub-Partition Key |         |
|-------------|-------------|---------------------|----------------|-----------------------|-------------------|---------|
|             |             | CI_TRL_BILL_EXCP    | REFERENCE      | BILL_ID               | -                 |         |
|             |             | CI_TRL_BILL_MSG_PRM | REFERENCE      | BILL_ID               | -                 |         |
|             |             | CI_TRL_BILL_ROUTING | REFERENCE      | BILL_ID               | -                 |         |
|             |             | CI_TRL_BILL_SA      | REFERENCE      | BILL_ID               | -                 |         |
|             |             | CI_TRL_BILL_LOG     | REFERENCE      | BILL_ID               | -                 |         |
|             | CI_TRL_BSEG |                     |                | RANGE (DATE INTERVAL) | ILM_DT            | BSEG_ID |
|             |             | CI_TRL_BSCALC       | REFERENCE      | BSEG_ID               | -                 |         |
|             |             | CI_TRL_BSCALC_LN    | REFERENCE      | BSEG_ID               | -                 |         |
|             |             | CI_TRL_BSCL_CHAR    | REFERENCE      | BSEG_ID               | -                 |         |
|             |             | CI_TRL_BSEXCP       | REFERENCE      | BSEG_ID               | -                 |         |
|             |             | CI_TRL_BSITEM       | REFERENCE      | BSEG_ID               | -                 |         |
|             |             | CI_TRL_BSREAD       | REFERENCE      | BSEG_ID               | -                 |         |
|             |             | CI_TRL_BSSQ         | REFERENCE      | BSEG_ID               | -                 |         |
|             |             | CI_TRL_BSMSG        | REFERENCE      | BSEG_ID               | -                 |         |
|             |             | CI_TRL_BSEXT        | REFERENCE      | BSEG_ID               | -                 |         |
|             | CI_TRL_FT   |                     |                | RANGE (DATE INTERVAL) | ILM_DT            | FT_ID   |
|             |             | CI_TRL_FT_GL        | REFERENCE      | FT_ID                 | -                 |         |
|             |             | CI_TRL_FT_PROC      | REFERENCE      | FT_ID                 | -                 |         |

You can use either of the following approach for partitioning tables:

- **Offline Partitioning (Using Export and Import for Table Partitioning)** – In this approach, you need to do the following:
  - Export data from the tables using the Oracle Export Data Pump functionality (i.e. expdp) with the **Data Only** option.
  - Drop the tables and recreate them with partition.
  - Import the data in the tables using the Oracle Import Data Pump functionality (i.e. impdp).
  - Create the indexes for the tables.

**Disadvantage of using this approach:** It requires downtime.

**Advantage of using this approach:** It is faster than online partitioning. It takes approximately 12 hours for 1 TB data using 32 parallel servers execution.

- **Online Partitioning (Using the Alter Table Command for Table Partitioning)** – You can convert the table to a partitioned table using the ALTER TABLE ... MODIFY command.

**Disadvantage of using this approach:** It requires more time than offline partitioning. It takes approximately 17 hours for 1 TB data using 32 parallel servers execution.

**Advantage of using this approach:** It does not require downtime.

## 5.2.4 Performance Tuning

To improve the system performance, we recommend you to execute the following SQLs which are available in the `SAMPLE SQL PARTITIONING SCRIPTS FOR ORMB V5.1.0.0.0` patch (Patch Number: 35564522) on [My Oracle Support](#).

- `ONLINE_V51000_match_evT_REPRC_ENTITY_REPRC_REQ_table_part_EXA.sql`
- `ONLINE_V51000_PRCE_CALC_and_referencePartiton_tables.sql`
- `ONLINE_V51000_TFM_MODULE_PARTITIONED_TABLES.sql`
- `ONLINE_V51000_AUDIT_table_reference_part.sql`
- `ONLINE_V51000_CI_ADJ_and_referencePartiton_tables.sql`
- `ONLINE_V51000_CI_BILL_and_referencePartiton_tables.sql`
- `ONLINE_V51000_CI_BILL_CHG_and_referencePartiton_tables.sql`
- `ONLINE_V51000_CI_BSEG_and_referencePartiton_tables.sql`
- `ONLINE_V51000_CI_FT_and_referencePartiton_tables.sql`
- `ONLINE_V51000_CI_MEMBERSHIP_and_referencePartiton_tables.sql`
- `ONLINE_V51000_CI_PAY_and_referencePartiton_tables.sql`
- `ONLINE_V51000_CI_TRL_BILL_table_reference_part.sql`
- `ONLINE_V51000_CI_TRL_BSEG_table_reference_part.sql`
- `ONLINE_V51000_CI_TRL_FT_table_reference_part.sql`
- `ONLINE_V51000_INBOUND_MSG_and_referencePartiton_tables.sql`

## 5.2.5 Performance Monitoring

SQLTXPLAIN, also known as SQLT, is a tool provided by Oracle Server Technologies. It enables users to analyze and tune the performance of a single SQL statement. SQLT inputs one SQL statement and outputs a set of diagnostics files. These output files are commonly used to diagnose SQL statements performing poorly. SQLT connects to the database and collects execution plans, Cost-based Optimizer CBO statistics, schema objects metadata, performance statistics, configuration parameters, and similar elements that influence the performance of the SQL being analyzed.

Refer to the [All About the SQLT Diagnostic Tool](#) (Document ID: 215187.1) article on [My Oracle Support](#) for more information about:

- How to install SQLT
- How to determine the SQL\_ID for an SQL Statement
- How to interpret the SQLTXPLAIN Main report

Another tool named Automatic Workload Repository (AWR) is used to collect performance statistics including:

- Wait events used to identify performance problems
- Gather system and session statistics
- Object usage statistics

- Resource intensive SQL statements

To generate the AWR report, refer to the [How to Create an AWR Report at the PDB level on 12.2 or later \(Document ID: 2334006.1\)](#) article on [My Oracle Support](#) for more information.

## 5.2.6 Local Undo Mode in Oracle Database

In Oracle Database 12c Release 2 onwards, each container in an instance can use its own undo tablespace. This new undo management mechanism is called local undo mode. Some of the new multitenant features in 12.2 rely on local undo. We recommend you set local undo for each pluggable database (PDB).

If you are upgrading from Oracle Database 12c Release 1, then change the undo mode from Shared to Local.

To view the current undo mode, use the following code snippet:

```
Column property_name format a30
Column property_value format a30
Select property_name, property_value from database_properties where
property_name = 'LOCAL_UNDO_ENABLED';
```

The above query indicates the undo mode which is currently used. For example:

| PROPERTY_NAME      | PROPERTY_VALUE |
|--------------------|----------------|
| LOCAL_UNDO_ENABLED | TRUE           |

Figure 1: LOCAL\_UNDO\_ENABLED Property

## 5.2.7 Memory Resource Management for PDBs in Oracle Database

Prior to Oracle Database 12c Release 2, there was no way to control the amount of memory used by an individual pluggable database (PDB). However, from Oracle Database 12c Release 2 (12.2) onwards, you can control the amount of memory used by a PDB, making consolidation more reliable.

You can set the following memory parameters at the pluggable database level:

- **DB\_CACHE\_SIZE** - The minimum buffer cache size for the pluggable database.
- **SHARED\_POOL\_SIZE** - The minimum shared pool size for the pluggable database.
- **PGA\_AGGREGATE\_LIMIT** - The maximum PGA size for the pluggable database.
- **PGA\_AGGREGATE\_TARGET** - The target PGA size for the pluggable database.
- **SGA\_MIN\_SIZE** - The minimum SGA size for the pluggable database.
- **SGA\_TARGET** - The maximum SGA size for the pluggable database.

The process of setting memory parameters for a pluggable database is similar to setting memory parameters for a regular instance.

## 5.2.8 Global Optimizer Statistics Settings

We recommend you implement some standard settings as mentioned in this section which will help to gather statistics in a faster way.

### 5.2.8.1 Setting Stale Percentage

`STALE_PERCENT` determines the percentage of rows in a table that must change before the statistics on that table are deemed stale and should be re-gathered. You can verify the stale percentage setting using the following SQL statement:

```
SELECT DBMS_STATS.GET_PREFS('STALE_PERCENT') FROM DUAL;
```

The default stale percentage is set to 10% and we recommend retaining the default setting.

### 5.2.8.2 Incremental Statistics Gathering

We recommend you enable the incremental statistics gathering feature only for partitioned tables. This feature not only reduces the time it takes to gather global statistics, but also increases the statistics accuracy. This feature avoids scanning whole table when computing global statistics and derives it from partition level statistics.

Set the `INCREMENTAL` option to `TRUE` for every partitioned table in the CISADM schema and set its stale percent as shown in the following code snippet:

```
BEGIN
DBMS_STATS.SET_TABLE_PREFS(NULL, 'TABLE_NAME', 'INCREMENTAL', 'TRUE');
END;
BEGIN
DBMS_STATS.SET_GLOBAL_PREFS('INCREMENTAL_STALENESS',
'USE_STALE_PERCENT');
END;
```

You can verify the setting using the following SQL statement:

```
SELECT DBMS_STATS.GET_PREFS('INCREMENTAL') FROM DUAL;
```

### 5.2.8.3 Setting Auto Degree

Gathering statistics with auto sample size initiates full table scans to inspect table data. We can leverage parallel execution to make these scans complete in less time. We recommend you set the `AUTO_DEGREE` property at the global level using the following code snippet:

```
BEGIN
DBMS_STATS.SET_GLOBAL_PREFS('DEGREE', DBMS_STATS.AUTO_DEGREE)
END;
```

### 5.2.8.4 Automatic Statistics Gathering

Oracle Database collects statistics for database objects that do not have statistics or have stale (i.e. out of date) statistics. This is done by an automatic task that executes during a predefined maintenance window. Oracle internally prioritizes the database objects that require statistics so that objects which need statistics on priority are processed first.

You can verify the last auto gather job status using the following SQL statement:

```
SELECT CLIENT_NAME, JOB_STATUS, JOB_START_TIME, JOB_DURATION FROM
DBA_AUTOTASK_JOB_HISTORY WHERE JOB_START_TIME > SYSTIMESTAMP - 3 AND
CLIENT_NAME='AUTO OPTIMIZER STATS COLLECTION' ORDER BY JOB_START_TIME
DESC;
```

If the job is not successfully completed or is incomplete due low maintenance window, then run the optimizer advisor to identify the objects which are not processed in the job. For more information, refer to the [Optimizer Statistics Advisor](#) section.

### 5.2.8.5 Concurrent Statistics Gathering

If the concurrent statistics gathering mode is enabled, the database can simultaneously gather optimizer statistics for multiple tables in a schema, or for multiple partitions or sub partitions in a table. Gathering statistics on multiple tables and (sub) partitions concurrently can reduce the overall time it takes to gather statistics by allowing the database server to fully utilize a multi-processor environment.

Before you enable the concurrent statistics gathering mode, you must activate an Oracle Resource Manager Plan. Statistics gathering with parallel and concurrent execution has the potential to consume lots of system resources. In order to control this usage, we need the resource manager plan in place. The aim of this resource manager plan is to control the resources used by the concurrent statistics jobs.

You need to check whether a resource manager plan is active at the database level. If no value is specified for the RESOURCE\_MANAGER\_PLAN parameter, the database resource manager is not activated. In this case, you should not enable the concurrent statistics gathering mode. Otherwise, the following error will occur:

```
ERROR AT LINE 1:
```

```
ORA-20000: UNABLE TO GATHER STATISTICS CONCURRENTLY: RESOURCE MANAGER
IS NOT ENABLED.
```

```
ORA-06512: AT "SYS.DBMS_STATS", LINE 34634
```

```
ORA-06512: AT LINE 1
```

Assigning a resource plan is a prerequisite for using the concurrent statistics gathering feature. The user must have privileges for the following:

- CREATE JOB
- MANAGE SCHEDULER
- MANAGE ANY QUEUE

You should disable the parallel adaptive multi-user because we are using the parallel execution as part of concurrent statistics gathering. You can disable the parallel adaptive multi-user using the following statement:

```
ALTER SYSTEM SET PARALLEL_ADAPTIVE_MULTI_USER=FALSE
```

By default, the concurrency setting for statistics gathering is turned off. It can be turned on using the following code snippet:

```
BEGIN
DBMS_STATS.SET_GLOBAL_PREFS('CONCURRENT','MANUAL');
END;
```

You can verify the setting using the following SQL statement:

```
SELECT DBMS_STATS.GET_PREFS('CONCURRENT') FROM DUAL;
```

## 5.2.9 Optimizer Statistics Advisor

The Optimizer Statistics Advisor analyzes how optimizer statistics are gathered, and then makes some recommendations on how to improve the statistics gathering strategy in order to provide more efficient statistics to the Cost-Based Optimizer (CBO). This feature is available in Oracle Database 12c Release 2.

### 5.2.9.1 Creating an Optimizer Statistics Advisor Task

The `DBMS_STATS.CREATE_ADVISOR_TASK` function creates a task for Optimizer Statistics Advisor. You can create an advisor task using the following code snippet:

```
DECLARE
TNAME VARCHAR2(32767);
RET VARCHAR2(32767);
BEGIN
TNAME := 'RMB_ADVISOR_16';
RET := DBMS_STATS.CREATE_ADVISOR_TASK(TNAME);
END;
```

You can view the advisor task using the following SQL statement:

```
SELECT TASK_NAME, ADVISOR_NAME, CREATED, STATUS FROM DBA_ADVISOR_TASKS
WHERE ADVISOR_NAME = 'STATISTICS ADVISOR';
```

### 5.2.9.2 Creating Filters for an Optimizer Advisor Task

Filters are useful for including or excluding a specific set of rules, schemas, or operations from Optimizer Statistics Advisor tasks. The simplest way to create filters is to use the following `DBMS_STATS` procedures either individually or in combination:

- **CONFIGURE\_ADVISOR\_OBJ\_FILTER** - Use this procedure to include or exclude the specified database schemas or objects.
- **CONFIGURE\_ADVISOR\_RULE\_FILTER** - Use this procedure to include or exclude the specified rules.
- **CONFIGURE\_ADVISOR\_OPR\_FILTER** - Use this procedure to include or exclude the specified `DBMS_STATS` operations.



In the following code snippet, the 1<sup>st</sup> filter will disable the advisor for all objects; 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> filters will enable the `AvoidStaleStats`, `UseIncremental`, and `NotUseIncremental` rules for the `CISADM` objects; and 5<sup>th</sup>, 6<sup>th</sup>, 7<sup>th</sup>, and 8<sup>th</sup> filters will disable the respective rules.

```
DECLARE
FILTER1 CLOB;
FILTER2 CLOB;
FILTER3 CLOB;
FILTER4 CLOB;
FILTER5 CLOB;
FILTER6 CLOB;
FILTER7 CLOB;
FILTER8 CLOB;
BEGIN
FILTER1 := DBMS_STATS.CONFIGURE_ADVISOR_OBJ_FILTER(TASK_NAME =>
'RMB_ADVISOR_16', STATS_ADV_OPR_TYPE => 'EXECUTE', RULE_NAME => NULL,
OWNNAME => NULL, TABNAME => NULL, ACTION => 'DISABLE');
FILTER2 := DBMS_STATS.CONFIGURE_ADVISOR_OBJ_FILTER(TASK_NAME =>
'RMB_ADVISOR_16', STATS_ADV_OPR_TYPE => 'EXECUTE', RULE_NAME =>
'AVOIDSTALESTATS', OWNNAME => 'CISADM', TABNAME => NULL, ACTION =>
'ENABLE');
FILTER3 := DBMS_STATS.CONFIGURE_ADVISOR_OBJ_FILTER(TASK_NAME =>
'RMB_ADVISOR_16', STATS_ADV_OPR_TYPE => 'EXECUTE', RULE_NAME =>
'USEINCREMENTAL', OWNNAME => 'CISADM', TABNAME => NULL, ACTION =>
'ENABLE');
FILTER4 := DBMS_STATS.CONFIGURE_ADVISOR_OBJ_FILTER(TASK_NAME =>
'RMB_ADVISOR_16', STATS_ADV_OPR_TYPE => 'EXECUTE', RULE_NAME =>
'NOTUSEINCREMENTAL', OWNNAME => 'CISADM', TABNAME => NULL, ACTION =>
'ENABLE');
FILTER5 := DBMS_STATS.CONFIGURE_ADVISOR_RULE_FILTER(TASK_NAME =>
'RMB_ADVISOR_16', STATS_ADV_OPR_TYPE => 'EXECUTE', RULE_NAME =>
'USECONCURRENT', ACTION => 'DISABLE');
FILTER6 := DBMS_STATS.CONFIGURE_ADVISOR_RULE_FILTER(TASK_NAME =>
'RMB_ADVISOR_16', STATS_ADV_OPR_TYPE => 'EXECUTE', RULE_NAME =>
'USEDEFAULTPARAMS', ACTION => 'DISABLE');
FILTER7 := DBMS_STATS.CONFIGURE_ADVISOR_RULE_FILTER(TASK_NAME =>
'RMB_ADVISOR_16', STATS_ADV_OPR_TYPE => 'EXECUTE', RULE_NAME =>
'USEAUTOJOB', ACTION => 'DISABLE');
FILTER8 := DBMS_STATS.CONFIGURE_ADVISOR_RULE_FILTER(TASK_NAME =>
'RMB_ADVISOR_16', STATS_ADV_OPR_TYPE => 'EXECUTE', RULE_NAME =>
'USEGATHERSCHEMASTATS', ACTION => 'DISABLE');
END;
```

### 5.2.9.3 Executing an Optimizer Statistics Advisor Task

The `DBMS_STATS.EXECUTE_ADVISOR_TASK` function executes a task for Optimizer Statistics Advisor. You can execute an advisor task using the following code snippet:

```
DECLARE
TNAME VARCHAR2(32767);
RET VARCHAR2(32767);
BEGIN
TNAME := 'RMB_ADVISOR_16';
RET := DBMS_STATS.EXECUTE_ADVISOR_TASK(TNAME);
END;
```

### 5.2.9.4 Generating a Report for an Optimizer Statistics Advisor Task

We recommend you configure daily job to run the advisor in the non-peak hours and generate the report. The `DBMS_STATS.REPORT_ADVISOR_TASK` function generates a report for an Optimizer Statistics Advisor task. The report summarizes the findings and rules violated by the findings and lists the recommendations (if any) for the finding. You can view the report using the following SQL statement:

```
SELECT
DBMS_STATS.REPORT_ADVISOR_TASK('RMB_ADVISOR_16',NULL,'TEXT','ALL','ALL
') AS REPORT FROM DUAL;
```

### 5.2.9.5 Implementing Optimizer Statistics Advisor Recommendations

You can implement all recommendations given by the advisor automatically or manually. You can use the following code snippet to implement all recommendations automatically:

```
DECLARE
TNAME VARCHAR2(32767);
RET VARCHAR2(32767);
BEGIN
TNAME := 'RMB_ADVISOR_16';
RET := DBMS_STATS.IMPLEMENT_ADVISOR_TASK(TNAME);
END;
```

Alternatively, you can implement the recommendations manually for each table using the following code snippet:

```
BEGIN
DBMS_STATS.GATHER_TABLE_STATS(OWNNAME=>'CISADM', TABNAME=>'TABLE-NAME',
GRANULARITY=>'ALL', CASCADE=>TRUE, METHOD_OPT=>'FOR ALL COLUMNS SIZE
AUTO')
END;
```

## 5.2.10 Using the Segment Advisor

A table may experience large number of updates. As a result, there might be performance issues while executing queries on these tables. In such case, we recommend you use the segment advisor. The segment advisor is used for identifying segments which are candidates for a shrink operation (i.e. releasing unused space and moving the High Water Mark).

The segment advisor can generate the advice with different degrees of granularity. For example, you can generate advice for all objects in a tablespace or for a specific table, index, or partition.

We recommend you run the segment advisor for the following:

- Objects with size more than 50 G or 100 G
- Temporary tables (such as, CI\_TXN\_DETAIL\_STG) where there are large number of insertions and deletions

### 5.2.10.1 Manually Generating Segment Advisor Advice

To run the segment advisor manually, you need to do the following (as shown in the below code snippet):

1. Create a Task
2. Assign an Object to the Task
3. Set the Task Parameters
4. Execute the Task

```
SET SERVEROUTPUT ON
DECLARE
seg_task_id number;
seg_task_name varchar2(100);
seg_task_desc varchar2(500);
OBJ_ID number;
BEGIN
seg_task_name := 'ANALYZE_TABLE_DATA';
seg_task_desc := 'Manual Segment Advisor Run for table';

-- Step 1
dbms_advisor.create_task(
advisor_name => 'Segment Advisor',
task_id => seg_task_id,
task_name => seg_task_name,
task_desc => seg_task_desc);
```

```
-- Step2
dbms_advisor.create_object(
task_name => seg_task_name,
object_type => 'TABLE',
attr1 => 'CISADM',
attr2 => 'CI_BSEG_CALC',
attr3 => NULL,
attr4 => NULL,
attr5 => NULL,
object_id => obj_id);
-- Step3
dbms_advisor.set_task_parameter(
task_name => seg_task_name,
parameter => 'recommend_all',
value => 'TRUE');

-- Step4
DBMS_ADVISOR.EXECUTE_TASK(seg_task_name);

FOR cur_rec IN (SELECT f.impact, o.type, o.attr1, o.attr2, f.message,
f.more_info FROM dba_advisor_findings f JOIN dba_advisor_objects o ON
f.object_id = o.object_id AND f.task_name = o.task_name WHERE
f.task_name = seg_task_name ORDER BY f.impact DESC)
LOOP
DBMS_OUTPUT.put_line('..');
DBMS_OUTPUT.put_line('Type : ' || cur_rec.type);
DBMS_OUTPUT.put_line('Attr1 : ' || cur_rec.attr1);
DBMS_OUTPUT.put_line('Attr2 : ' || cur_rec.attr2);
DBMS_OUTPUT.put_line('Message : ' || cur_rec.message);
DBMS_OUTPUT.put_line('More info : ' || cur_rec.more_info);
END LOOP;

DBMS_ADVISOR.delete_task(task_name => seg_task_name);
EXCEPTION
WHEN OTHERS THEN
DBMS_OUTPUT.put_line('Error : ' ||
DBMS_UTILITY.format_error_backtrace);
DBMS_ADVISOR.delete_task(task_name => seg_task_name);
```

End;

Similarly, you can manually generate segment advisor advice for an index. You just need to change the `OBJECT_TYPE` to `INDEX` and specify the index name in the `ATTR2` in Step 2.

Using the following SQL statement, you can verify whether the advisor task is completed:

```
SELECT TASK_NAME, STATUS FROM DBA_ADVISOR_TASKS WHERE ADVISOR_NAME='SEGMENT
ADVISOR' AND TASK_NAME IN ('ANALYZE_TABLE_DATA');
```

### 5.2.10.2 Viewing Segment Advisor Advice

We recommend you configure daily job to run the advisor for selected objects in the non-peak hours and view the advisory recommendations. The advice will give an estimate about how much space can be reclaimable. Depending upon the estimate given by the segment advisor, you can decide whether to shrink table or not.

### 5.2.10.3 Shrinking Tables

Before you shrink a table, you need to enable row movement for the table using the following SQL statement:

```
ALTER TABLE SEG_TABLE ENABLE ROW MOVEMENT;
```

Then, you can shrink a table using the following SQL statement:

```
ALTER TABLE SEG_TABLE SHRINK SPACE COMPACT;
```

# Appendix A : New Objects in the Oracle Revenue Management and Billing V5.1.0.0.0 Database

This section lists the objects that are newly added in the Oracle Revenue Management and Billing V5.1.0.0.0 database. These objects are classified under the following two sections:

- [Schema Changes](#)
- [New System Data](#)

## A.1 Schema Changes

This section lists schema related changes made in the Oracle Revenue Management and Billing V5.1.0.0.0 database.

### A.1.1 New Tables

The following tables are newly added in the Oracle Revenue Management and Billing V5.1.0.0.0 database:

| Table                        | Description                                        |
|------------------------------|----------------------------------------------------|
| C1_DEAL_APROF_CRT_HCY        | Deal Approval Criteria Hierarchy                   |
| C1_DEAL_TYPE_PC_COLMN_CONFIG | Deal Type Pricing Commitments Column Configuration |
| C1_MODEL_ADHOC_PRICEITEM     | Model Adhoc Price Item table                       |
| C1_MODEL_STND_PRICEASGN      | Model Standard Price Assignments                   |
| C1_MODEL_STND_PRICELIST      | Model Standard Pricelist                           |
| C1_PRC_RULE_MEMB             | Membership Pricing Rule Detail                     |
| C1_PRICEITEM_REL_DIV         | Price Item Relationship Divisions                  |

### A.1.2 Added Columns

The following columns are newly added in the Oracle Revenue Management and Billing V5.1.0.0.0 database:

| Table                   | Column                  | Column Description                | Required (Yes or No) |
|-------------------------|-------------------------|-----------------------------------|----------------------|
| C1_ACCUM_MIN_PREM_AMT   | CUL_SURPLUS_DEFICIT_AMT | Cumulative Surplus Deficit Amount | No                   |
|                         | EFFECTIVE_MPP_LIMIT     | Effective MPP Limit               | No                   |
|                         | MONTHLY_MPP_LIMIT       | Monthly MPP Limit                 | No                   |
|                         | ROLL_FWD_CHRG           | Roll Forward Charges              | No                   |
| C1_DEAL_APROF_HCY       | SELF_APP_REQ            | Enable Self-Approval              | Yes                  |
| C1_DEAL_COMMENTS        | DEAL_WITH_APPR          | Deal with Approval                | No                   |
| C1_DEAL_SIMULATION_DTL  | LOCAL_PROFITABILITY_AMT | Local Profit Amount               | No                   |
|                         | PROFITABILITY_AMT       | Profit Amount                     | No                   |
| C1_DEAL_SIMULATION_SMRY | LOCAL_PROFITABILITY_AMT | Local Profit Amount               | No                   |
|                         | PROFITABILITY_AMT       | Profit Amount                     | No                   |

| Table                   | Column                       | Column Description                    | Required (Yes or No) |
|-------------------------|------------------------------|---------------------------------------|----------------------|
| C1_DEAL_TYPE            | SIML_STATS_TYPE_FLG          | Default Simulation View               | Yes                  |
|                         | STND_COMPARE_SW              | Standard Pricing Comparison           | Yes                  |
| C1_MODEL_FIN_SUMMARY    | LOCAL_STND_COST              | Local Standard Cost                   | No                   |
|                         | LOCAL_STND_PROFITABILITY_AMT | Local Standard profit                 | No                   |
|                         | LOCAL_STND_REVENUE           | Local Standard Revenue                | No                   |
|                         | PROF_DEVI_PROP_VS_STND       | Profit Variation vs Standard          | No                   |
|                         | REVENUE_DEVI_PROP_VS_ACTIVE  | Revenue Variation vs Active           | No                   |
|                         | REVENUE_DEVI_PROP_VS_STND    | Revenue Variation vs Standard         | No                   |
|                         | STND_COST                    | Standard Cost Value                   | No                   |
|                         | STND_PROFITABILITY           | Standard Profitability                | No                   |
|                         | STND_PROFITABILITY_AMT       | Standard Profit                       | No                   |
|                         | STND_REVENUE                 | Standard Revenue                      | No                   |
| C1_MODEL_RECM_PRICEASGN | PRICEITEM_CD                 | Price Item                            | No                   |
|                         | PRICEITEM_PARM_GRP_ID        | Price Item Parameters                 | No                   |
| CI_ACCT                 | RE_EVAL_APAY_SW              | Eligible for Re-evaluation of Autopay | Yes                  |

### A.1.3 Dropped Tables

None

### A.1.4 Dropped Columns

None



## A.1.5 Added Views

None

## A.1.6 Column Format Change

None

## A.2 New System Data

The system data is used to configure various features in Oracle Revenue Management and Billing. This section lists the system data that is newly added in the Oracle Revenue Management and Billing V5.1.0.0.0 database.

### A.2.1 Algorithm Types

The following algorithm types are newly added in the Oracle Revenue Management and Billing V5.1.0.0.0 database:

| Algorithm Type | Description                                            |
|----------------|--------------------------------------------------------|
| C1-DLDWLD      | Download Deal in Excel format                          |
| C1-DLEMAILBD   | Create Email Body for Deal Related Email Notifications |
| C1-EMAIL       | Email Notification                                     |

### A.2.2 Algorithms

The following algorithms are newly added in the Oracle Revenue Management and Billing V5.1.0.0.0 database:

| Algorithm    | Description                        |
|--------------|------------------------------------|
| C1-DLDWLD    | Download Deal in Excel format      |
| C1-DLEMAILBD | Deal Email Body Creation Algorithm |
| C1-EMAIL     | Email Notification                 |

### A.2.3 Business Services

The following business services are newly added in the Oracle Revenue Management and Billing V5.1.0.0.0 database:

| Business Service      | Description                                          |
|-----------------------|------------------------------------------------------|
| C1_CbDealFeatureCheck | Check deal feature check for chatbot                 |
| C1_DEALUPLOAD         | Deal Upload Service                                  |
| C1_DLFETCHPCCOLS      | Fetch Deal Pricing Commitment Columns                |
| C1_PriceItemRelCbpr   | Associate Price Items for Relationship Based Pricing |

| Business Service           | Description                           |
|----------------------------|---------------------------------------|
| C1-Bk360CustHrchy          | Default Hierarchy                     |
| C1-CbDealFinDetailsService | To display the deal financial summary |
| C1-CbDealUsrMetrics        | PFAP deal count in chatbot            |
| C1-CbListPendingDeals      | To list all pending deals             |
| C1-DealdashBoardDefaultSw  | Deal Dashboard Default View           |
| C1-GetAmtPrdRevItem        | Get Amount from current period BS     |
| C1-GETDEALACCT             | Get Customer Deal Information         |
| C1-GETDEALINFO             | Get Customer Deal Information         |
| C1-GETPIPARAM              | Get Priceltem Param                   |
| C1-GetPIRelDiv             | Get Priceltem Param                   |
| C1-GetUsgAccUsg            | Get Usage for rev by account usage    |
| C1-ViewEditPayChars        | View/Update Payment Characteristics   |

## A.2.4 Portals

The following portal is newly added in the Oracle Revenue Management and Billing V5.1.0.0.0 database:

| Portal   | Description               |
|----------|---------------------------|
| C1BKSINB | Customer 360° Information |

## A.2.5 Batch Controls

The following batch controls are newly added in the Oracle Revenue Management and Billing V5.1.0.0.0 database:

| Batch Control | Description                         |
|---------------|-------------------------------------|
| C1_ORCH       | Deal Orchestration                  |
| C1-CMMPP      | Complete Minimum Premium Program    |
| C1-REAPY      | Re-evaluate latest Auto-Pay details |

## A.2.6 Foreign Key References

None

## A.2.7 Scripts

The following scripts are newly added in the Oracle Revenue Management and Billing V5.1.0.0.0 database:

| Script       | Description                                                     |
|--------------|-----------------------------------------------------------------|
| C1_VALFILTER | Validate Hidden Filters                                         |
| C1-Acc360Nav | Account 360 Nav                                                 |
| C1-AcCCNav   | BPA for revenue trend page navigation                           |
| C1-AcctPgNav | Navigation to Account page                                      |
| C1-ActpgNav  | Navigate to Account Page                                        |
| C1-addAccNav | BPA for add account navigation                                  |
| C1-ADDCBPR   | CBPR Product relationship Add/Edit                              |
| C1-addCont   | BPA for add Contact navigation                                  |
| C1-CalDayDue | Calculate days past Due                                         |
| C1-CbprPILvl | Zone Visibility - CBPR Display Zone in Portal                   |
| C1-DEALFLDL  | Download Deal Pricing                                           |
| C1-DEALFLUPD | Deal File Upload                                                |
| C1-EDITCBPR  | CBPR Product relationship Edit                                  |
| C1-GETDEALIF | get deal count                                                  |
| C1-GTDEALACC | get deal count for account                                      |
| C1-infoStng  | FKV Info String                                                 |
| C1-NavConPg  | Price List Assignment Navigation                                |
| C1-perTrPnBl | Trial/Pending Billing Method Filter                             |
| C1-prcList   | BPA for Price List Navigation                                   |
| C1-prcNav    | Navigate to Effective Price Page                                |
| C1-PYCHARBUT | Payment Request - Show/Hide Characteristic Button               |
| C1-PymtChars | View/Update Payment Characteristics                             |
| C1-stmtPgNav | Navigate to Account PageStatement hierarchy Navigate navigation |
| C1-unpaidAmt | Unpaid revenue filter                                           |
| OR-CBEXTDEAL | Extract Deal                                                    |
| OR-DEALINFO  | To Launch Deal Information UI                                   |

## A.2.8 New Zones in Existing Portals

The following zones are added to the existing portals in the Oracle Revenue Management and Billing V5.1.0.0.0 database:

| Portal     | Zone         | Zone Description                                     |
|------------|--------------|------------------------------------------------------|
| C1_BNDMN   | C1-ASSPRDT   | Associate Price Items for Relationship Based Pricing |
|            | C1-ASSPRDTCB | Associate Price Item Relationship                    |
| C1BK360ACT | C1-ACCTRBIL  | Trial / Pending Bills                                |
|            | C1-ACTBLHIST | Billing History                                      |
|            | C1-DEALINFOA | Deal Information                                     |
| C1DAPROF   | C1_DEAL_APRO | Approval Hierarchy                                   |
|            | C1_DEALAPPHC | Approval Level Criteria                              |

## A.2.9 Zones

The following zones are newly added in the Oracle Revenue Management and Billing V5.1.0.0.0 database:

| Zone          | Description                                          |
|---------------|------------------------------------------------------|
| C1_CBDL_CHEK  | Chatbot Deal Feature Check                           |
| C1_CBPFPAP_CT | chatbot service to fetch PFAP deals                  |
| C1_DEAL_APRO  | Approval Hierarchy                                   |
| C1_DEAL_PFPAP | Show all Deal PFAP                                   |
| C1_DEALAPPHC  | Approval Level Criteria                              |
| C1_DLACPLP    | Account Agreed Pricing                               |
| C1_DLCPLP     | Customer Agreed Pricing                              |
| C1_DLPRITEMP  | Price Item Pricing Search                            |
| C1_DSDV       | Fetch Deal Dashboard Default View value              |
| C1_PRIMRELDV  | Get Price Item Level Division                        |
| C1-ACCTRBIL   | Trial / Pending Bills                                |
| C1-ACTBLHIST  | Billing History                                      |
| C1-ADDRSRCH   | Address Search                                       |
| C1-AMTPRD     | Get Amount for given period                          |
| C1-ASSPRDT    | Associate Price Items for Relationship Based Pricing |
| C1-ASSPRDTCB  | Associate Price Item Relationship                    |

| Zone         | Description                                  |
|--------------|----------------------------------------------|
| C1-CUSREVAMT | Revenue Metrics                              |
| C1-DLPCCOLS  | Fetch Deal Pricing Commitment Columns        |
| C1-DSPTREQ   | Dispute Details                              |
| C1-GETDEALIN | get deal info based on person/account        |
| C1-GETPIPARM | Get Price Item Param Val                     |
| C1-GETPIRDIV | Get Price Item Relation Division By Group Id |
| C1-LNKDACC   | get deal info based on account               |
| C1-PERBLHRY  | Billing History                              |
| C1-PERHLD    | Hold Details                                 |
| C1-PERINFO   | Person Information                           |
| C1-PRTRLPBL  | Trial / Pending Bills                        |
| C1-USGACUS   | Get Usage in price item acc usage            |

## A.2.10 UI Maps

The following UI maps are newly added in the Oracle Revenue Management and Billing V5.1.0.0.0 database:

| UI Map                     | Description                                          |
|----------------------------|------------------------------------------------------|
| C1_ADDRESS_SEARCH          | Address Search filter UI                             |
| C1_DEAL_FIN_INFO           | Deal Financia Summary                                |
| C1_DIVISION_F              | Search Division to Add to the Relation               |
| C1_PRICEITEMRELCBPR        | Associate Price Items for Relationship Based Pricing |
| C1-Bk360CustHier           | customer legal hierarchy UI                          |
| C1-DEALFLUPD               | Upload Deal Data File                                |
| C1-DealTypeMainFrg         | Deal Type Fragment                                   |
| C1-DealTypePCColConfigFrag | DType Pricing Cmnt Col Config - InputUI              |
| C1-DispDtIs                | Dispute details filters                              |
| C1-HoldDtIs                | hold details                                         |
| C1-ReveAmt                 | Revenue Metrics                                      |
| C1-ReveAmtAcc              | Revenue Metrics                                      |
| C1-SHOWXLSUI               | Show XLS UI                                          |
| C1-TriPndBilFilter         | Trial Pending UI Map For Account                     |

| UI Map                 | Description                                         |
|------------------------|-----------------------------------------------------|
| C1-TripndFilters       | Trial Pending UI Map For Person                     |
| C1-ViewEditPaymentChar | Payment Request - View/Edit Payment Characteristics |

## A.2.11 Lookups

The following lookups are newly added in the Oracle Revenue Management and Billing V5.1.0.0.0 database:

| Field                 | Field Value | Description                   |
|-----------------------|-------------|-------------------------------|
| CB_OPT_TYP_FLG        | CBAU        | Enable Auth in chatbot        |
|                       | CBEN        | Enable chatbot in UI          |
| DEAL_SQI_UPDATE_TYPE  | AB          | Absolute Commitments          |
|                       | AR          | Original Relative Commitments |
|                       | PR          | Proposed Relative Commitments |
| LIMIT_TYPE_FLG        | FLAT        | Flat                          |
|                       | PERC        | Percentage                    |
| OPERATOR_NAME         | AND         | AND                           |
|                       | OR          | OR                            |
| PNC_COLUMN_NAME_FLG   | AVPR        | Average Price                 |
|                       | COST        | Cost                          |
|                       | LEVL        | Assignment Level              |
|                       | PLST        | Price List                    |
|                       | PRFT        | Profit                        |
|                       | PRIF        | Pricing Information           |
|                       | PROP        | Profitability (%)             |
|                       | PRVR        | Profit Variation (%)          |
|                       | REVN        | Revenue                       |
|                       | VOLM        | Volume                        |
|                       | VRPC        | Variation (%)                 |
| PROFIT_VARIATION_TYPE | FLAT        | Flat Amount                   |
|                       | PERC        | Percentage                    |
| SIML_STATS_TYPE_FLG   | ACTV        | Proposed and Original         |
|                       | BOTH        | All                           |

| Field       | Field Value | Description           |
|-------------|-------------|-----------------------|
|             | PRPD        | Proposed              |
|             | STND        | Proposed and Standard |
| YES_NO_FLAG | N           | No                    |
|             | Y           | Yes                   |

## A.2.12 Characteristic Types

The following characteristic type is newly added in the Oracle Revenue Management and Billing V5.1.0.0.0 database:

| Characteristic Type | Description |
|---------------------|-------------|
| C1-PYMT             | Payment     |

## A.2.13 Feature Configurations

None

## A.2.14 Zone Types

None

## A.2.15 Business Objects

The following business object is newly added in the Oracle Revenue Management and Billing V5.1.0.0.0 database:

| Business Object     | Description              |
|---------------------|--------------------------|
| C1_PRICEITEMRELCBPR | Price Item Relation CBPR |

## A.2.16 Maintenance Objects

None

## A.2.17 To Do Types

The following To Do type is newly added in the Oracle Revenue Management and Billing V5.1.0.0.0 database:

| To Do Type | Description                                  |
|------------|----------------------------------------------|
| C1-REAPY   | Re-evaluate Latest Autopay ID To Do creation |

## A.2.18 Application Services

The following application service is newly added in the Oracle Revenue Management and Billing V5.1.0.0.0 database:

| Application Service | Description               |
|---------------------|---------------------------|
| C1BKSINB            | Customer 360° Information |



## Appendix B : Application Services Configured for Default User Group

This section lists the application services configured for the default user groups which are shipped with Oracle Revenue Management and Billing Version 5.1.0.0.0.

### B.1 ALL\_SERVICES

The following table lists all application services configured for the ALL\_SERVICES user group:

| Application Service | Application Service  | Application Service  |
|---------------------|----------------------|----------------------|
| AFHZONE             | C1-CHGTYPASA         | C1-EXTSTMLOGZ        |
| APPTXADM            | C1-CNTRTPPTZ         | C1-EXTSTMTAD         |
| C1-DEALAPPR         | C1-CONTRACTCHARSVALI | C1-EXTSTMTCHAR       |
| BILLGCONS           | C1-CONTRACTTYPECHARS | C1-EXTSTMTED         |
| BILLGRAPH           | C1-CTCGSRV           | C1-EXTSTMTITEM       |
| C1-ACCBALCNT        | C1-CTRLC             | C1-EXTSTMTITMCHR     |
| C1-ACCCRCHM         | C1-DEFAULTPP         | C1-EXTSTMTRC         |
| C1-ACCCURDET        | C1-DELPPTMP          | C1-EXTSTMTRSZ        |
| C1-ACCDETAILZ       | C1-DFLTPPTMP         | C1-EXTSTMTZ          |
| C1-ACCDISCREZ       | C1-DRRDTLSZ          | C1-GETADJ            |
| C1-ACCNBRTYPAS      | C1-DUPBTN            | C1-GETEFFECTVPRICING |
| C1-ACCOUNTCURRENT   | C1-EDITPPTMP         | C1-GETPPTMPL         |
| C1-ACCQUICED        | C1-EQUITYDT          | C1-GETPRICING        |
| C1-ACCREDIT         | C1-EXITEMDEL         | C1-INS-POLICY        |
| C1-ACCRLOGZ         | C1-EXITEMED          | C1-INSDETBAK         |
| C1-ACCSELECT        | C1-EXSTMVBNF         | C1-ISSUEDATEPOLICYCH |
| C1-ACCURERR         | C1-EXTACQRYZ         | C1-LINKPPTMP         |
| C1-ACCURTEXT        | C1-EXTAUTREC         | C1-LINKPPTMP2        |
| C1-ACNPOLSUMZ       | C1-EXTERNALSTATEMENT | C1-MAINPINFR         |
| C1-ACPOLSUMMZ       | C1-EXTITEMAD         | C1-MAINPPLAN         |
| C1-ACTCATSRV        | C1-EXTPENDG          | C1-MAINPPTMP         |
| C1-ACTPPTMPL        | C1-EXTREOPN          | C1-MEMBSP            |

| Application Service  | Application Service | Application Service |
|----------------------|---------------------|---------------------|
| C1-ACURITEMD         | C1-EXTSTCHM         | C1-MOVEPPT          |
| C1-ADJAPPRVLREQBOAS  | C1-EXTSTIMP         | C1-MSGTYPBASISBOAS  |
| C1-APAYEXPCRREQBOAS  | C1-EXTSTITCH        | C1-NAVACTCUR        |
| C1-APAYEXPCRTYPEBOAS | C1-EXTSTLDB         | C1-NAVTOEXST        |
| C1-APPTXN            | C1-EXTSTMBNF        | C1-OUTAGE           |
| C1-APPTXNLOG         | C1-EXTSTMCAN        | C1-PAY-REQ          |
| C1-ASGNPL            | C1-EXTSTMCLD        | C1-PAYMENT          |
| C1-BILLCHARGE        | C1-EXTSTMCLS        | C1-PAYPLAN          |
| C1-BRD               | C1-EXTSTMDTLZ       | C1-PAYPLAND         |
| C1-CASEGRPSRV        | C1-EXTSTMDZ         | C1-PAYPLANTMPLCOMPL |
| C1-PAYPLANZ          | C1-PPDUP            | C1-UNLINKPP         |
| C1-PAYTEMPLATEBOAS   | C1-PPEDIT           | C1-UPLOADCSV        |
| C1-PERBALCNT         | C1-PPEDTTASK        | C1-WRITEOFFREQ      |
| C1-PIFVIS            | C1-PPLANDET         | C1ACCPOR            |
| C1-PINFRDISP         | C1-PPPROC           | C1ACCRATE           |
| C1-PINVFPOST         | C1-PPSACCSRC        | C1ACMACR            |
| C1-POINFRDET         | C1-PPTCNTDETZ       | C1ACMACT            |
| C1-POLCANCE          | C1-PPTERROR         | C1ACMARQ            |
| C1-POLCANZ           | C1-PPTMPDISP        | C1ACTPER            |
| C1-POLICY            | C1-PPTMPDUP         | C1ACTREE            |
| C1-POLICYBPA         | C1-PPTMPL           | C1ADJSTP            |
| C1-POLICYCANRSNSERV  | C1-PPTMPLD          | C1ADJUPL            |
| C1-POLICYCHAR        | C1-PPTMPLDET        | C1AGING             |
| C1-POLICYDESC        | C1-PPTMPLDETZ       | C1APPBOCHNZN        |
| C1-POLICYINVOICEFREQ | C1-PPTMPLVIS        | C1APPCHN            |
| C1-POLICYPLAN        | C1-PPTMPLZ          | C1APPCRT            |
| C1-POLICYSUM         | C1-PPTMPPOST        | C1APPTXNBOCHN       |
| C1-POLINVDETZ        | C1-PRISIM           | C1APPTXNBOCHNZN     |
| C1-POLINVEDI         | C1-PSTAKEHLD        | C1APPTXNGRP         |
| C1-POLINVFRE         | C1-REFWOREQ         | C1APROF             |

| Application Service | Application Service | Application Service |
|---------------------|---------------------|---------------------|
| C1-POLINVFREZ       | C1-REQUEST          | C1ACTIONFLAG        |
| C1-POLINVFRQ        | C1-REQUEST-TYPE     | C1BNKREC            |
| C1-POLI_FHZ         | C1-RETURNDUP        | C1BOCHN             |
| C1-POLNOMINEZ       | C1-REVRECSCHZ       | C1CNTCR             |
| C1-POLPERORLEAS     | C1-RULEBOAS         | C1COLDTL            |
| C1-POLSUMZ          | C1-SHDETAILSZ       | C1COLTYP            |
| C1-PPACCTSRC        | C1-SRCHSCPT         | C1CONSTRUCT         |
| C1-PPACTV           | C1-TXNAGG           | C1CSEPOR            |
| C1-PPBTNS           | C1-TXNDTL           | C1CTRLC             |
| C1-PPDET            | C1-HRCHYENTITY      | C1DISAGR            |
| C1-PPDETZ           | C1-PRSPRODENRL      | C1EXCHRT            |
| C1-PPDISP           | C1-UNLINK           | C1FAAUD             |
| C1_PROPL            | C1POLSRCH           | C1OFPRP             |
| C1FLRQTY            | C1POLSRH            | C1_IM_EX            |
| C1FLSRCH            | C1POLTYP            | PROSADD             |
| C1FOAUD             | C1PPCARS            | PORTEST             |
| C1HDRSR             | C1PPLAN             | C1ADDPRO            |
| C1INSPAY            | C1PPTMPL            | C1VAR               |
| C1MANAPP            | C1PPTMPO            | C1VARIANCE          |
| C1MANLOG            | C1PPVERSCHZ         | C1VIEWRL            |
| C1MANMOD            | C1PRICEL            | C1WODET             |
| C1MANRES            | C1PRISIM            | C1_ACCNBALG         |
| C1MEMBRS            | C1PRODUCT           | C1_ACCTCHAR         |
| C1MEMBSP            | C1PROFILESRVC       | C1_ACCUR            |
| C1MMTYPE            | C1PSNAPP            | C1_ACDTLRCH         |
| C1MTRADM            | C1PSNMOD            | C1_ACMM             |
| C1NCISPY            | C1PSNRES            | C1_ACMS             |
| C1NCPTMP            | C1PTNDRH            | C1_ADDEXH           |
| C1ODBUPR            | C1PTPLP             | C1_ADDPL            |
| C1PAYPLAN           | C1PYRQTY            | C1_ADDPROD          |

| Application Service | Application Service | Application Service |
|---------------------|---------------------|---------------------|
| C1PAYPTL            | C1RECONDTL          | C1_ADD_RTCMP        |
| C1PAYREQ            | C1REFSTP            | C1_ADD_TIER         |
| C1PAYRQ             | C1REFUND            | C1_ADMPI            |
| C1PAYSRC            | C1REQSTP            | C1_ANSPLTCUS        |
| C1PAYUPL            | C1REQSTS            | C1_APPAD            |
| C1PERRL             | C1REQTYP            | C1_APPTXN_PRICEASGN |
| C1PLCYPL            | C1RFWORT            | C1_APPWF            |
| C1PLCYPN            | C1RLCHK             | C1_APUR             |
| C1PLCYTY            | C1SAPPTM            | C1_APVIG            |
| C1POINFR            | C1SATYPELISTZ       | C1_ASNPL            |
| C1POLCYN            | C1SCHEDU            | C1_AUDIT            |
| C1POLCYP            | C1SETTHR            | C1_BACCGRVAL        |
| C1POLICYCANRSN      | C1SRCHRL            | C1_BACCTDETL        |
| C1POLSCH            | C1TXNAGG            | C1_BACCVALID        |
| C1_BACTSRCHM        | C1_CHKBIL_PA        | C1_EXCHRT           |
| C1_BAFHZ            | C1_CHKTRDFLG        | C1_EXHRT            |
| C1_BCCSH            | C1_CIAM             | C1_EXPPITM          |
| C1_BCONT            | C1_CIGAS            | C1_EXSTD            |
| C1_BCON_INFO        | C1_CIMAPZ           | C1_EXSTL            |
| C1_BCON_SRH         | C1_CLACTSRCH        | C1_EXSTM            |
| C1_BCUSACCDT        | C1_CLCSESRCH        | C1_EXSTS            |
| C1_BCUSACCSR        | C1_CLCTRCNTR        | DBMSFLJB            |
| C1_BCUSGRVAL        | C1_COLLN            | C1_FILEHDRSR        |
| C1_BCUSSRCHM        | C1_COM_VALID        | C1_FTRS             |
| C1_BCUSTACDT        | C1_COPYBND          | C1_F_ACTSRCH        |
| C1_BCUSVALID        | C1_COPYPL           | C1_F_ADDBNDT        |
| C1_BFHIS            | C1_CPBUNDL          | C1_F_ADDCHLD        |
| C1_BFH_SRH          | C1_CPYBD            | C1_F_ADDEXCH        |
| C1_BNDMN            | C1_CPYPL            | C1_F_ADDMM          |
| C1_BNDPRD           | C1_CUSTINFO         | C1_F_ADDMMSS        |

| Application Service | Application Service | Application Service |
|---------------------|---------------------|---------------------|
| C1_BNDPRS           | C1_CUST_HR          | C1_F_ADDPL          |
| C1_BO_OPT           | C1_DEL_PRD          | C1_F_ADDPRBD        |
| C1_BPAYHSRCH        | C1_DEL_PROD         | C1_F_ADDPRD         |
| C1_BPH_INFO         | C1_DISPBUND         | C1_F_ADDPRPL        |
| C1_BPYHS            | C1_DIVPERREL        | C1_F_ADDPRSS        |
| C1_BRD_P            | C1_DRRSR            | C1_F_ADDRATE        |
| C1_BSRCHOVRD        | C1_DSPLY_RT         | C1_F_ADMPROD        |
| C1_BSRPT            | C1_EDIT             | C1_F_ADPROD         |
| C1_BTOGGLECA        | C1_EDTBUND          | C1_F_ADVAL          |
| C1_BTREESRCH        | C1_EDTER            | C1_F_APVDTVL        |
| C1_BTST             | C1_EDTPL            | C1_F_APVNFLT        |
| C1_BUNDLE           | C1_EDTPROD          | C1_F_APVRJS         |
| C1_BUNDVAL          | C1_EDT_PRITM        | C1_F_ASGNCUS        |
| C1_BVCAC            | C1_EFF_PRC          | C1_F_ASGNPTP        |
| C1_CASE_USR         | C1_EFF_PRICE        | C1_F_CHHSRCH        |
| C1_CCC              | C1_EFPRODSRC        | C1_F_CIGG3V         |
| C1_F_CLSRCH         | C1_F_IGG1MM         | C1_INF_PARTY        |
| C1_F_CNCLMM         | C1_F_IGG1MS         | C1_INVCN            |
| C1_F_CNCLMR         | C1_F_IGG2MM         | C1_INVSR            |
| C1_F_CONTR          | C1_F_IGG2MS         | C1_LIST_TIER        |
| C1_F_CON_VAL        | C1_F_IGG3MM         | C1_MEMBERS          |
| C1_F_COPYPL         | C1_F_IGG3MS         | C1_MIG              |
| C1_F_COPYSS         | C1_F_PLCRT          | C1_MIGAS            |
| C1_F_CPYBNDL        | C1_F_PLEDT          | C1_MNG              |
| C1_F_CPYPL          | C1_F_PLVAL          | C1_MNGRT            |
| C1_F_CPYPLVL        | C1_F_POPITEM        | C1_MNGTR            |
| C1_F_CUSSRCH        | C1_F_PRCHAR         | C1_MOD              |
| C1_F_DELEXCH        | C1_F_PRCHARS        | C1_MPPA             |
| C1_F_DELSCS         | C1_F_PRDVL          | C1_NAVIGATE         |
| C1_F_DTVAL          | C1_F_PRODVAL        | C1_NAVUGATE         |

| Application Service | Application Service | Application Service |
|---------------------|---------------------|---------------------|
| C1_F_EDTBNDT        | C1_F_PRODVL1        | C1_NEXT_ACTION      |
| C1_F_EDTEXHR        | C1_F_RSCDVAL        | C1_OVR_PRITM        |
| C1_F_EDTMA          | C1_F_RTDESC         | C1_PAYUP            |
| C1_F_EDTMMBS        | C1_F_SAVESCS        | C1_PERRL            |
| C1_F_EDTMMP         | C1_F_SRPLVAL        | C1_PLADPR           |
| C1_F_EDTMMSS        | C1_F_VAL_ACT        | C1_PLAE             |
| C1_F_EDTPL          | C1_F_VAL_ACTDTL     | C1_PLASNADD         |
| C1_F_EDTPR          | C1_F_VAL_CHH        | C1_PLASNEDIT        |
| C1_F_EDTPROD        | C1_F_VAL_CLDTL      | C1_PLASN_ADD        |
| C1_F_EDTPRPL        | C1_F_VAL_CSTDTL     | C1_PLASN_EDI        |
| C1_F_EDTPRSS        | C1_F_VAL_CUS        | C1_PLASSIGN         |
| C1_F_EXCDVAL        | C1_GENERICSA        | C1_PLASSIGNE        |
| C1_F_EXCHVAL        | C1_GENRCMP          | C1_PLCASSIGN        |
| C1_F_EXHVAL         | C1_GETTIER          | C1_PLDISEDIT        |
| C1_F_FH_VAL         | C1_GRP              | C1_PLEDIT           |
| C1_F_FINHIS         | C1_IGAI             | C1_PLISTSRCH        |
| C1_F_FINHIS1        | C1_IGIMM            | C1_PLMNG            |
| C1_F_GENACBO        | C1_IGMMB            | C1_PLPTYAINF        |
| C1_PLPTYINFO        | C1_PROD_ADD         | C1_TXNAR            |
| C1_PLSRCH           | C1_PROD_EDIT        | C1_VWPRD            |
| C1_PLSTOGGLE        | C1_PROD_SAVE        | CHGTYPE             |
| C1_PLVAL            | C1_PROD_SRCH        | CHGTYPECD           |
| C1_PLVALIDAT        | C1_PROVR_EDT        | CIACNBTY            |
| C1_PLVIEW           | C1_PRZCR            | CIAPAYSTGUPL        |
| C1_PL_ADD           | C1_PRZTR            | CIAPPACCTYPE        |
| C1_PL_EDIT          | C1_PRZ_CR           | CIAPPCRIT           |
| C1_PL_PI            | C1_PRZ_TR           | CIAPPTXNRSN         |
| C1_PMPRC            | C1_PTPLA            | CICHGTYPE           |
| C1_POLICYTYPE       | C1_RATE_DEF         | CICPAYPLAN          |
| C1_PPEDT            | C1_RECTIFYSRCH      | CIDIVPERREL         |

| Application Service | Application Service | Application Service |
|---------------------|---------------------|---------------------|
| C1_PPOVR            | C1_RLTPM            | CIFILEGRP           |
| C1_PPOVRSRCH        | C1_RLTVW            | CIGETPRICING        |
| C1_PP_DSPINF        | C1_RSLV             | CILAADUP            |
| C1_PP_PLVAL         | C1_RSN              | CILAASCP            |
| C1_PRCAD            | C1_RTCOM_ADD        | CILAAUSP            |
| C1_PRCE_VALD        | C1_RTC_VAL          | CILACCDEL           |
| C1_PRCPM            | C1_RTOPT            | CILACCUR            |
| C1_PRC_EDIT         | C1_SAVE_TIER        | CILACLCP            |
| C1_PRC_OVRD         | C1_SHOW_IMG         | CILACTCT            |
| C1_PRC_TR           | C1_SRCH             | CILBBICP            |
| C1_PRC_VALID        | C1_SRCHPL           | CILBBLP             |
| C1_PRDPERREL        | C1_SRCHPLVAL        | CILBMCRP            |
| C1_PRDREL           | C1_SRCHPPL          | CILBSBHP            |
| C1CUSTPO            | C1_SRCHPRD          | CILBSCCP            |
| C1DAPROF            | C1_SRCH_PROF        | CILBSEGP            |
| C1_PRIARMREFENT     | C1_SRPROD           | CILBSTMP            |
| C1_PRITSRCH         | C1_STRTOLIST        | CILCAAHP            |
| C1_PROD             | C1_TEMPLATE         | CILCAASP            |
| C1_PRODPL           | C1_TIER_INP         | CILCACCP            |
| C1_PRODVAL          | C1_TRLBL            | CILCACMP            |
| CILCACRP            | CILCSCVP            | CILIBDQP            |
| CILCALZP            | CILCSCZP            | CILIBTVP            |
| CILCAMRP            | CILCSPZP            | CILICOEP            |
| CILCBCUP            | CILCSSQP            | CILINDDP            |
| CILCBPGP            | CILCSVAP            | CILINFPF            |
| CILCBRWP            | CILCWOFP            | CILINVVP            |
| CILCCCIP            | CILDATA             | CILIPDQP            |
| CILCCCZP            | CILDIVET            | CILIPRDP            |
| CILCCIZP            | CILDIVEXT           | CILIRDQP            |
| CILCCNSP            | CILDRVWP            | CILIRDSP            |

| Application Service | Application Service | Application Service |
|---------------------|---------------------|---------------------|
| CILCCNXP            | CILECBLP            | CILISATP            |
| CILCCSCP            | CILEFKRP            | CILITDDP            |
| CILCCSHP            | CILEFLDP            | CILITDQP            |
| CILCCTXP            | CILEMNUP            | CILITMPP            |
| CILCDCRP            | CILEMOBP            | CILITPDP            |
| CILCENRP            | CILENAVP            | CILKTOSP            |
| CILCFIZP            | CILENVOP            | CILLCARP            |
| CILCLOAP            | CILERPTP            | CILLCAZP            |
| CILCNBBP            | CILESVCP            | CILLCLPP            |
| CILCPABP            | CILETBLP            | CILLODPP            |
| CILCPASP            | CILEUIZP            | CILLWOPP            |
| CILCPERP            | CILFAFHP            | CILMITMP            |
| CILCPIZP            | CILFBLCP            | CILMITRP            |
| CILCPLAS            | CILFBPHP            | CILMMRSP            |
| CILCPMPP            | CILFDRR             | CILMMSUP            |
| CILCPPLP            | CILFFNTP            | CILMRBHP            |
| CILCPPTMPL          | CILFFTBP            | CILMRTXP            |
| CILCPREP            | CILFFTPP            | CILMSIHP            |
| CILCPRMP            | CILFMVTP            | CILMSLIP            |
| CILCQTEP            | CILFSCAP            | CILMSLOP            |
| CILCSALP            | CILFSFHP            | CILMSMHP            |
| CILCSCMP            | CILGENACUR          | CILMTRDP            |
| CILOAFTP            | CILQCASP            | CILTASGP            |
| CILODFAP            | CILQTDGP            | CILTATCP            |
| CILOFACP            | CILQTDGP            | CILTATPP            |
| CILOFAZP            | CILQTDLP            | CILTATYP            |
| CILOFORP            | CILQTDQP            | CILTBCRP            |
| CILOFOSP            | CILQTDSP            | CILTBCTP            |
| CILOFSUP            | CILQTDTP            | CILTBFFP            |
| CILOOTGP            | CILQTDZP            | CILTBFPV            |



| Application Service | Application Service | Application Service |
|---------------------|---------------------|---------------------|
| CILOSFAP            | CILQTSSP            | CILTBIMP            |
| CILPAPHP            | CILQTSUP            | CILTBLCF            |
| CILPAPSP            | CILRCMAP            | CILTBLLP            |
| CILPARTY            | CILRENGP            | CILTBKNP            |
| CILPDCNP            | CILRRSMP            | CILTBRTF            |
| CILPDCSP            | CILRRTCP            | CILTBSTF            |
| CILPEPLP            | CILRRTSP            | CILBTCP             |
| CILPEQAP            | CILRRTVP            | CILBTTRF            |
| CILPEVTP            | CILRRVMP            | CILTBUDF            |
| CILPIREL            | CILRULE             | CILTBXTP            |
| CILPITXNREL         | CILRULTP            | CILTCAGF            |
| CILPPAYP            | CILSTEXT            | CILTCAMP            |
| CILPPCAN            | CILSTEXTITEM        | CILTCATF            |
| CILPPTSP            | CILTACRP            | CILTCCLF            |
| CILPQADP            | CILTALGP            | CILTCCLNP           |
| CILPRCITMREL        | CILTALTP            | CILTCCTF            |
| CILPRICEASGN        | CILTAMGP            | CILTCETP            |
| CILPRICECOMP        | CILTAMTP            | CILTCHTP            |
| CILPRICMPTIER       | CILTAPAP            | CILTCIDF            |
| CILPRITEM           | CILTAPFP            | CILTCCLGP           |
| CILPRLIST           | C1DEALDB            | CILTCCLRP           |
| CILPRLISTASGN       | CILTAPSP            | CILTCCLWF           |
| CILPTCNP            | CILTAROP            | CILTCCLNP           |
| CILQATDP            | CILTARTP            | CILTCCLCP           |
| CILTCPTP            | CILTMHTP            | CILTSCLP            |
| CILTCQTP            | CILTMHTP            | CILTSCLP            |
| CILTCRUP            | CILTMHTP            | CILTSCLP            |
| CILTCURP            | CILTNBRP            | CILTSICP            |
| CILTCUSP            | CILTNCDF            | CILTSMIF            |
| CILTDARP            | CILTNUXP            | CILTSMTF            |

| <b>Application Service</b> | <b>Application Service</b> | <b>Application Service</b> |
|----------------------------|----------------------------|----------------------------|
| CILTDASP                   | CILTOCRP                   | CILTSOMP                   |
| CILTDCAP                   | CILTOETP                   | CILTSOPP                   |
| CILDCLP                    | CILTOPTP                   | CILTSPRP                   |
| CILDIRP                    | CILTORAP                   | CILTSPTP                   |
| CILDPRP                    | CILTPCRP                   | CILTSQIP                   |
| CILDRTP                    | CILTPCTP                   | CILTSQRP                   |
| CILDSTP                    | CILTPDRP                   | CILTSTMP                   |
| CILDWPP                    | CILTPHTP                   | CILTSTSP                   |
| CILDWTP                    | CILTIFFP                   | CILTSVTP                   |
| CILTEBRP                   | CILTPKGP                   | CILTSWLP                   |
| CILTECRP                   | CILTPPTP                   | CILTTACP                   |
| CILTETTP                   | CILTPROP                   | CILTTAXP                   |
| CILTFNDP                   | CILTPRTP                   | CILTTGRP                   |
| CILTFREP                   | CILTPSDP                   | CILTTMRP                   |
| CILFRQP                    | CILTPSTP                   | CILTTMTP                   |
| CILGLDP                    | CILTPTRP                   | CILTTNSP                   |
| CILGOTP                    | CILTPYTP                   | CILTTNTP                   |
| CILTIDTP                   | CILTQRTP                   | CILTTOUP                   |
| CILTINCP                   | CILTREGP                   | CILTTSCP                   |
| CILTINSP                   | CILTREPP                   | CILTTTMP                   |
| CILITSP                    | CILTRGLP                   | CILTTZNP                   |
| CILTDIP                    | CILTRLEP                   | CILTUOMP                   |
| CILTLETP                   | CILTRSCP                   | CILTURPP                   |
| CILTLKFP                   | CILTRTYP                   | CILTUSCP                   |
| CILTLNGP                   | CILTSARP                   | CILTUSEP                   |
| CILTMCRP                   | CILTSATP                   | CILTUSGP                   |
| CILTWCTP                   | CILZFNCP                   | CTXTZONE                   |
| CILTWDCP                   | CILZPORP                   | DEMO                       |
| CILTWETP                   | CILZRBPP                   | DISAGGP                    |
| CILWFPP                    | CILZRPHP                   | DIV_PRICEITEMS             |

| Application Service | Application Service | Application Service  |
|---------------------|---------------------|----------------------|
| CILTWPTP            | CILZRPOP            | DIV_PRICELISTS       |
| CILTWSCP            | CILZRPTP            | F1-APAYEXPCRTYPEBOAS |
| CILTWSDP            | CILZSCMP            | F1-ATTACHMENTBOAS    |
| CILTXNCD            | CILZSCRP            | F1-BKTCONFIG         |
| CILTXNCDL           | CILZSCZP            | F1-BOOKMARKS         |
| CILTXNSRC           | CILZTLZP            | F1-DECRPTBOAS        |
| CILTXNSRCL          | CILZZOHP            | F1-DFLTAPS           |
| CILUPFTS            | CILZZONP            | F1-DFLTS             |
| CILVFVDP            | CIL_FAVORITES       | F1-EXPUSERSREQBOAS   |
| CILVFPVSP           | CIPOLICY            | F1-GENPROC           |
| CILVVLEP            | CIPOLPERRL          | F1-MIGROBJIMP        |
| CILVVLSP            | CIPOLPERROLE        | F1-OBJREVBOAS        |
| CILWDWNP            | CIPRICEACCOUNT      | F1-STASKTYPE         |
| CILWJSDP            | CIPRICEPARM         | F1-SVCTASK           |
| CILWJSSP            | CIPYSRCH            | F1-SYNCREQ           |
| CILWNUPP            | CIRATEUPLD          | F1-SYNCREQIN         |
| CILWNUSP            | CIRECON             | F1-SYNCREQUESTBOAS   |
| CILWPROP            | CIRECONDTL          | F1-WEBSVCBOAS        |
| CILXNDNP            | CIS_DIV_ALGS        | F1ADMIN              |
| CILXOPTP            | CIS_DIV_BICIES      | F1ANN                |
| CILXSENP            | CIS_DIV_CST_LNGS    | F1ANNTPM             |
| CILYASTP            | CIS_DIV_ID_TYPES    | F1ANNTPS             |
| CILYDBPP            | CIS_DIV_INV_CURS    | F1ANNTYP             |
| CILYDFQP            | CIS_DIV_TXN_SRCS    | F1APPSEC             |
| CILYDPIP            | CIS_DIV_VLD_CTIES   | F1ATTACH             |
| CILYROBP            | CIVARIANCE          | F1ATTACHMENT         |
| CILZAFQP            | CMAGING             | F1BKTCFG             |
| CILZAUQP            | CNCLRSN             | F1BKTCFQ             |
| F1BNDLEM            | F1MIGRDIMP          | FWLBNDLP             |
| F1BNDLES            | F1MIGRDS            | FWLCTDEP             |

| Application Service | Application Service | Application Service |
|---------------------|---------------------|---------------------|
| F1BNDLIM            | F1MIGROBJ           | FWLFACTP            |
| F1BNDLIS            | F1MIGRPLAN          | FWLSTRJP            |
| F1BUNEXP            | F1MIGRREQ           | FWLTBELP            |
| F1BUNIMP            | F1MIGRTIMP          | FWLTBOJP            |
| F1CATTCH            | F1MIGRTX            | FWLTBSVP            |
| F1CONFIGLOG         | F1MSTCFG            | FWLTDARP            |
| F1DEBUG             | F1MTXIMP            | FWLTEXSP            |
| F1EXLKP             | F1OBJREV            | FWLTMGCT            |
| F1EXLKPS            | F1OBJREVCTL         | FWLTOMTP            |
| F1HEALTH            | F1OBJRVH            | FWLTSCHP            |
| F1HGMAPPING         | F1REQ               | FWLTUIMP            |
| F1IWSANM            | F1REQTYP            | FWLXOUTP            |
| F1IWSDDL            | F1REXHST            | FWLZDEXP            |
| F1IWSVC             | F1STRDIS            | FWLZWLZP            |
| F1IWSVCP            | F1STREAS            | GOTOREC             |
| F1IWSVCS            | F1SUBRQQ            | PERTREE             |
| F1LCAMRP            | F1SYNCRM            | POLICYCANRSN        |
| F1LEXTLKUP          | F1SYNCRQ            | RECDTSTA            |
| F1LTAMTP            | F1TBLEXC            | RECON               |
| F1MESSAGE           | F1UIZONE            | RECONDTL            |
| F1MGDEXP            | F1USERLOG           | SACHGLNK            |
| F1MGDEXS            | F1USRCHKOUT         | SATYPCHG            |
| F1MGDIMP            | F1USRPTL            | SATYPES             |
| F1MGDIMS            | F1WBSVCM            | F1_USRSCR           |
| F1MGOIMP            | F1WBSVCS            | FILETYPE            |
| F1MGPLNM            | F1WEBSVC            | F1MGREQS            |
| F1MGPLNS            | F1_BTST             | F1MIGRDEXP          |
| F1MGREQM            | F1_USRFAVSCH        | C1PLASGNM           |
| C1-USRLOGINDTLS     | C1DEALPASGN         | C1REFUPLREQ         |
| C1BCHGUPLREQ        | C1GETELIGPT         | C1UPLDRQ            |

| Application Service | Application Service | Application Service |
|---------------------|---------------------|---------------------|
| C1BILLCYCLEUPDTUPL  | C1GLAT              | C1UPLREQ            |
| C1CONTRIDERUPDTUPL  | C1GLATEMP           | C1WOUPLREQ          |
| C1DCDTLC            | C1GLATRQ            | C1_STDTL            |
| C1DELCTL            | C1HOLDUPLREQ        | C1_STRTE            |
| C1ELGPA             | C1LASGN             | C1_STRTY            |
| DBMSJOB             | C1PIASGN            | C1STMEXCP_SERV      |
| C1DEALSVC           | ACRLSRCH            | C1-ACCTECP          |
| C1-CUSTINMSG        | C1ADDRS             | C1HCAPPSER          |
| C1-DEALPRICING      | C1ADDRSBO           | C1HCBLDT            |
| C1-FTDIST           | C1ADDRSDP           | C1HCSINF            |
| C1-FTDISTRULE       | C1ADDRSRC           | C1INMSGP            |
| C1-FTDISTTY         | C1BK360             | C1INMSRH            |
| C1-GENRQ            | C1BKAPPSER          | C1INMSTY            |
| C1-INMSG            | C1BKBLDT            | C1PAREQ             |
| C1-INMSGTYPE        | C1BKSINB            | C1PARQMN            |
| C1-MEMBERINMSG      | C1CUS360            | C1PARQTY            |
| C1-PROSPECTCRET     | C1DSPT              | C1PAYMAN            |
| C1ACCECR            | C1DSPTRQ            | C1PI                |
| C1ACRLCL            | C1DSPTRT            | C1PL                |
| C1ACRLTP            | C1DSPTTY            | C1POLPEL            |
| C1ACRMVW            | C1FTDIST            | C1REINUPLREQ        |
| C1ADDRDP            | C1FTDSRL            | C1_ACCRTYPE         |
| C1ADDRDTL           | C1FTDSTT            | C1_ACCRUAL_SERV     |
| C1ADDRESS           | C1FTDSTY            | C1_ACTVW            |
| C1_ACTYP            | C1_DSPT_REQ         | ILM_ARC             |
| C1_ACYVW            | C1_TRLIN            | ACCTVIEW            |
| C1-ACCTAPAY_SERV    | C1-DISC-REPT        | C1-DRRTMPLT         |
| C1-MBR-DR-TY        | C1-PRC_CALC_SM      | C1-PTD-CAL          |
| C1-RETRIEVPROSRV    | C1-REVRECPLCY       | C1-RN-TY            |
| C1-SCHEDULERMONITOR | C1-SCHPGMQZ         | C1-SCHSCHQZ         |

| <b>Application Service</b> | <b>Application Service</b> | <b>Application Service</b> |
|----------------------------|----------------------------|----------------------------|
| C1ACCTAPAY                 | C1APAYRT                   | C1APAYVW                   |
| C1APYINS                   | C1AWFCHN                   | C1AWFCRT                   |
| C1AWFGRP                   | C1AWFRSN                   | C1AWFSET                   |
| C1CONADD                   | C1DISREP                   | C1DRDIS                    |
| C1DSRTY                    | C1MBRRCN                   | C1PARAM                    |
| C1PDSRCH                   | C1PERS                     | C1PERSDP                   |
| C1PERSON                   | C1PRDSVC                   | C1PRODDP                   |
| C1PRODUCTSERVICE           | C1PVERDP                   | C1RCONTY                   |
| C1RECOLN                   | C1RECONCIL                 | C1RECONTYP                 |
| C1REPORT                   | C1RPTTMP                   | C1SCHCHN                   |
| C1SCHJOB                   | C1SCHPGM                   | C1SCHSCH                   |
| C1SCJMON                   | C1SRCAPP                   | C1SVCDSP                   |
| C1VIEPRI                   | PRICECOMPPRE               | C1_BOCHN                   |
| C1_CONSTRUCT               | C1_DRRSP                   | C1_DRRTM                   |
| C1_DRRTP                   | C1_ENLOG                   | C1_ENROL                   |
| C1_ENROLLMENT              | C1_ENSCH                   | C1_PAYIN                   |
| C1_PRODUCT                 | C1_PRODUCT_SERVICE         | C1_PRODVER                 |
| C1_SRCBUSSPRD              | C1_SRCTECHPRD              | CIAPPHELGBL                |
| CICONACT                   | CONRULE                    | CONSTRUCT                  |
| DDPRCSM                    | ACCT_SUBSCRPTN_SERV        | C1-PRCRULE                 |
| C1-PRC_CALC_SM             | C1-PRRLTYP                 | C1-SUBSCRTYPE              |
| C1BILLSORT                 | C1BLLLVLUPLREQ             | C1BLLSRTUPLREQ             |
| C1ENTITYREPORT             | DBMSRNJB                   | C1-DLDBACTNS               |
| C1PRICINGGROUP             | C1PROAPP                   | C1PRTYP                    |
| C1REPORTTMP                | C1RPTAUD                   | C1RPTDEF                   |
| C1SUBSTP                   | C1SUBTVW                   | C1-DLAPPRTOD               |
| C1-ACCUDATA                | C1-CUSTREGTEMPL_SERV       | C1-CUSTREGTYPE             |
| C1-GETPRICINGENTITY        | C1-PICINGRULE              | C1-PRICEASGNTREE           |
| C1ACUDAT                   | C1CREGSR                   | C1CTRGBK                   |
| C1CTRGHG                   | C1FILEMS                   | C1MASPRI                   |

| Application Service | Application Service | Application Service |
|---------------------|---------------------|---------------------|
| C1MPRIRQ            | C1MPRISR            | C1RETMPL            |
| C1DLAPDB            | CIDATAEXSER         | DTEX_TYP            |
| PRICECOMPSEQ        | C1CUREG             | C1CURETY            |
| C1CUSTREG           | C1CUSTRG            | C1DTEXFL            |
| AUDITEVENT          | C1-AUDEVTYPE        | C1-BANKING          |
| C1-HEALTHCARE       | C1-PRICETREE        | C1-STATE            |
| C1ADEVSR            | C1AUDEVT            | C1AUDTY             |
| C1OFFADJ            | C1RETMPLBK          | C1RETMPLHC          |
| C1STATE             | C1VIPRIN            | C1_BILL             |
| C1LCSSEP            | C1DELTYP            | C1-OFFPRO           |
| C1DTSERH            | C1ENHR              | C1ENHRSR            |
| C1ENTDTL            | C1-DLTODOLST        | TSTPRICE            |
| C1GETELIGPRO        | C1HIERARCHY         | C1HRCHYENTITY       |
| C1HRYENT            | C1INREQ             | C1INRETY            |
| C1INVRED            | C1PATCH             | C1PISL              |
| GETDEALTYPE         | C1PROSPO            | C1PRSEAR            |
| C1PRSSASP           | C1REFPRI            | C1SERDSC            |
| C1SFTPUS            | C1SLFSER            | C1TPSTRT            |
| C1TRBLHC            | C1TMCND             | C1_PROSPECT         |
| C1-DEALAPPRWF       | C1GETELIGPLPRO      | C1_HLTH_PLAN        |
| C1_ALRPT            | C1_CHREF            | C1_CONSTRUCT        |
| C1_CREF             | C1_DEAL             | C1_DEALFETCHRATE    |
| CM_TEST             | C1_HEVD             | C1_PDEAL            |
| CMPER1              | PRTTST              | C1_PRSENROLLMENT    |
| C1_REF              | C1GETELIGPROD       | CMPERTESTASE        |
| TESTPORT            | CUSPRCDT            | DBMSSCHD            |
| DWNLFIL             | C1OFPREQ            | C1OFPRED            |
| PORTPRAC            | PORTT               | PRODSTAT            |
| CANCPAYM            | PRICEITEM_SERV      | C1-BENEFITS         |
| C1-BENFITPKG        | C1-DEALRVW          | C1-EXTCTTEMP        |

| Application Service | Application Service | Application Service |
|---------------------|---------------------|---------------------|
| C1-EXTRACTTEMPLATE  | C1-FIELDMAP         | C1-FIELDMAP_SERV    |
| C1-GETFIPRCRULE     | C1-TNC              | C1BENFTP            |
| C1BENFTS            | C1DEAL1             | C1DLPRT             |
| C1DLTMPT            | C1EXTCTTEMP         | C1EXTTMP            |
| C1FLDMAP            | C1GEORTA            | C1GEORTAR           |
| C1_QUESN            | C1IACUDT            | C1PLSIM             |
| C1PLSM              | C1PLSMPL            | C1PLSMVW            |
| C1PRICELISTSIM      | C1QUESRH            | C1QUESTION          |
| C1QUEVEW            | C1RELSTR            | C1RMACCTSTAT        |
| C1RMACCTSTAT        | C1RMWRKB            | C1RVTRND            |
| C1STPDL             | C1TCMAP             | C1TERCO             |
| C1TERMNCO           | C1TNC SRH           | C1UNPINV            |
| C1_DEAL_MAPPINGS    | C1_DEAL_PRICELIST   | C1_DEAL_TEMPLATE    |
| C1_F_POLSRCH        | C1_MEMRL_SUBT       | C1_RTSC             |
| C1-BUSRULE          | C1-BUSRULVAL        | C1-STMSAACCT        |
| C1BENSTY            | C1BUSRD             | C1BUSRUL            |
| C1CONDDL            | C1_HCPRODUCT        | C1DIAGCE            |
| C1MEIDTY            | C1_DIV              | C1_GLDL_SERV        |
| C1_MARKETPRODUCT    | C1_OFFER            | C1_PRODDTLS         |
| C1BDLSRC            | C1BUNDLE            | C1GLDLL             |
| C1MPSRC             | C1MRP               | C1OFFER             |
| C1OFRSRC            | C1PDSRC             | C1PRDSRC            |
| C1PROM              | C1-AUTOPAYREQ_SERV  | C1-PLNINFO          |
| C1APAY              | C1APAYREQ           | C1APAYRQ            |
| C1APRQTY            | C1HEALTH            | C1HPHP              |
| C1PLAN              | C1REFWOI            | C1TRLBILL           |
| C1TRLBLSEG          | C1TRLFT             | CISACHGTYPE         |
| C1360CUSTHIER       | C1360REVAMT         | C1BLHRY360          |
| C1CUSTDEALINFO      | C1KP VARIATION      | C1STHRY360          |



## B.2 C1\_BSERVICES

The following table lists all application services configured for the C1\_BSERVICES user group:

| Application Service  | Application Service  | Application Service |
|----------------------|----------------------|---------------------|
| AFHZONE              | C1-PIFVIS            | C1AGING             |
| APPTXADM             | C1-PINFRDISP         | C1APPBOCHNZN        |
| ARUNTEST             | C1-PINVFPOST         | C1APPCHN            |
| BILLGCONS            | C1-POINFRDET         | C1APPCRT            |
| BILLGRAPH            | C1-POLICY            | C1APPRESP           |
| C1-ACCBALCNT         | C1-POLICYINVOICEFREQ | C1APPTXNBOCHN       |
| C1-ACCNBRTYPAS       | C1-POLINVDETZ        | C1APPTXNBOCHNZN     |
| C1-ADJAPPRVLREQBOAS  | C1-POLINVFRE         | C1APPTXNCHAIN       |
| C1-APAYEXPCRREQBOAS  | C1-POLINVFREZ        | C1APPTXNCRI         |
| C1-APAYEXPCRTYPEBOAS | C1-POLINVFRQ         | C1APPTXNCRT         |
| C1-APAY_STG_UP       | C1-PRISIM            | C1APPTXNGRP         |
| C1-APPRSN            | C1-REFWOREQ          | C1APROF             |
| C1-APPTXN            | C1-REGENUI           | ACCMULID            |
| C1-APPTXNLOG         | C1-REQUEST           | C1BNKREC            |
| C1-ASAPU             | C1-REQUEST-TYPE      | C1BOCHN             |
| C1-ASGNPL            | C1-RULEBOAS          | C1CASEG             |
| C1-BRD               | C1-SRCHSCTP          | C1CASETYPEMP        |
| C1-CASEASGNSRV       | C1-TXNAGG            | C1CHECKFT           |
| C1-CASEGRPSRV        | C1-TXNDTL            | C1COLDTL            |
| C1-CONSVPROGBOAS     | C1PMTP               | C1COLLTYP           |
| C1-CONTRACTTYPECHARS | C1_CHREF             | C1COLTYP            |
| C1-CTCGSRV           | C1-WRITEOFFREQ       | C1CPROG             |
| C1-GETEFFECTVPRICING | C1ACCRATE            | C1CSTYSR            |
| C1-GETPRICING        | C1ACMACT             | C1DISAGR            |
| C1-MAINPINFR         | C1ACTCAT             | C1EXCHRT            |
| C1-OUTAGE            | C1ACTPER             | ACTNOCON            |
| C1-PAY-REQ           | C1ACTREE             | C1FLRQTY            |
| C1-PAYTEMPLATEBOAS   | C1ACTYRSTY           | C1FLSRCH            |

| Application Service | Application Service | Application Service |
|---------------------|---------------------|---------------------|
| C1-PERBALCNT        | C1ADJSTP            | C1IRSPP             |
| C1-PERIDSER         | C1ADJUPL            | C1MANAPP            |
| C1MANLOG            | C1REQTYP            | C1_ANSPLTCUS        |
| C1MANMOD            | C1RFWORT            | C1_APCS             |
| C1MANRES            | C1RLCHK             | C1_APPAD            |
| C1NCISPY            | C1RSTCAT            | C1_APPTXN_PRICEASGN |
| C1NCPTMP            | C1SACCOLLECT        | F1-BOOKMARKS        |
| C1ODBUPR            | C1SACTHI            | C1_APUR             |
| C1PASGAPPROVE       | C1SCHEDU            | C1_APVIG            |
| C1PASGREADMODIFY    | C1SCHTMP            | C1_ASNPL            |
| C1PASGREADRESOLVE   | C1SETTHR            | C1_AUDIT            |
| C1PAYMAN            | C1SRCHRL            | C1_BACCGRVAL        |
| C1PAYPTL            | C1TXNAGG            | C1_BACCTDETL        |
| C1PAYREQ            | ADJDETAI            | C1_BACCVALID        |
| C1PAYRQ             | USGSETT             | C1_BACTSRCHM        |
| C1PAYSRC            | C1TXNFD             | C1_BAFH             |
| C1PAYUPL            | USGMISIN            | C1_BAFHZ            |
| C1POINFR            | USGMIS              | C1_BCCSH            |
| C1PPCARS            | C1UNAPPR            | C1_BCONT            |
| C1PRESTGDTLS        | C1VAR               | C1_BCON_INFO        |
| C1PRISIM            | C1VIEWRL            | C1_BCON_SRH         |
| C1PRODUCT           | C1WODET             | C1_BCUSACCDT        |
| C1PROFILESRVC       | C1_ACCNBALG         | C1_BCUSACCSR        |
| C1PSNAPP            | C1_ACCNBRTYP        | C1_BCUSGRVAL        |
| C1PSNMOD            | C1_ACCTCHAR         | C1_BCUSSRCHM        |
| C1PSNRES            | C1_ACDTLRCH         | C1_BCUSTACDT        |
| C1PTNDRH            | C1_ACMM             | C1_BCUSVALID        |
| C1PTPLP             | C1_ACMS             | C1_BDTLSRCHM        |
| C1PYRQTY            | C1_ADDEXH           | C1_BFHIS            |
| C1REFSTP            | C1_ADDPL            | C1_BFH_SRH          |
| C1REFUND            | C1_ADDPROD          | C1_BNDMN            |

| <b>Application Service</b> | <b>Application Service</b> | <b>Application Service</b> |
|----------------------------|----------------------------|----------------------------|
| C1REQSTP                   | C1_ADD_RTCMP               | C1_BNDPRD                  |
| C1REQSTS                   | C1_ADD_TIER                | C1_BNDPRS                  |
| C1REQTYP                   | C1_ADMPI                   | C1_F_ADVAL                 |
| C1_BO_OPT                  | C1_DIVPERREL               | C1_F_APVDTVL               |
| C1_BPAYHSRCH               | C1_DSPLY_RT                | C1_F_APVNFLT               |
| C1_BPH_INFO                | C1_EDIT                    | C1_F_APVRJS                |
| C1_BPYHS                   | C1_EDTBD                   | C1_F_ASNCUS                |
| C1_BRD_P                   | C1_EDTBUND                 | C1_F_ASGNPTP               |
| C1_BSRCHOVRD               | C1_EDTER                   | C1_F_CHHSRCH               |
| C1_BSRPT                   | C1_EDTPL                   | C1_F_CIGG3V                |
| C1_BTOGGLECA               | C1_EDTPROD                 | C1_F_CNCLMM                |
| C1_BTREESRCH               | C1_EDT_PRITM               | C1_F_CNCLMR                |
| C1_BTST                    | C1_EFF_PRC                 | C1_F_CONTR                 |
| C1_BUNDLE                  | C1_EFF_PRICE               | C1_F_CON_VAL               |
| C1_BUNDVAL                 | C1_EFPRODSRC               | C1_F_COPYPL                |
| C1_BVCAC                   | C1_EXCHRT                  | C1_F_COPYSS                |
| C1_CHKBIL_PA               | C1_EXHRT                   | C1_F_CPYBNDL               |
| C1_CHKTRDFLG               | C1_EXPPITM                 | C1_F_CPYPL                 |
| C1_CIAM                    | C1_DEALFETCHRATE           | C1_F_CPYPLVL               |
| C1_CIGAS                   | C1_FTRS                    | C1_F_CUSSRCH               |
| C1_COLLN                   | C1_F_ACTSRCH               | C1_F_DELEXCH               |
| C1_COLL_NZN                | C1_F_ADDBNDT               | C1_F_DELSCS                |
| C1_COM_VALID               | C1_F_ADDCHLD               | C1_F_DTVAL                 |
| C1_COPYBND                 | C1_F_ADDEXCH               | C1_F_EDTBNDT               |
| C1_COPYPL                  | C1_F_ADDMM                 | C1_F_EDTEXHR               |
| C1_CPBUNDL                 | C1_F_ADDMMSS               | C1_F_EDTMA                 |
| C1_CPYBD                   | C1_F_ADDPL                 | C1_F_EDTMMBS               |
| C1_CPYPL                   | C1_F_ADDPRBD               | C1_F_EDTMMP                |
| C1_CUSTINFO                | C1_F_ADDPRD                | C1_F_EDTMMSS               |
| C1_CUST_HR                 | C1_F_ADDPRPL               | C1_F_EDTPL                 |
| C1_DEGREE                  | C1_F_ADDPRSS               | C1_F_EDTPR                 |

| <b>Application Service</b> | <b>Application Service</b> | <b>Application Service</b> |
|----------------------------|----------------------------|----------------------------|
| C1_DEL_PRD                 | C1_F_ADDRATE               | C1_F_EDTPROD               |
| C1_DEL_PROD                | C1_F_ADMPROD               | C1_F_EDTPRPL               |
| C1_DISPBOUND               | C1_F_ADPROD                | C1_PLASSIGNE               |
| C1_F_EDTPRSS               | C1_GENRCMP                 | C1_PLCASSIGN               |
| C1_F_EXCDVAL               | C1_GETTIER                 | C1_PLDISEDIT               |
| C1_F_EXCHVAL               | C1_GRP                     | C1_PLEDIT                  |
| C1_F_EXHVAL                | C1_IGAI                    | C1_PLISTSRCH               |
| C1_F_FH_VAL                | C1_IGIMM                   | C1_PLMNG                   |
| C1_F_FINHIS                | C1_IGMMB                   | C1_PLPTYAINF               |
| C1_F_FINHIS1               | C1_INF_PARTY               | C1_PLPTYINFO               |
| C1_F_GENACBO               | C1_INVCN                   | C1_PLSRCH                  |
| C1_F_IGG1MM                | C1_INVSR                   | C1_PLSTOGGLE               |
| C1_F_IGG1MS                | C1_LIST_TIER               | C1_PLVAL                   |
| C1_F_IGG2MM                | C1_MEMBERS                 | C1_PLVALIDAT               |
| C1_F_IGG2MS                | C1_MIG                     | C1_PLVIEW                  |
| C1_F_IGG3MM                | C1_MIGAS                   | C1_PL_ADD                  |
| C1_F_IGG3MS                | C1_MNG                     | C1_PL_EDIT                 |
| C1_F_PLCRT                 | C1_MNGRT                   | C1_PL_PI                   |
| C1_F_PLEDT                 | C1_MNGTR                   | C1_PMPRC                   |
| C1_F_PLVAL                 | C1_MOD                     | C1_PPEDT                   |
| C1_F_POPITEM               | C1_MPPA                    | C1_PPOVR                   |
| C1_F_PRCHAR                | C1_NAVIGATE                | C1_PPOVRSRCH               |
| C1_F_PRCHARS               | C1_NAVUGATE                | C1_PP_DSPINF               |
| C1_F_PRDVL                 | C1_OVR_PRITM               | C1_PP_PLVAL                |
| C1_F_PRODVAL               | C1_PAYUP                   | C1_PRCAD                   |
| C1_F_PRODVL1               | C1_PAY_BTN                 | C1_PRCE_VALD               |
| C1_F_RSCDVAL               | C1_PERRL                   | C1_PRCPM                   |
| C1_F_RTDESC                | C1_PLADPR                  | C1_PRC_EDIT                |
| C1_F_SAVESCS               | C1_PLAE                    | C1_PRC_OVRD                |
| C1_F_SRPLVAL               | C1_PLASNADD                | C1_PRC_TR                  |
| C1_F_VAL_ACT               | C1_PLASNEDIT               | C1_PRC_VALID               |

| <b>Application Service</b> | <b>Application Service</b> | <b>Application Service</b> |
|----------------------------|----------------------------|----------------------------|
| C1_F_VAL_ACTDTL            | C1_PLASN_ADD               | C1_PRDPERREL               |
| C1_F_VAL_CHH               | C1_PLASN EDI               | C1_PRDREL                  |
| C1_F_VAL_CUS               | C1_PLASSIGN                | CILACTTY                   |
| GETDEALTYPE                | C1_SRCHPLVAL               | CILBBICP                   |
| C1_PROSPECT                | C1_SRCHPPL                 | CILBLLP                    |
| C1_PRITSRCH                | C1_SRCHPRD                 | CILBSBHP                   |
| C1_PROD                    | C1_SRCH_PROF               | CILBSCCP                   |
| C1_PRODPL                  | C1_SRCH_TEMP               | CILBSEGP                   |
| C1_PRODVAL                 | C1_SRPROD                  | CILBSTMP                   |
| C1_PROD_ADD                | C1_STRTOLIST               | CILCAASP                   |
| C1_PROD_EDIT               | C1_TEMPLATE                | CILCACCP                   |
| C1_PROD_SAVE               | C1_TIER_INP                | CILCACMP                   |
| C1_PROD_SRCH               | C1_TRLBL                   | CILCALZP                   |
| C1_PROVR_EDT               | C1_TXNAR                   | CILCAMRP                   |
| C1_PRZCR                   | C1_VWPRD                   | CILCASEEXTN                |
| C1_PRZTR                   | CIACNBTY                   | CILCBCUP                   |
| C1_PRZ_CR                  | CIACTTYP                   | CILCBRWP                   |
| C1_PRZ_TR                  | CIAPAYSTGUPL               | CILCCCIIP                  |
| C1_PTPLA                   | CIAPPACCTYPE               | CILCCCZP                   |
| C1_PYHST                   | CIAPPACTTYPE               | CILCCIZP                   |
| C1_RATE_DEF                | CIAPPHELGBL                | CILCCNSP                   |
| C1_RECTIFYSRCH             | CIAPPCRIT                  | CILCCNXP                   |
| C1_RLTPM                   | CIAPPTXNCHAIN              | CILCCSCP                   |
| C1_RLTVW                   | CIAPPTXNRSN                | CILCCSHP                   |
| C1_RSLV                    | CIDIVPERREL                | CILCCTXP                   |
| C1_RSN                     | CIDIVPRITMPERREL           | CILCENRP                   |
| C1_RTCOM_ADD               | CIFILEGRP                  | CILCFIZP                   |
| C1_RTC_VAL                 | CIGETPRICING               | CILCONPREF                 |
| C1_RTOPT                   | CILAADUP                   | CILCERP                    |
| C1_RTSC                    | CILAASCP                   | CILCLAS                    |
| C1_SAVE_TIER               | CILAAUSP                   | CILCPPLP                   |

| <b>Application Service</b> | <b>Application Service</b> | <b>Application Service</b> |
|----------------------------|----------------------------|----------------------------|
| C1_SHOW_IMG                | CILACLCP                   | CILCPRMP                   |
| C1_SRCH                    | CILACTCT                   | CILCQTEP                   |
| C1_SRCHPL                  | CILACTHI                   | CILQATDP                   |
| CILCSALP                   | CILICOEP                   | CILQCASP                   |
| CILCSESA                   | CILITDDP                   | CILQTDEP                   |
| CILCSSEP                   | CILITDQP                   | CILQTDLP                   |
| CILCSVAP                   | CILITPDP                   | CILQTDQP                   |
| CILDATA                    | CILLCAZP                   | CILQTDSP                   |
| CILDIVET                   | CILLODPP                   | CILQTDTP                   |
| CILDIVEXT                  | CILMRBHP                   | CILQTDZP                   |
| CILDRVWP                   | CILPAPHP                   | CILQTSSP                   |
| CILECBLP                   | CILPAPSP                   | CILQTSUP                   |
| CILEFKRP                   | CILPARTY                   | CILRCMAP                   |
| CILEFLDP                   | CILPDCNP                   | CILRENGP                   |
| CILEMNUP                   | CILPDCSP                   | CILRRSMP                   |
| CILEMOBP                   | CILPEPLP                   | CILRRTCP                   |
| CILEMPDTLS                 | CILPEQAP                   | CILRRTSP                   |
| CILENAVP                   | CILPEVTP                   | CILRRTVP                   |
| CILENVOP                   | CILPICHAR                  | CILRRVMP                   |
| CILERPTP                   | CILPIDIV                   | CILRSCAT                   |
| CILESVCP                   | CILPILANG                  | CILRSTTY                   |
| CILETBLP                   | CILPIREL                   | CILRULE                    |
| CILEUIZP                   | CILPITXNREL                | CILRULTP                   |
| CILEXCHRATE                | CILPPAYP                   | CILSCHEDULE                |
| CILFAFHP                   | CILPPCAN                   | CILTACRP                   |
| CILFBLCP                   | CILPPTSP                   | CILTALGP                   |
| CILFFEXP                   | CILPQADP                   | CILTALTP                   |
| CILFFNTP                   | CILPRCITMREL               | CILTAMGP                   |
| CILFFTBP                   | CILPRICELISTCHAR           | CILTAMTP                   |
| CILFFTPP                   | CILPRITEM                  | CILTAPAP                   |
| CILFLGRP                   | CILPRLIST                  | CILTAPFP                   |

| <b>Application Service</b> | <b>Application Service</b> | <b>Application Service</b> |
|----------------------------|----------------------------|----------------------------|
| CILFMVTP                   | CILPRLISTDIV               | CILTAPRP                   |
| CILFSFHP                   | CILPRLISTL                 | CILTAPSP                   |
| CILIBTVP                   | CILPTCNP                   | CILTLNGP                   |
| CILTAROP                   | CILTCPRP                   | CILTMCRP                   |
| CILTARTP                   | CILTCQTP                   | CILTMHTP                   |
| CILTASGP                   | CILTCRUP                   | CILTMSGP                   |
| CILTATCP                   | CILTCURP                   | CILTNRBP                   |
| CILTATPP                   | CILTCUSP                   | CILTNCDP                   |
| CILTATYP                   | CILTCVTP                   | CILTNUXP                   |
| CILTBCRP                   | CILTDARP                   | CILTOCRP                   |
| CILTBCTP                   | CILTDASP                   | CILTOETP                   |
| CILTBFFP                   | CILTDCAP                   | CILTOPTP                   |
| CILTBFPV                   | CILTDCLP                   | CILTORAP                   |
| CILTBIMP                   | CILTDIRP                   | CILTPCRP                   |
| CILTBLCP                   | CILTDLOP                   | CILTPCTP                   |
| CILTBLLP                   | CILTDPRP                   | CILTPDRP                   |
| CILTBNKP                   | CILTDSTP                   | CILTPHTP                   |
| CILTBRTP                   | CILTDWPP                   | CILTPKGP                   |
| CILTBSTP                   | CILTDWTP                   | CILTPMDP                   |
| CILBTCP                    | CILTEBRP                   | CILTPPTP                   |
| CILBTTRP                   | CILTECRP                   | CILTPROP                   |
| CILTBUDP                   | CILTETTP                   | CILTPRTP                   |
| CILTBXTP                   | CILTFAAP                   | CILTPSDP                   |
| CILTCAMP                   | CILTFNDP                   | CILTPSTP                   |
| CILTCATP                   | CILTFRQP                   | CILTPTRP                   |
| CILTCCCP                   | CILTFWLP                   | CILTPYTP                   |
| CILTCCTP                   | CILTGLDP                   | CILTQRTP                   |
| CILTCHTP                   | CILTIDTP                   | CILTRGLP                   |
| CILTCIDP                   | CILTINCP                   | CILTRLEP                   |
| CILTCLGP                   | CILTINSP                   | CILTRSCP                   |
| CILTCLWP                   | CILTITTP                   | CILTRTYP                   |

| Application Service | Application Service | Application Service |
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| CILTCNTP            | F1MENU              | CILTSATP            |
| CILTCOCP            | CILTLETP            | CILTSCLP            |
| CILTCOTP            | CILTLKFP            | CILXJSVP            |
| CILTSCYP            | CILTWSDP            | CILXNDNP            |
| CILTSICP            | CILTXNDETAIL        | CILXOPTP            |
| CILTSOMP            | CILTXNDISAGGEXC     | CILXRCVP            |
| CILTSOPP            | CILTXNDISAGGREQ     | CILXRTPP            |
| CILTSQIP            | CILTXNHEADER        | CILXSENP            |
| CILTSQRP            | CILTXNRECTYPE       | CILXSVXP            |
| CILTSVTP            | CILTXNSOURCE        | CILXTPCP            |
| CILTZWLP            | CILTXNSRC           | CILXXSCP            |
| CILTTACP            | CILTXNSRCD          | CILXXUPP            |
| CILTTAXP            | CILTXNSRCL          | CILYASTP            |
| CILTTGRP            | CILUPFTS            | CILYDBPP            |
| CILTTMRP            | CILVFVDP            | CILYDFQP            |
| CILTTMTP            | CILVFVSP            | CILYDPIP            |
| CILTTNSP            | CILVVLEP            | F1-MASTERCONFIG     |
| CILTTNTP            | CILVVLSP            | CILYROBP            |
| CILTToup            | CILWDWNP            | CILZAFQP            |
| CILTTRAP            | CILWJSDP            | CILZAUQP            |
| CILTTRCP            | CILWJSSP            | CILZFNCP            |
| CILTTTMP            | CILWNUPP            | CILZPGRP            |
| CILTTZNP            | CILWNUSP            | CILZRBPP            |
| CILTUOMP            | CILWPROP            | CILZRPHP            |
| CILTURPP            | CILXADPP            | CILZRPOP            |
| CILTUSCP            | CILXAIEP            | CILZSCMP            |
| CILTUSEP            | CILXAIEP            | CILZSCRP            |
| CILTUSGP            | CILXCLSP            | CILZSCZP            |
| CILTWCTP            | CILXCONP            | CILZTLZP            |
| CILTWDCP            | CILXENHP            | CILZZOHP            |
| CILTWETP            | CILXFRMP            | CILZZONP            |



| <b>Application Service</b> | <b>Application Service</b> | <b>Application Service</b> |
|----------------------------|----------------------------|----------------------------|
| CILTWFPF                   | CILXGRPP                   | CIL_FAVORITES              |
| CILTWPTP                   | CILXJDBP                   | CIMOAPPCHAIN               |
| CILTWSCP                   | CILXJMSP                   | F1MIGRTIMP                 |
| CIPCHT3L                   | F1-WEBSVCBOAS              | F1MIGRTX                   |
| CIPFAFHP                   | F1ADMIN                    | F1MTXIMP                   |
| CIPOLICY                   | F1APPSEC                   | F1OBJREVCTL                |
| CIPRICEACCOUNT             | F1ATTACH                   | F1OBRVH                    |
| CIPRICEPARM                | F1ATTACHMENT               | F1REQ                      |
| CIPYSRCH                   | F1BUNEXP                   | F1REXHST                   |
| CIRECON                    | F1BUNIMP                   | F1STRDIS                   |
| CIRECONSEG                 | F1CATTCH                   | F1STREAS                   |
| CIRSTTYP                   | F1CONFIGLOG                | F1SUBRQQ                   |
| CIS_DIV_ALGS               | F1DEBUG                    | F1SYNCRM                   |
| CIS_DIV_BICIES             | F1EXLKP                    | F1SYNCRQ                   |
| CIS_DIV_CST_LNGS           | F1EXLKPS                   | F1TBLEXC                   |
| CIS_DIV_ID_TYPES           | F1LCAMRP                   | F1UIZONE                   |
| CIS_DIV_INV_CURS           | F1LEXTLKUP                 | F1USERLOG                  |
| CIS_DIV_TXN_SRCS           | F1LTAMTP                   | F1USRCHKOUT                |
| CIS_DIV_VLD_CTIES          | F1MESSAGE                  | F1WBSVCM                   |
| CTXTZONE                   | F1MGDEXP                   | F1WBSVCS                   |
| DIVS                       | F1MGDEXS                   | F1WEBSVC                   |
| DIV_PRICEITEMS             | F1MGDIMP                   | F1_BTST                    |
| DIV_PRICELISTS             | F1MGDIMS                   | F1_USRFAVSCH               |
| F1-APAYEXPCRTYPEBOAS       | F1MGOIMP                   | FILETYPE                   |
| F1-ATTACHMENTBOAS          | F1MGPLNM                   | FWLBNDLP                   |
| F1-DFLTAPS                 | F1MGPLNS                   | FWLCTDEP                   |
| F1-DFLTS                   | F1MGREQM                   | FWLFACTP                   |
| F1-GENPROC                 | F1MGREQS                   | FWLSTRJP                   |
| F1-MIGROBJIMP              | F1MIGRDEXP                 | FWLTBELP                   |
| F1-STASKTYPE               | F1MIGRDIMP                 | FWLTBOJP                   |
| F1-SVCTASK                 | F1MIGRDS                   | FWLTBSVP                   |

| Application Service | Application Service | Application Service |
|---------------------|---------------------|---------------------|
| F1-SYNCREQ          | F1MIGROBJ           | FWLTDARP            |
| F1-SYNCREQIN        | F1MIGRPLAN          | GOTOREC             |
| F1-SYNCREQUESTBOAS  | F1MIGRREQ           | PERTREE             |
| FWLTEXSP            | FWLXOUTP            | VALIDCHARS          |
| FWLTMGCT            | FWLZDEXP            | C1LASGN             |
| FWLTOMTP            | FWLZWLZP            | C1PIASGN            |
| FWLTSCHP            | FWLTUIMP            | C1PLASGNM           |
| C1-BILLCHARGE       | C1ELGPA             | C1REFUPLREQ         |
| C1BCHGUPLREQ        | C1GETELIGPT         | C1UPLDRQ            |
| C1BILLCYCLEUPDTUPL  | C1GLAT              | C1UPLREQ            |
| C1CONTRIDERUPDTUPL  | C1GLATEMP           | C1WOUPLREQ          |
| C1DCDTLC            | C1GLATRQ            | C1_STRTE            |
| C1DELCTL            | C1HOLDUPLREQ        | CILCPASP            |
| ACRLSRCH            | C1ADDRESS           | C1DSPT              |
| C1-ACCTECR          | C1ADDRS             | C1DSPTRQ            |
| C1-FTDIST           | C1ADDRSBO           | C1DSPTRT            |
| C1-FTDISTRULE       | C1ADDRSDP           | C1DSPTTY            |
| C1-FTDISTTY         | C1ADDRSRC           | C1FTDIST            |
| C1TNCsrh            | C1BK360             | C1FTDSRL            |
| C1ACCECR            | C1BKAPPSER          | C1FTDSTT            |
| C1ACRLCL            | C1BKBLDT            | C1FTDSTY            |
| C1ACRLTP            | C1TRLFT             | C1HCSINF            |
| C1ACRMVW            | C1PL                | C1_ACTVW            |
| C1ADDRDP            | C1SAPPTM            | C1_ACTYP            |
| C1ADDRDTL           | C1_ACCRUAL_SERV     | C1_TRLIN            |
| C1_ACYVW            | C1_DSPT_REQ         | F1-ARQPR            |
| F1-AVALG            | F1-LKPIL            | F1-SICRL            |
| F1-AVBT             | F1-MGDIM            | F1-SRCRL            |
| F1-AVMO             | F1-MGDPR            | F1-SRLRQ            |
| F1-AVTBL            | F1-MGOAP            | F1-STATSM           |
| F1-AVTD             | F1-MGOPR            | F1-STCRL            |

| <b>Application Service</b> | <b>Application Service</b> | <b>Application Service</b> |
|----------------------------|----------------------------|----------------------------|
| F1-BFCRL                   | F1-MGTAP                   | F1-STKDF                   |
| F1-BSFLG                   | F1-MGTPR                   | F1-STKTR                   |
| F1-BUNPR                   | F1-NDPUR                   | F1-SUBRQ                   |
| F1-DTDOM                   | F1-ORCRL                   | F1-SYNEF                   |
| F1-FCTRN                   | F1-OUCRL                   | F1-SYNIL                   |
| F1-FKVBP                   | C1BUNDLE                   | F1-SYNRQ                   |
| F1-FLUSH                   | F1ACGRPM                   | F1-SYSRQ                   |
| F1-ILMIN                   | F1-REQTY                   | F1-TDCRL                   |
| F1-LANG                    | F1-REVPR                   | F1-TDEER                   |
| F1-LDAP                    | F1-SAKRQ                   | F1-TDPG                    |
| F1-XMLPG                   | ACCTVIEW                   | C1-ACCTAPAY_SERV           |
| C1-DISC-REPT               | C1-DRRTMPLT                | C1-PRC_CALC_SM             |
| C1-REVRECSCHZ              | C1-SCHEDULERMONITOR        | C1-SCHPGMQZ                |
| C1-SCHSCHQZ                | C1APAYRT                   | C1APAYVW                   |
| C1APYINS                   | C1AWFCHN                   | C1AWFCRT                   |
| C1AWFGRP                   | C1AWFRSN                   | C1AWFSET                   |
| C1CONADD                   | BFEECONT                   | BILLVARI                   |
| C1PARAM                    | C1PDSRCH                   | C1PERS                     |
| C1PERSDP                   | C1PERSON                   | C1PRDSVC                   |
| C1PRODDP                   | C1PRODUCTSERVICE           | C1PVERDP                   |
| C1REPORT                   | C1RPTTMP                   | C1SCHCHN                   |
| C1SCHJOB                   | C1SCHPGM                   | C1SCHSCH                   |
| C1SCJMON                   | C1SRCAPP                   | C1SVCDSP                   |
| C1VIEPRI                   | C1-DEALAPPR                | C1_BOCHN                   |
| C1_CONSTRUCT               | C1_DRRSP                   | C1_DRRSR                   |
| C1_DRRTM                   | C1_DRRTP                   | C1_ENLOG                   |
| C1_ENROL                   | C1_ENROLLMENT              | C1_ENSCH                   |
| C1_PRODUCT                 | C1_PRODUCT_SERVICE         | C1_PRODVER                 |
| CICONACT                   | CILFDRR                    | CONRULE                    |
| CONSTRUCT                  | DDPRCSM                    | PRICECOMPPRE               |

| Application Service  | Application Service | Application Service |
|----------------------|---------------------|---------------------|
| ACCT_SUBSCRPTN_SERV  | C1-PRC_CALC_SM      | C1-PRRLTYP          |
| C1-SUBSCRTYPE        | C1ACTSBS            | C1ASBSVW            |
| C1BANK               | C1BANKVW            | C1ENTITYREPORT      |
| C1PRICINGGROUP       | C1PROAPP            | C1PRTYP             |
| C1RPTAUD             | C1RPTDEF            | C1SUBSTP            |
| C1SUBTVW             | C1_SRCBUSSPRD       | C1_SRCTECHPRD       |
| C1-CUSTREGTEMPL_SERV | C1-CUSTREGTYPE      | C1-DUPBTN           |
| C1-GETPRICINGENTITY  | C1-PRICEASGNTREE    | C1MASPRI            |
| C1MPRIRQ             | C1MPRISR            | C1RETMPL            |
| F1MSTCFG             | F1OUMSTQ            | F1OUMSTY            |
| PRICECOMPSEQ         | C1CREGSR            | C1CTRGBK            |
| C1CUREG              | C1CURETY            | C1CUSTREG           |
| AUDITEVENT           | C1-AUDEVTYPE        | C1-BANKING          |
| C1-PRICETREE         | C1ADEVSR            | C1AUDEVT            |
| C1AUDTY              | C1RETMPLBK          | C1VIPRIN            |
| C1_BILL              | USRACCS             | WEIGHTAV            |
| C1-HRCHYENTITY       | C1ADDPRO            | C1CUSTPO            |
| C1DAPROF             | C1DEALDB            | C1DEALPASGN         |
| C1DEALSVC            | C1DELTYP            | USMISINV            |
| C1DTSERH             | C1ENHR              | C1ENHRSR            |
| C1ENTDTL             | C1FILEMS            | C1OFPREQ            |
| C1-DLAPPRTOD         | C1GETELIGPRO        | C1HIERARCHY         |
| C1HRCHYENTITY        | C1HRYENT            | C1INREQ             |
| C1INRETY             | C1INVRED            | C1PISL              |
| C1OFPRED             | C1PROSPO            | C1PRSEAR            |
| C1PRSSASP            | C1REFPRI            | C1SERDSC            |
| C1SLFSER             | C1_ALRPT            | C1-DLDBACTNS        |
| C1_CONSTRUCT         | C1_CREF             | CANCPAYM            |
| PRICEITEM_SERV       | C1_DEAL             | C1_DEALAPPSER       |
| C1_HEVD              | C1_PDEAL            | C1_PRENROLLMENT     |

| <b>Application Service</b> | <b>Application Service</b> | <b>Application Service</b> |
|----------------------------|----------------------------|----------------------------|
| C1_REF                     | CANCPAYM                   | CDUPPROD                   |
| CMPESTESTASE               | CM_TEST                    | CNSTRTEM                   |
| CONTEXTR                   | CRITBLAN                   | CUSDREN                    |
| CUSPRCDT                   | CUSTHRCH                   | CUSTINVM                   |
| DATAVAL                    | DENTREJ                    | DUMMYACT                   |
| DUMMYCIS                   | F1TODOMG                   | ICRGRPID                   |
| INCRADDR                   | INCRBILL                   | INCRINAC                   |
| INCRSTAC                   | INCRUSAC                   | INCURRAD                   |
| INVCARGR                   | INVLDCSK                   | INVOICSE                   |
| INVSTLAC                   | MGCEXP                     | MISSETCO                   |
| MULCSKY                    | NOBILLCH                   | NOCISKEY                   |
| NOCUSTYP                   | NOSTDPRC                   | NUSG                       |
| OVRDRPIC                   | OVRDRPRC                   | C1-DLTODOLST               |
| PNDPYMNT                   | PORTEST                    | PORTT                      |
| PRDPROF                    | PRODSTAT                   | PROITMPR                   |
| PROSADD                    | PRTTST                     | C1DLAPDB                   |
| SETACCOMP                  | STDPLREV                   | STNPRLST                   |
| TBDONIN                    | TBDINQAC                   | TRADING                    |
| TRANSREJ                   | TRIALBL                    | TRLBILDT                   |
| TRSREJPR                   | C1GETELIGPROD              | C1GETELIGPLPRO             |
| UAINVCNS                   | USAGINVA                   | USGACC                     |
| C1-DEALRVW                 | C1-EXTCTTEMP               | C1-EXTRACTTEMPLATE         |
| C1-FIELDMAP                | C1-FIELDMAP_SERV           | C1-PROSPECTCRET            |
| C1-PRSPRODENRL             | C1-TNC                     | C1DEAL1                    |
| C1DLPRT                    | C1DLTMPT                   | C1EXTCTTEMP                |
| C1EXTTMP                   | C1PLSIM                    | C1PLSM                     |
| C1PLSMPL                   | C1PLSMVW                   | C1PRICELISTSIM             |
| C1QUESTION                 | C1STPDL                    | C1TCMAP                    |
| C1TERCO                    | F1ACGRPQ                   | F1ALGQ                     |
| F1ALGTQ                    | F1APPSVM                   | F1APPSVQ                   |

| Application Service | Application Service | Application Service |
|---------------------|---------------------|---------------------|
| F1BOQ               | F1BSVQ              | F1BTCHQ             |
| F1CHRTYP            | F1CHRTYQ            | F1DTARQ             |
| F1FCFGQ             | F1FIELD             | F1FKRFQ             |
| F1FLDQ              | F1LKUPQ             | F1MANCQ             |
| F1MENUQ             | F1MOQ               | F1MSG               |
| F1MSGC              | F1MSGQ              | F1NAVKQ             |
| F1NAVOQ             | F1PRTL              | F1PRTLQ             |
| F1SCRQ              | F1TABLE             | F1TBLQ              |
| F1TDDASH            | F1TMZNM             | F1TODO              |
| F1TODOEQ            | F1UIMPQ             | F1WRKCAL            |
| F1WRKCLQ            | F1ZONE              | F1ZONEQ             |
| C1-AUTOPAYREQ_SERV  | C1APAY              | C1APAYREQ           |
| C1APAYRQ            | C1APRQTY            | C1TRLBILL           |
| C1TRLBLSEG          | -                   | -                   |

## B.3 HADMIN

The following table lists all application services configured for the HADMIN user group:

| Application Service | Application Service | Application Service |
|---------------------|---------------------|---------------------|
| AFHZONE             | C1-INS-POLICY       | C1-SRCHSPT          |
| APPTXADM            | C1-INSDETBAK        | C1-UNLINK           |
| BILLGCONS           | C1-MAINPINFR        | C1-UNLINKPP         |
| BILLGRAPH           | C1-MEMBSP           | C1-UPLOADCSV        |
| C1-ACCBALCNT        | C1-NAVACTCUR        | C1-WRITEOFFREQ      |
| C1-ACCCURDET        | C1-NAVTOEXST        | C1ACCRATE           |
| C1-ACCDISCREZ       | C1-PAY-REQ          | C1ACINSP            |
| C1-ACCURTEXT        | C1-PAYMENT          | C1ACTPER            |
| C1-ACNPOLSUMZ       | C1-PAYTEMPLATEBOAS  | C1ACTREE            |
| C1-ACPOLSUMMZ       | C1-PERBALCNT        | C1ADJSTP            |
| C1-ADJAPPRVLREQBOAS | C1-PIFVIS           | C1ADJUPL            |
| C1-APAYEXPCRREQBOAS | C1-PINFRDISP        | C1APPBOCHNZN        |

| Application Service  | Application Service  | Application Service |
|----------------------|----------------------|---------------------|
| C1-APAYEXPCRTYPEBOAS | C1-PINVFPOST         | C1APPCHN            |
| C1-APPRSN            | C1-POINFRDET         | C1APPCRT            |
| C1-APPTXN            | C1-POLICYINVOICEFREQ | C1APPRESP           |
| C1-APPTXNLOG         | C1-POLICYPLAN        | C1APPTXNBOCHN       |
| C1-ASAPU             | C1-POLINVDETZ        | C1APPTXNBOCHNZN     |
| C1-ASGNPL            | C1-POLINVEDI         | C1APPTXNCHAIN       |
| C1-BILLCHARGE        | C1-POLINVFRE         | C1APPTXNCRI         |
| C1-BRD               | C1-POLINVFREZ        | C1APPTXNCRT         |
| C1-CNTRTPPTZ         | C1-POLINVFRQ         | C1APPTXNGRP         |
| C1-CONTRACTCHARSVALI | C1-PPACCTSRC         | C1BOCHN             |
| C1-CONTRACTTYPECHARS | C1-PPPROC            | C1FLRQTY            |
| C1-DEFAULTPP         | C1-PPTERROR          | C1FLSRCH            |
| C1-DFLTPTMP          | C1-QUICKPAGINATION   | C1INSPAY            |
| C1-DRRDTLSZ          | C1-REFWOREQ          | C1MANAPP            |
| C1-DUPBTN            | C1-REQUEST-TYPE      | C1MANLOG            |
| C1-GETADJ            | C1-RETURNDUP         | C1MANMOD            |
| C1-GETEFFECTVPRICING | C1-REVRECSCHZ        | C1MANRES            |
| C1-GETPPTMPL         | C1-SHDETAILSZ        | C1MEMBRS            |
| C1MEMBSP             | C1PTPLP              | C1_BRD_P            |
| C1NCISPY             | C1PYRQTY             | C1_BUNDLE           |
| C1NCPTMP             | C1REFSTP             | C1_CHKBIL_PA        |
| C1ODBUPR             | C1REFUND             | C1_CHKTRDFLG        |
| C1PASGAPPROVE        | C1REQSTS             | C1_CIGAS            |
| C1PASGREADMODIFY     | C1REQTYP             | C1_CIMAPZ           |
| C1PASGREADRESOLVE    | C1RFWORT             | C1_COM_VALID        |
| C1PAYMAN             | C1SAPPTM             | C1_COPYPL           |
| C1PAYPTL             | C1SATYPELISTZ        | C1_CPBUNDL          |
| C1PAYREQ             | C1SCHEDU             | C1_CPYPL            |
| C1PAYRQ              | C1VAR                | C1_CUSTINFO         |
| C1PAYSRC             | C1WODET              | C1_DEL_PRD          |
| C1PAYUPL             | C1_ADDEXH            | C1_DEL_PROD         |

| <b>Application Service</b> | <b>Application Service</b> | <b>Application Service</b> |
|----------------------------|----------------------------|----------------------------|
| C1PERRL                    | C1_ADDPL                   | C1_DISPBOUND               |
| C1PLCYPL                   | C1_ADDPROD                 | C1_DRRSR                   |
| C1PLCYPN                   | C1_ADD_RTCMP               | C1_DSPLY_RT                |
| C1PLCYTY                   | C1_ADD_TIER                | C1_EDTBUND                 |
| C1POINFR                   | C1_ADMPI                   | C1_EDTER                   |
| C1POLACL                   | C1_ANSPLTCUS               | C1_EDTPL                   |
| C1POLCYN                   | C1_APCS                    | C1_EDTPROD                 |
| C1POLCYP                   | C1_APPAD                   | C1_EDT_PRITM               |
| C1POLPEL                   | C1_APPTXN_PRICEASGN        | C1_EFF_PRC                 |
| C1POLSCH                   | C1_APPWF                   | C1_EFF_PRICE               |
| C1POLSRCH                  | C1_APUR                    | C1_EFPRODSRC               |
| C1POLTYP                   | C1_APVIG                   | C1_EXCHRT                  |
| C1PPCARS                   | C1_ASNPL                   | C1_EXHRT                   |
| C1PPDUP                    | C1_BACCGRVAL               | C1_EXPPITM                 |
| C1PRISIM                   | C1_BAFHZ                   | C1_FTRS                    |
| C1PRODUCT                  | C1_BFHIS                   | C1_F_ADDCHLD               |
| C1PSNAPP                   | C1_BNDMN                   | C1_F_ADDEXCH               |
| C1PSNMOD                   | C1_BNDPRD                  | C1_F_ADDPL                 |
| C1PSNRES                   | C1_BNDPRS                  | C1_F_ADDPRD                |
| C1PTNDRH                   | C1_BO_OPT                  | C1_F_ADDPRPL               |
| C1_F_ADDPRSS               | C1_F_IGG2MS                | C1_OVR_PRITM               |
| C1_F_ADDRATE               | C1_F_IGG3MM                | C1_PAYUP                   |
| C1_F_ADMPROD               | C1_F_IGG3MS                | C1_PCUSSRCH                |
| C1_F_ADPROD                | C1_F_PERSRCH               | C1_PLADPR                  |
| C1_F_APVDTVL               | C1_F_PLCRT                 | C1_PLAE                    |
| C1_F_APVNFLT               | C1_F_PLEDT                 | C1_PLASNADD                |
| C1_F_ASGNCUS               | C1_F_PLVAL                 | C1_PLASNEDIT               |
| C1_F_ASGNPTP               | C1_F_POPITEM               | C1_PLASN_ADD               |
| C1_F_CIGG3V                | C1_F_PRCHAR                | C1_PLASN_EDI               |
| C1_F_COPYPL                | C1_F_PRCHARS               | C1_PLASSIGN                |
| C1_F_CPYBNL                | C1_F_PRDVL                 | C1_PLASSIGNE               |



| <b>Application Service</b> | <b>Application Service</b> | <b>Application Service</b> |
|----------------------------|----------------------------|----------------------------|
| C1_F_CPYPL                 | C1_F_PRODVAL               | C1_PLCASSIGN               |
| C1_F_CPYPLVL               | C1_F_PRODL1                | C1_PLEDIT                  |
| C1_F_CUSSRCH               | C1_F_RSCDVAL               | C1_PLISTRCH                |
| C1_F_DELEXCH               | C1_F_RTDESC                | C1_PLMNG                   |
| C1_F_DELSCS                | C1_F_SAVESCS               | C1_PLPTYAINF               |
| C1_F_DTVAL                 | C1_F_SRPLVAL               | C1_PLPTYINFO               |
| C1_F_EDTEXHR               | C1_F_VAL_CUS               | C1_PLSRCH                  |
| C1_F_EDTMMP                | C1_GENERICSA               | C1_PLSTOGGLE               |
| C1_F_EDTPL                 | C1_GENRCMP                 | C1_PLVAL                   |
| C1_F_EDTPR                 | C1_GETTIER                 | C1_PLVALIDAT               |
| C1_F_EDTPROD               | C1_GRP                     | C1_PLVIEW                  |
| C1_F_EDTPRPL               | C1_IGMMB                   | C1_PL_ADD                  |
| C1_F_EDTPRSS               | C1_INF_PARTY               | C1_PL_EDIT                 |
| C1_F_EXCDVAL               | C1_INVC                    | C1_PL_PI                   |
| C1_F_EXCHVAL               | C1_LIST_TIER               | C1_PMPRC                   |
| C1_F_EXHVAL                | C1_MIG                     | C1_POLICYTYPE              |
| C1_F_GENACBO               | C1_MIGAS                   | C1_PPEDT                   |
| C1_F_IGG1MM                | C1_MNGRT                   | C1_PPOVR                   |
| C1_F_IGG1MS                | C1_MNGTR                   | C1_PPOVRSRCH               |
| C1_F_IGG2MM                | C1_MPPA                    | C1_PP_DSPINF               |
| C1_PP_PLVAL                | C1_SRCHPL                  | CILBSBHP                   |
| C1_PRCAD                   | C1_SRCHPLVAL               | CILBSCCP                   |
| C1_PRCE_VALD               | C1_SRCHPPL                 | CILBSEGP                   |
| C1_PRCPM                   | C1_SRCHPRD                 | CILBSTMP                   |
| C1_PRC_EDIT                | C1_SRCH_PROF               | CILCAAHP                   |
| C1_PRC_OVRD                | C1_SRPROD                  | CILCAASP                   |
| C1_PRC_TR                  | C1_STRTOLIST               | CILCACCP                   |
| C1_PRC_VALID               | C1_TEMPLATE                | CILCALZP                   |
| C1_PRDREL                  | C1_TIER_INP                | CILCAMRP                   |
| C1-OFFPRO                  | C1_VWPRD                   | CILCBCUP                   |
| C1_PRITSRCH                | CHGTYPE                    | CILCCIP                    |

| <b>Application Service</b> | <b>Application Service</b> | <b>Application Service</b> |
|----------------------------|----------------------------|----------------------------|
| C1_PROD                    | CHGTYPECD                  | CILCCCZP                   |
| C1_PRODPL                  | CIACNBTY                   | CILCCIZP                   |
| C1_PROD_ADD                | CIAPAYSTGUPL               | CILCCNSP                   |
| C1_PROD_EDIT               | CIAPPACCTYPE               | CILCCNXP                   |
| C1_PROD_SRCH               | CIAPPHELGBL                | CILCCSCP                   |
| C1_PROVR_EDT               | CIAPPCRIT                  | CILCCSHP                   |
| C1_PRZCR                   | CIAPPTXNCHAIN              | CILCCTXP                   |
| C1_PRZTR                   | CIAPPTXNRSN                | CILCFIZP                   |
| C1_PRZ_CR                  | CICASE                     | CILCERP                    |
| C1_PRZ_TR                  | CICASECREATE               | CILCPLAS                   |
| C1_PTPLA                   | CICHGTYPE                  | CILCPPLP                   |
| C1_RATE_DEF                | CICREATEPAYMENTS           | CILCPRMP                   |
| C1_RECTIFYSRCH             | CIGETPRICING               | CILCSALP                   |
| C1_RSN                     | CILAADUP                   | CILCSSEP                   |
| C1_RTCOM_ADD               | CILAASCP                   | CILCSVAP                   |
| C1_RTC_VAL                 | CILAAUSP                   | CILDATA                    |
| C1_RTOPT                   | CILACDEL                   | CILDIVET                   |
| C1_SAVE_TIER               | CILACLCP                   | CILDIVEXT                  |
| C1_SHOW_IMG                | CILBBICP                   | CILECBLP                   |
| C1_SRCH                    | CILBLLP                    | CILEFKRP                   |
| CILEFLDP                   | CILPILANG                  | CILRRVMP                   |
| CILEMNUP                   | CILPIREL                   | CILSACHG                   |
| CILEMOBP                   | CILPITXNREL                | CILTACRP                   |
| CILENAVP                   | CILPOLMO                   | CILTALGP                   |
| CILENVOP                   | CILPPAYP                   | CILTALTP                   |
| CILERPTP                   | CILPPCAN                   | CILTAMGP                   |
| CILESVCP                   | CILPPTSP                   | CILTAMTP                   |
| CILETBLP                   | CILPQADP                   | CILTAPAP                   |
| CILEUIZP                   | CILPRCITMREL               | CILTAPFP                   |
| CILEXCHRATE                | CILPRICELISTCHAR           | CILTAPSP                   |
| CILFAFHP                   | CILPRITEM                  | CILTAROP                   |

| <b>Application Service</b> | <b>Application Service</b> | <b>Application Service</b> |
|----------------------------|----------------------------|----------------------------|
| CILFBLCP                   | CILPRLIST                  | CILTARTP                   |
| CILFBPHP                   | CILPRLISTDIV               | CILTASGP                   |
| CILFDRR                    | CILPRLISTL                 | CILTATCP                   |
| CILFFNTP                   | CILPTCNP                   | CILTATPP                   |
| CILFFTBP                   | CILQATDP                   | CILTATYP                   |
| CILFFTPP                   | CILQCASP                   | CILTBCRP                   |
| CILFLGRP                   | CILQTDEP                   | CILTBCTP                   |
| CILFMVTP                   | CILQTDLP                   | CILTBFFP                   |
| CILFSFHP                   | CILQTDQP                   | CILTBFVP                   |
| CILITPDP                   | CILQTDSP                   | CILTBIMP                   |
| CILLODPP                   | CILQTDTP                   | CILTBLCP                   |
| CILPAPHP                   | CILQTDZP                   | CILTBLLP                   |
| CILPAPSP                   | CILQTSPP                   | CILTBKNP                   |
| CILPDCNP                   | CILQTSUP                   | CILTB RTP                  |
| CILPDCSP                   | CILRCMAP                   | CILTBSTP                   |
| CILPEPLP                   | CILRENGP                   | CILBTCP                    |
| CILPEQAP                   | CILRRSMP                   | CILBTRP                    |
| CILPEVTP                   | CILRRTCP                   | CILBXTP                    |
| CILPICHAR                  | CILRR TSP                  | CILTCAMP                   |
| CILPIDIV                   | CILRR TVP                  | CILTCATP                   |
| CILTCCCP                   | CILTITTP                   | CILTSARP                   |
| CILTCCTP                   | F1IWSOPR                   | CILTSATP                   |
| CILTCHTP                   | CILTLETP                   | CILTSCLP                   |
| CILTCIDP                   | CILTLKFP                   | CILTSCYP                   |
| CILTCLGP                   | CILTLNGP                   | CILTSICP                   |
| CILTCLRP                   | CILTMCRP                   | CILTSOMP                   |
| CILTCLWP                   | CILTMHTP                   | CILTSOPP                   |
| CILTCNTP                   | CILTMSGP                   | CILTSQIP                   |
| CILTCOCP                   | CILTNUXP                   | CILTSQRP                   |
| CILTCQTP                   | CILTOCRP                   | CILTSTMP                   |
| CILTCURP                   | CILTOETP                   | CILTSVTP                   |

| <b>Application Service</b> | <b>Application Service</b> | <b>Application Service</b> |
|----------------------------|----------------------------|----------------------------|
| CILTCUSP                   | CILTOPTP                   | CILTSWLP                   |
| CILTDARP                   | CILTORAP                   | CILTTACP                   |
| CILTDASP                   | CILTPCRP                   | CILTTAXP                   |
| CILTDCAP                   | CILTPCTP                   | CILTTGRP                   |
| CILTDCLP                   | CILTPDRP                   | CILTTMRP                   |
| CILDIRP                    | CILTPHTP                   | CILTTMTP                   |
| CILDPRP                    | CILTPIFP                   | CILTTNSP                   |
| CILDSTP                    | CILTPKGP                   | CILTTNTP                   |
| CILDWPP                    | CILTPMDP                   | CILTToup                   |
| CILDWTP                    | CILTPPTP                   | CILTRRAP                   |
| CILTEBRP                   | CILTPRTP                   | CILTTTMP                   |
| CILTECRP                   | CILTPSDP                   | CILTTZNP                   |
| CILTETTP                   | CILTPSTP                   | CILTUOMP                   |
| CILTFNDP                   | CILTPTRP                   | CILTURPP                   |
| CILFRQP                    | CILTPYTP                   | CILTUSCP                   |
| CILFWLP                    | CILTQ RTP                  | CILTUSEP                   |
| CILGLDP                    | CILTRGLP                   | CILTUSGP                   |
| CILTIDTP                   | CILTRLEP                   | CILTWCTP                   |
| CILTINCP                   | CILTRSCP                   | CILTWDCP                   |
| CILTINSP                   | CILTRTYP                   | CILTWETP                   |
| CILWFPP                    | CILXOPTP                   | CISATYCHG                  |
| CILWPTP                    | CILXRCVP                   | CTXTZONE                   |
| CILWSCP                    | CILXRTP                    | DIVS                       |
| CILWSDP                    | CILXSENP                   | DIV_PRICEITEMS             |
| CILTXNDETAIL               | CILXSVXP                   | DIV_PRICELISTS             |
| CILTXNSRC                  | CILXTPCP                   | F1-APAYEXPCRTYPEBOAS       |
| CILTXNSRCD                 | CILXXSCP                   | F1-ATTACHMENTBOAS          |
| CILTXNSRCL                 | CILXXUPP                   | F1-DECRPTBOAS              |
| CILUPFTS                   | CILYASTP                   | F1-DFLTAPS                 |
| CILVFVDP                   | CILYDBPP                   | F1-DFLTS                   |
| CILVFVSP                   | CILYDFQP                   | F1-EXPUSERSREQBOAS         |

| Application Service | Application Service | Application Service |
|---------------------|---------------------|---------------------|
| CILVVLEP            | CILYDPIP            | F1-GENPROC          |
| CILVVLSP            | F1IWSSVCOPR         | F1-MIGROBJIMP       |
| CILWDWNP            | CILYROBP            | F1-STASKTYPE        |
| CILWJSDP            | CILZAFQP            | F1-SVCTASK          |
| CILWJSSP            | CILZAUQP            | F1-SYNCREQ          |
| CILWNUPP            | CILZFNCP            | F1-SYNCREQIN        |
| CILWNUSP            | CILZPORP            | F1-SYNCREQUESTBOAS  |
| CILWPROP            | CILZRBPP            | F1-WEBSVCBOAS       |
| CILXADPP            | CILZRPHP            | F1ADMIN             |
| CILXAIEP            | CILZRPOP            | F1ATTACH            |
| CILXAIIP            | CILZRPTP            | F1ATTACHMENT        |
| CILXCLSP            | CILZSCRP            | F1CATTCH            |
| CILXCONP            | CILZSCZP            | F1CONFIGLOG         |
| CILXENHP            | CILZTLZP            | F1DEBUG             |
| CILXFRMP            | CILZZOHP            | F1EXLKP             |
| CILXGRPP            | CILZZONP            | F1EXLKPS            |
| CILXJDBP            | CIL_FAVORITES       | F1LCAMRP            |
| CILXJMSP            | CIPRICEACCOUNT      | F1LEXTLKUP          |
| CILXJSVP            | CISACHG             | F1LTAMTP            |
| CILXNDNP            | CISACHGTYPE         | F1MGDEXP            |
| F1MGDEXS            | F1_USRFAVSCH        | F1SUBRQQ            |
| F1MGDIMP            | FILETYPE            | F1SYNCRM            |
| F1MGDIMS            | FWLCTDEP            | F1SYNCRQ            |
| F1MGOIMP            | FWLFACTP            | F1TBLEXC            |
| F1MGPLNM            | FWLSTRJP            | F1UIZONE            |
| F1MGPLNS            | FWLTBELP            | F1USERLOG           |
| F1MGREQM            | FWLTBOJP            | F1WBSVCM            |
| F1MGREQS            | FWLTBSVP            | F1WBSVCS            |
| F1MIGRDEXP          | FWLTDARP            | F1WEBSVC            |
| F1MIGRDIMP          | FWLTEXSP            | F1_BTST             |
| F1MIGRDS            | FWLTMGCT            | F1REQTYP            |

| <b>Application Service</b> | <b>Application Service</b> | <b>Application Service</b> |
|----------------------------|----------------------------|----------------------------|
| F1MIGROBJ                  | FWLTOMTP                   | F1STRDIS                   |
| F1MIGRPLAN                 | FWLTSCHP                   | F1STREAS                   |
| F1MIGRREQ                  | FWLTUIMP                   | PERTREE                    |
| F1MIGRTIMP                 | FWLXOUTP                   | SACHGLNK                   |
| F1MIGRTX                   | FWLZDEXP                   | SATYPCHG                   |
| F1MTXIMP                   | FWLZWLZP                   | C1LASGN                    |
| F1REQ                      | GOTOREC                    | C1PIASGN                   |
| C1BCHGUPLREQ               | C1DELCTL                   | C1PLASGNM                  |
| C1BILLCYCLEUPDTUPL         | C1ELGPA                    | C1REFUPLREQ                |
| C1CONTRIDERUPDTUPL         | C1GETELIGPT                | C1UPLDRQ                   |
| C1DCDTLC                   | C1HOLDUPLREQ               | C1UPLREQ                   |
| C1WOUPLREQ                 | C1LCPASP                   | C1HCSINF                   |
| C1-ACCNBRTYPAS             | C1ADDRESS                  | C1INMSGP                   |
| C1-CUSTINMSG               | C1ADDRS                    | C1INMSRH                   |
| C1-GENRQ                   | C1ADDRSBO                  | C1INMSTY                   |
| C1-INMSG                   | C1ADDRSRC                  | C1PAREQ                    |
| C1-INMSGTYPE               | C1CUS360                   | C1PARQMN                   |
| C1-MEMBERINMSG             | C1DSPT                     | C1PARQTY                   |
| C1-POLPERORLEAS            | C1DSPTRQ                   | C1PI                       |
| C1-PROSPECTCRET            | C1DSPTRT                   | C1PL                       |
| C1-REQUEST                 | C1DSPTTY                   | C1PRICEASGN                |
| C1ADDRDP                   | C1HCAPPSE                  | C1REINUPLREQ               |
| C1ADDRDTL                  | C1HCBLDT                   | C1LTHDP                    |
| C1_DSPT_REQ                | CIPOLPERROLE               | F1-ARQPR                   |
| F1-AVALG                   | F1-LKPIL                   | F1-SICRL                   |
| F1-AVBT                    | F1-MGDIM                   | F1-SRCRL                   |
| F1-AVMO                    | F1-MGDPR                   | F1-SRLRQ                   |
| F1-AVTBL                   | F1-MGOAP                   | F1-STATSM                  |
| F1-AVTD                    | F1-MGOPR                   | F1-STCRL                   |
| F1-BFCRL                   | F1-MGTAP                   | F1-STKDF                   |
| F1-BSFLG                   | F1-MGTPR                   | F1-STKTR                   |

| <b>Application Service</b> | <b>Application Service</b> | <b>Application Service</b> |
|----------------------------|----------------------------|----------------------------|
| F1-BUNPR                   | F1-NDPUR                   | F1-SUBRQ                   |
| F1-DTDOM                   | F1-ORCRL                   | F1-SYNEF                   |
| F1-FCTRN                   | F1-OUCL                    | F1-SYNIL                   |
| F1-FKVBP                   | F1ALGQ                     | F1-SYNRQ                   |
| F1-FLUSH                   | F1ALGTQ                    | F1-SYSRQ                   |
| F1-ILMIN                   | F1-REQTY                   | F1-TDCRL                   |
| F1-LANG                    | F1-REVPR                   | F1-TDEER                   |
| F1-LDAP                    | F1-SAKRQ                   | F1-TDPG                    |
| F1-XMLPG                   | ACCTVIEW                   | C1-ACCTAPAY_SERV           |
| C1-DISC-REPT               | C1-DRRTMPLT                | C1-MBR-DR-TY               |
| C1-REVRECPLCY              | C1ACCTAPAY                 | C1APAYRT                   |
| C1APAYVW                   | C1APYINS                   | C1DISREP                   |
| C1DRDIS                    | C1DSRTY                    | C1ENTDTL                   |
| C1OFPRP                    | C1MBRRCN                   | C1PARAM                    |
| C1PERS                     | C1PERSDP                   | C1PERSON                   |
| C1RCONTY                   | C1RECOLN                   | C1RECONCIL                 |
| C1RECONTYP                 | C1SRCAPP                   | C1VIEWRDL                  |
| C1_BPYHS                   | C1_DRRSP                   | C1_DRRTM                   |
| C1_DRRTP                   | C1_INVCLN                  | C1_PAYIN                   |
| C1_PRODUCT                 | C1_RLTPM                   | C1_RLTVW                   |
| C1LRULTP                   | CONRULE                    | PRICECOMPPRE               |
| GETDEALTYPE                | C1-PRRLTYP                 | C1-RULEBOAS                |
| C1-TXNAGG                  | C1-TXNDTL                  | C1-TXNREC                  |
| C1_TRLBL                   | C1BILLVL                   | C1BILLSORT                 |
| C1_TRLIN                   | C1BLLVLUPLREQ              | C1BLLSRTUPLREQ             |
| C1DISAGR                   | C1ENTITYREPORT             | C1PRICINGGROUP             |
| C1PROAPP                   | C1PRTYP                    | C1SRCHRL                   |
| C1TXNAGG                   | TRIALBL                    | F1TODOMG                   |
| C1TXNFD                    | C1OFPRED                   | C1GETELIGPLPRO             |
| C1_BUNDVAL                 | C1_COPYBND                 | C1_CPYBD                   |

| <b>Application Service</b> | <b>Application Service</b> | <b>Application Service</b> |
|----------------------------|----------------------------|----------------------------|
| C1OFPREQ                   | C1_PRICE                   | C1_TXNAR                   |
| CILTXNSOURCE               | CIPRICEPARM                | F1APPLYBN DL               |
| F1BNDLEM                   | F1BNDLES                   | F1BNDLIM                   |
| F1BNDLIS                   | F1BUNEXP                   | F1BUNIMP                   |
| F1IWSDPL                   | F1IWSSVC                   | F1IWSVCP                   |
| F1IWSVCS                   | FWLBNDLP                   | C1-ACCUDATA                |
| C1-CUSTREGTEMPL_SERV       | C1-CUSTREGTYPE             | C1-GETPRICINGENTITY        |
| C1-PICINGRULE              | C1ACUDAT                   | C1MASPRI                   |
| C1MPRISR                   | C1RETMPL                   | F1OUMSTQ                   |
| F1OUMSTY                   | PRICECOMPSEQ               | C1CREGSR                   |
| C1CTRGHC                   | C1CUREG                    | C1CURETY                   |
| C1CUSTREG                  | C1CUSTRG                   | AUDITEVENT                 |
| C1-AUDEVTYPE               | C1-HEALTHCARE              | C1ADEVSR                   |
| C1AUDEVT                   | C1AUDTY                    | C1RETMPLHC                 |
| C1STATE                    | C1_BILL                    | C1INREQ                    |
| C1INRETY                   | C1INVRED                   | C1TRBLHC                   |
| C1-BENEFITS                | C1-BENFITPKG               | C1-FIELDMAP                |
| C1-FIELDMAP_SERV           | C1-GETFIPRCRULE            | C1-TNC                     |
| C1BENFTP                   | C1BENFTS                   | C1FLDMAP                   |
| C1GEORTA                   | C1GEORTAR                  | C1RELSTR                   |
| C1TERCO                    | C1TERMNCO                  | C1TNCSRH                   |
| C1_MEMRL_SUBT              | PRICEITEM_SERV             | C1-BUSRULE                 |
| C1-BUSRULVAL               | C1BENSTY                   | C1BUSRD                    |
| C1BUSRUL                   | C1MEIDTY                   | C1_HCPRODUCT               |
| C1_HLTH_PLAN               | F1APPSVM                   | F1APPSVQ                   |
| F1BOQ                      | F1BSVQ                     | F1BTCHQ                    |
| F1CHRTYP                   | F1CHRTYQ                   | F1DTARQ                    |
| F1FCFGQ                    | F1FIELD                    | F1FKRFQ                    |
| F1FLDQ                     | F1LKUPQ                    | F1MANCQ                    |
| F1MENUQ                    | F1MESSAGE                  | F1MOQ                      |



| Application Service | Application Service | Application Service |
|---------------------|---------------------|---------------------|
| F1MSG               | F1MSGC              | F1MSGQ              |
| F1NAVKQ             | F1NAVOQ             | F1PRTL              |
| F1PRTLQ             | F1SCRQ              | F1TABLE             |
| F1TBLQ              | F1TDDASH            | F1TMZNM             |
| F1TODO              | F1TODOEQ            | F1UIMPQ             |
| F1WRKCAL            | F1WRKCLQ            | F1ZONE              |
| F1ZONEQ             | C1-AUTOPAYREQ_SERV  | C1-PLNINFO          |
| C1APAY              | C1APAYREQ           | C1APAYRQ            |
| C1HEALTH            | C1HPPH              | C1PLAN              |
| C1_STRTE            | C1ADDRSDP           | C1GLAT              |
| C1GLATEMP           | C1GLATRQ            | C1REFWOI            |
| C1TRLBILL           | C1TRLBLEG           | C1TRLFT             |
| F1MENU              | -                   | -                   |

## B.4 INADMIN

The following table lists all application services configured for the INADMIN user group:

| Application Service | Application Service  | Application Service  |
|---------------------|----------------------|----------------------|
| AFHZONE             | C1-CNTRTPPTZ         | C1-EXTSTMICHZ        |
| APPTXADM            | C1-CONTRACTCHARSVALI | C1-EXTSTMLOGZ        |
| BILLGCONS           | C1-CONTRACTTYPECHARS | C1-EXTSTMTAD         |
| BILLGRAPH           | C1-CTRLC             | C1-EXTSTMTCHAR       |
| C1-ACCBALCNT        | C1-DEFAULTPP         | C1-EXTSTMTED         |
| C1-ACCCRCHM         | C1-DELPPTMP          | C1-EXTSTMTITEM       |
| C1-ACCCURDET        | C1-DFLTPTMP          | C1-EXTSTMTITMCHR     |
| C1-ACCDETAILZ       | C1-DRRDTLSZ          | C1-EXTSTMTRC         |
| C1-ACCDISCREZ       | C1-DUPBTN            | C1-EXTSTMTSRZ        |
| C1-ACCOUNTCURRENT   | C1-EDITPPTMP         | C1-EXTSTMTZ          |
| C1-ACCQUICED        | C1-EQUITYDT          | C1-GETADJ            |
| C1-ACCREDIT         | C1-EXITEMDEL         | C1-GETEFFECTVPRICING |
| C1-ACCRLOGZ         | C1-EXITEMED          | C1-GETPPTMPL         |

| <b>Application Service</b> | <b>Application Service</b> | <b>Application Service</b> |
|----------------------------|----------------------------|----------------------------|
| C1-ACCSELECT               | C1-EXSTMVBNF               | C1-INSDETBK                |
| C1-ACCURERR                | C1-EXTACQRYZ               | C1-ISSUEDATEPOLICYCH       |
| C1-ACCURTEXT               | C1-EXTAUTREC               | C1-LINKPPTMP               |
| C1-ACNPOLSUMZ              | C1-EXTERNALSTATEMENT       | C1-LINKPPTMP2              |
| C1-ACPOLSUMMZ              | C1-EXTITEMAD               | C1-MAINPINFR               |
| C1-ACTPPTMPL               | C1-EXTPENDG                | C1-MAINPLAN                |
| C1-ACURITEMD               | C1-EXTREOPN                | C1-MAINPPTMP               |
| C1-ADJAPPRVLREQBOAS        | C1-EXTSTCHM                | C1-MOVEPPT                 |
| C1-APAYEXPCRREQBOAS        | C1-EXTSTIMP                | C1-NAVACTCUR               |
| C1-APAYEXPCRTYPEBOAS       | C1-EXTSTITCH               | C1-NAVTOEXST               |
| C1-APPRSN                  | C1-EXTSTLDB                | C1-PAY-REQ                 |
| C1-APPTXN                  | C1-EXTSTMBNF               | C1-PAYMENT                 |
| C1-APPTXNLOG               | C1-EXTSTMCAN               | C1-PAYPLAN                 |
| C1-ASAPU                   | C1-EXTSTMCLD               | C1-PAYPLAND                |
| C1-ASGNPL                  | C1-EXTSTMCLS               | C1-PAYPLANTMPLCOMPL        |
| C1-BILLCHARGE              | C1-EXTSTMDTLZ              | C1-PAYPLANZ                |
| C1-BRD                     | C1-EXTSTMDZ                | C1-PAYPLNBPA               |
| C1-PAYTEMPLATEBOAS         | C1-PPDUP                   | C1ACINSP                   |
| C1-PERBALCNT               | C1-PPEDIT                  | C1ACTPER                   |
| C1-PIFVIS                  | C1-PPEDTTASK               | C1ACTREE                   |
| C1-PINFRDISP               | C1-PPLANDET                | C1ADJSTP                   |
| C1-PINVFPOST               | C1-PPPROC                  | C1ADJUPL                   |
| C1-POINFRDET               | C1-PPSACCSRC               | C1APPBOCHNZN               |
| C1-POLCANCE                | C1-PPTCNTDETZ              | C1APPCHN                   |
| C1-POLCANZ                 | C1-PPTERROR                | C1APPCRT                   |
| C1-POLICY                  | C1-PPTMPDISP               | C1APPRESP                  |
| C1-POLICYBPA               | C1-PPTMPDUP                | C1APPTXNBOCHN              |
| C1-POLICYCANRSNSERV        | C1-PPTMPL                  | C1APPTXNBOCHNZN            |
| C1-POLICYCHAR              | C1-PPTMPLD                 | C1APPTXNCHAIN              |
| C1-POLICYDESC              | C1-PPTMPLDET               | C1APPTXNCRI                |
| C1-POLICYINVOICEFREQ       | C1-PPTMPLDETZ              | C1APPTXNCRT                |

| <b>Application Service</b> | <b>Application Service</b> | <b>Application Service</b> |
|----------------------------|----------------------------|----------------------------|
| C1-POLICYSUM               | C1-PPTMPLVIS               | C1APPTXNGRP                |
| C1-POLINVDETZ              | C1-PPTMPLZ                 | C1BOCHN                    |
| C1-POLINVEDI               | C1-PPTMPPOST               | C1CCACCT                   |
| C1-POLINVFRE               | C1-PSTAKEHLD               | C1CCPORT                   |
| C1-POLINVFREZ              | C1-QUICKPAGINATION         | C1CNTCR                    |
| C1-POLINVFRQ               | C1-RECVAL                  | C1CTRLC                    |
| C1-POLI_FHZ                | C1-REFWOREQ                | C1FLRQTY                   |
| C1-POLNOMINEZ              | C1-REQUEST-TYPE            | C1FLSRCH                   |
| C1-POLPERORLEAS            | C1-RETURNDUP               | C1INSPAY                   |
| C1-POLREINSTSR             | C1LISTBL                   | F1TODOMG                   |
| C1-POLSUMZ                 | C1-SHDETAILSZ              | C1MANAPP                   |
| C1-PPACCTSRC               | C1-SRCHSCPT                | C1MANLOG                   |
| C1-PPACTV                  | C1-UNLINK                  | C1MANMOD                   |
| C1-PPBTNS                  | C1-UNLINKPP                | C1MANRES                   |
| C1-PPDET                   | C1-UPLOADCSV               | C1NCISPY                   |
| C1-PPDETZ                  | C1-WRITEOFFREQ             | C1NCPTMP                   |
| C1-PPDISP                  | C1ACCRATE                  | C1ODBUPR                   |
| C1PASGAPPROVE              | C1PTPLP                    | C1_BACCGRVAL               |
| C1PASGREADMODIFY           | C1PYRQTY                   | C1_BAFHZ                   |
| C1PASGREADRESOLVE          | C1RECDTLSTAT               | C1_BFHIS                   |
| C1PAYMAN                   | C1RECONDTL                 | C1_BNDMN                   |
| C1PAYPLAN                  | C1REFSTP                   | C1_BNDPRD                  |
| C1PAYPTL                   | C1REFUND                   | C1_BNDPRS                  |
| C1PAYREQ                   | C1REQSTS                   | C1_BO_OPT                  |
| C1PAYRQ                    | C1REQTYP                   | C1_BRD_P                   |
| C1PAYSRC                   | C1RFWORT                   | C1_BUNDLE                  |
| C1PAYUPL                   | C1SAPPTM                   | C1_CHKBIL_PA               |
| C1PERRL                    | C1SATYPELISTZ              | C1_CHKTRDFLG               |
| C1POINFR                   | C1SCHEDU                   | C1_CIGAS                   |
| C1POLACL                   | C1VAR                      | C1_CIMAPZ                  |
| C1POLICYCANRSN             | C1VARIANCE                 | C1_COM_VALID               |

| Application Service | Application Service | Application Service |
|---------------------|---------------------|---------------------|
| C1POLPEL            | C1WODET             | C1_COPYPL           |
| C1POLSRH            | C1_ACCUR            | C1_CPBUNDL          |
| C1POLTYP            | C1_ACUNV            | C1_CPYPL            |
| C1PPCARS            | C1_ADDEXH           | C1_CUSTINFO         |
| C1PPDUP             | C1_ADDPL            | C1_DEL_PRD          |
| C1PPLAN             | C1_ADDPROD          | C1_DEL_PROD         |
| C1PPSRH             | C1_ADD_RTCMP        | C1_DISPBOUND        |
| C1PPSRS             | C1_ADD_TIER         | PRICECOMPPRE        |
| C1PPTMPL            | C1_ADMPI            | C1_DSPLY_RT         |
| C1PPTMPO            | C1_ANSPLTCUS        | C1_EDTBUND          |
| C1PPVERSCHZ         | C1_APCS             | C1_EDTER            |
| C1PRISIM            | C1_APPAD            | C1_EDTPL            |
| C1PRODUCT           | C1_APPTXN_PRICEASGN | C1_EDTPROD          |
| C1PSNAPP            | C1_APPWF            | C1_EDT_PRITM        |
| C1PSNMOD            | C1_APUR             | C1_EFF_PRC          |
| C1PSNRES            | C1_APVIG            | C1_EFF_PRICE        |
| C1PTNDRH            | C1_ASNPL            | C1_EFPRODSRC        |
| C1_EXCHRT           | C1_F_EDTMMP         | C1_F_VAL_CUS        |
| C1_EXHRT            | C1_F_EDTPL          | C1_GENERICSA        |
| C1_EXPPITM          | C1_F_EDTPR          | C1_GENRCMP          |
| C1_EXSTD            | C1_F_EDTPROD        | C1_GETTIER          |
| C1_EXSTL            | C1_F_EDTPRPL        | C1_GRP              |
| C1_EXSTM            | C1_F_EDTPRSS        | C1_IGMMB            |
| C1_EXSTS            | C1_F_EXCDVAL        | C1_INF_PARTY        |
| C1_FTRS             | C1_F_EXCHVAL        | C1_INS_SRCH         |
| C1_F_ADDCHLD        | C1_F_EXHVAL         | C1_INVC             |
| C1_F_ADDEXCH        | C1_F_GENACBO        | C1_LIST_TIER        |
| C1_F_ADDPL          | C1_F_IGG1MM         | C1_MIG              |
| C1_F_ADDPRD         | C1_F_IGG1MS         | C1_MIGAS            |
| C1_F_ADDPRPL        | C1_F_IGG2MM         | C1_MNGRT            |
| C1_F_ADDPRSS        | C1_F_IGG2MS         | C1_MNGTR            |

| <b>Application Service</b> | <b>Application Service</b> | <b>Application Service</b> |
|----------------------------|----------------------------|----------------------------|
| C1_F_ADDRATE               | C1_F_IGG3MM                | C1_MPPA                    |
| C1_F_ADMPROD               | C1_F_IGG3MS                | C1_OVR_PRITM               |
| C1_F_ADPROD                | C1_F_PERSRCH               | C1_PAYUP                   |
| C1_F_APVDTVL               | C1_F_PLCRT                 | C1_PCUSSRCH                |
| C1_F_APVNFLT               | C1_F_PLEDT                 | C1_PLADPR                  |
| C1_F_ASGNCUS               | C1_F_PLVAL                 | C1_PLAE                    |
| C1_F_ASGNPTP               | C1_F_POLSRCH               | C1_PLASNADD                |
| C1_F_CIGG3V                | C1_F_POPITEM               | C1_PLASNEDIT               |
| C1_F_COPYPL                | C1_F_PRCHAR                | C1_PLASN_ADD               |
| C1_F_CPYBNDL               | C1_F_PRCHARS               | C1_PLASN_EDI               |
| C1_F_CPYPL                 | C1_F_PRDVL                 | C1_PLASSIGN                |
| C1_F_CPYPLVL               | C1_F_PRODVAL               | C1_PLASSIGNE               |
| C1_F_CUSSRCH               | C1_F_PRODVL1               | C1_PLCASSIGN               |
| C1_F_DELEXCH               | C1_F_RSCDVAL               | C1_PLEDIT                  |
| C1_F_DELSCS                | C1_F_RTDESC                | C1_PLISTSRCH               |
| C1_F_DTVAL                 | C1_F_SAVESCS               | C1_PLMNG                   |
| C1_F_EDTEXHR               | C1_F_SRPLVAL               | C1_PLPTYAINF               |
| C1_PLPTYINFO               | C1_PRZCR                   | CIAPPCHELGBL               |
| C1_PLSRCH                  | C1_PRZTR                   | CIAPPCRIT                  |
| C1_PLSTOGGLE               | C1_PRZ_CR                  | CIAPPTXNCHAIN              |
| C1_PLVAL                   | C1_PRZ_TR                  | CIAPPTXNRSN                |
| C1_PLVALIDAT               | C1_PTPLA                   | CICASE                     |
| C1_PLVIEW                  | C1_RATE_DEF                | CICASECREATE               |
| C1_PL_ADD                  | C1_RECON                   | CICHGTYPE                  |
| C1_PL_EDIT                 | C1_RECTIFYSRCH             | CICPAYPLAN                 |
| C1_PL_PI                   | C1_RSN                     | CICREATEPAYMENTS           |
| C1_PMPRC                   | C1_RTCOM_ADD               | CIGETPRICING               |
| C1_PPEDT                   | C1_RTC_VAL                 | CILAADUP                   |
| C1_PPOVR                   | C1_RTOPT                   | CILAASCP                   |
| C1_PPOVRSRCH               | C1_SAVE_TIER               | CILAAUSP                   |
| C1_PP_DSPINF               | C1_SHOW_IMG                | CILACCDL                   |

| <b>Application Service</b> | <b>Application Service</b> | <b>Application Service</b> |
|----------------------------|----------------------------|----------------------------|
| C1_PP_PLVAL                | C1_SRCH                    | CILACLCP                   |
| C1_PRCAD                   | C1_SRCHPL                  | CILBBICP                   |
| C1_PRCE_VALD               | C1_SRCHPLVAL               | CILBLLP                    |
| C1_PRCPM                   | C1_SRCHPPL                 | CILBMCRP                   |
| C1_PRC_EDIT                | C1_SRCHPRD                 | CILBSBHP                   |
| C1_PRC_OVRD                | C1_SRCH_PROF               | CILBSCCP                   |
| C1_PRC_TR                  | C1_SRPROD                  | CILBSEGP                   |
| C1_PRC_VALID               | C1_STRTOLIST               | CILBSTMP                   |
| C1_PRDREL                  | C1_TEMPLATE                | CILCAAHP                   |
| C1GETELIGPLPRO             | C1_TIER_INP                | CILCAASP                   |
| C1_PRITSRCH                | C1_VIEW                    | CILCACCP                   |
| C1_PROD                    | C1_VWPRD                   | CILCALZP                   |
| C1_PRODPL                  | CHGTYPE                    | CILCAMRP                   |
| C1_PROD_ADD                | CHGTYPECD                  | CILCBCUP                   |
| C1_PROD_EDIT               | CIACNBTY                   | CILCCICP                   |
| C1_PROD_SRCH               | CIAPAYSTGUPL               | CILCCCZP                   |
| C1_PROVR_EDT               | CIAPPACCTYPE               | CILCCIZP                   |
| CILCCNSP                   | CILFBLCP                   | CILPRLIST                  |
| CILCCNXP                   | CILFBPHP                   | CILPRLISTDIV               |
| CILCCSCP                   | CONRULE                    | CILPRLISTL                 |
| CILCCSHP                   | CILFFNTP                   | CILPTCNP                   |
| CILCCTXP                   | CILFFTBP                   | CILQATDP                   |
| CILCFIZP                   | CILFFTPP                   | CILQCASP                   |
| CILCLOAP                   | CILFLGRP                   | CILQTDEP                   |
| CILCPERP                   | CILFMVTP                   | CILQTDLP                   |
| CILCPLAS                   | CILFSFHP                   | CILQTDQP                   |
| CILCPPLP                   | CILITPDP                   | CILQTDSP                   |
| CILCPPTMPL                 | CILLODPP                   | CILQTDTP                   |
| CILCPRMP                   | CILPAPHP                   | CILQTDZP                   |
| CILCSALP                   | CILPAPSP                   | CILQTSSP                   |
| CILCSSEP                   | CILPDCNP                   | CILQTSUP                   |

| <b>Application Service</b> | <b>Application Service</b> | <b>Application Service</b> |
|----------------------------|----------------------------|----------------------------|
| CILCSVAP                   | CILPDCSP                   | CILRCMAP                   |
| CILDATA                    | CILPEPLP                   | CILRENGP                   |
| CILDIVET                   | CILPEQAP                   | CILRRSMP                   |
| CILDIVEXT                  | CILPEVTP                   | CILRRTCP                   |
| CILECBLP                   | CILPICHAR                  | CILRRTSP                   |
| CILEFKRP                   | CILPIDIV                   | CILRRTVP                   |
| CILEFLDP                   | CILPILANG                  | CILRRVMP                   |
| CILEMNUP                   | CILPIREL                   | CILSACHG                   |
| CILEMOBP                   | CILPITXNREL                | CILSTEXTITEM               |
| CILENAVP                   | CILPOLMO                   | CILTACRP                   |
| CILENVOP                   | CILPPAYP                   | CILTALGP                   |
| CILERPTP                   | CILPPCAN                   | CILTALTP                   |
| CILESVCP                   | CILPPTSP                   | CILTAMGP                   |
| CILETBLP                   | CILPQADP                   | CILTAMTP                   |
| CILEUIZP                   | CILPRCITMREL               | CILTAPAP                   |
| CILEXCHRATE                | CILPRICELISTCHAR           | CILTAPFP                   |
| CILFAFHP                   | CILPRITEM                  | CILTAPRP                   |
| CILTAPSP                   | CILTCQTP                   | CILTOETP                   |
| CILTAROP                   | CILTCURP                   | CILTOPTP                   |
| CILTARTP                   | CILTCUSP                   | CILTORAP                   |
| CILTASGP                   | CILTDARP                   | CILTPCRP                   |
| CILTATCP                   | CILTDASP                   | CILTPDRP                   |
| CILTATPP                   | CILTDCAP                   | CILTPHTP                   |
| CILTATYP                   | CILTDCLP                   | CILTPIFP                   |
| CILTBCRP                   | CILDIRP                    | CILTPKGP                   |
| CILTBCTP                   | CILTDPRP                   | CILTPMDP                   |
| CILTBFFP                   | CILTDSTP                   | CILTPPTP                   |
| CILTBFPV                   | CILTDWPP                   | CILTPRTP                   |
| CILTBIMP                   | CILTDWTP                   | CILTPSDP                   |
| CILTBLCB                   | CILTEBRP                   | CILTPSTP                   |
| CILTBLLP                   | CILTECRP                   | CILTPTRP                   |

| <b>Application Service</b> | <b>Application Service</b> | <b>Application Service</b> |
|----------------------------|----------------------------|----------------------------|
| CILBNKP                    | CILFNDP                    | CILPYTP                    |
| CILBRTP                    | CILFRQP                    | CILQRTP                    |
| CILBSTP                    | CILFWLP                    | CILTRGLP                   |
| CILBTCP                    | CILGLDP                    | CILTRLEP                   |
| CILBTRP                    | CILTIDTP                   | CILTRSCP                   |
| CILBXTP                    | CILTINCP                   | CILTRTYP                   |
| CILCAMP                    | CILTINSP                   | CILTSATP                   |
| CILCATP                    | CILTITTP                   | CILTSCLP                   |
| CILCCCP                    | F1MENU                     | CILTSCYP                   |
| CILCCTP                    | CILTLETP                   | CILTSICP                   |
| CILCHTP                    | CILTLKFP                   | CILTSOMP                   |
| CILCIDP                    | CILTLNGP                   | CILTSOPP                   |
| CILCLGP                    | CILTMCRP                   | CILTSQIP                   |
| CILCLRTP                   | CILTMHTP                   | CILTSQRP                   |
| CILCLWP                    | CILTMGRP                   | CILTSTMP                   |
| CILCNTP                    | CILTNUXP                   | CILTSVTP                   |
| CILCOCP                    | CILTOCRP                   | CILTSWLP                   |
| CILTTACP                   | CILWDWNP                   | CILYROBP                   |
| CILTTAXP                   | CILWJSDP                   | CILZAFQP                   |
| CILTTGRP                   | CILWJSSP                   | CILZAUQP                   |
| CILTTMRP                   | CILWNUPP                   | CILZFNCP                   |
| CILTTMTP                   | CILWNUSP                   | CILZPGRP                   |
| CILTTNSP                   | CILWPROP                   | CILZRBPP                   |
| CILTTNTP                   | CILXADPP                   | CILZRPHP                   |
| CILTOUP                    | CILXAIEP                   | CILZRPOP                   |
| CILTRAP                    | CILXAIEP                   | CILZRPTP                   |
| CILTTMP                    | CILXCLSP                   | CILZSCRP                   |
| CILTTZNP                   | CILXCONP                   | CILZSCZP                   |
| CILTUOMP                   | CILXENHP                   | CILZTLZP                   |
| CILTURPP                   | CILXFRMP                   | CILZZOHP                   |
| CILUSCP                    | CILXGRPP                   | CILZZONP                   |



| <b>Application Service</b> | <b>Application Service</b> | <b>Application Service</b> |
|----------------------------|----------------------------|----------------------------|
| CILTUSEP                   | CILXJDBP                   | CIL_FAVORITES              |
| CILTUSGP                   | CILXJMSP                   | CIPOLICY                   |
| CILTWCTP                   | CILXJSVP                   | CIPOLPERRL                 |
| CILTWDCP                   | CILXNDNP                   | CIPOLPERROLE               |
| CILTWETP                   | CILXOPTP                   | CIPOLREINSTRSN             |
| CILTWPTP                   | CILXRCVP                   | CIPRICEACCOUNT             |
| CILTWSCP                   | CILXRTPP                   | CIREC                      |
| CILTWSDP                   | CILXSENP                   | CIRECCUSTSUB               |
| CILTXNDETAIL               | CILXSVXP                   | CIRECON                    |
| CILTXNSRC                  | CILXTPCP                   | CIRECONDTL                 |
| CILTXNSRCD                 | CILXXSCP                   | CIRECONSEG                 |
| CILTXNSRCL                 | CILXXUPP                   | CIRECPRTL                  |
| CILUPFTS                   | CILYASTP                   | CISACHG                    |
| CILVFVDP                   | CILYDBPP                   | CISACHGTYPE                |
| CILVFVSP                   | CILYDFQP                   | CISATYCHG                  |
| CILVVLEP                   | CILYDPIP                   | CIVARIANCE                 |
| CILVVLSP                   | C1TRLFT                    | CNCLRSN                    |
| CTXTZONE                   | F1MGDIMP                   | FILETYPE                   |
| DIVS                       | F1MGDIMS                   | FWLCTDEP                   |
| DIV_PRICEITEMS             | F1MGOIMP                   | FWLFACTP                   |
| DIV_PRICELISTS             | F1MGPLNM                   | FWLSTRJP                   |
| F1-APAYEXPCRTYPEBOAS       | F1MGPLNS                   | FWLTBELP                   |
| F1-ATTACHMENTBOAS          | F1MGREQM                   | FWLTBOJP                   |
| F1-DECRPTBOAS              | F1MGREQS                   | FWLTBSVP                   |
| F1-DFLTAPS                 | F1MIGRDEXP                 | FWLTDARP                   |
| F1-DFLTS                   | F1MIGRDIMP                 | FWLTEXSP                   |
| F1-EXPUSERSREQBOAS         | F1MIGRDS                   | FWLTMGCT                   |
| F1-GENPROC                 | F1MIGROBJ                  | FWLTOMTP                   |
| F1-MIGROBJIMP              | F1MIGRPLAN                 | FWLTSCHP                   |
| F1-STASKTYPE               | F1MIGRREQ                  | FWLTUIMP                   |
| F1-SVCTASK                 | F1MIGRTIMP                 | FWLXOUTP                   |

| <b>Application Service</b> | <b>Application Service</b> | <b>Application Service</b> |
|----------------------------|----------------------------|----------------------------|
| F1-SYNCREQ                 | F1MIGRTX                   | FWLZDEXP                   |
| F1-SYNCREQIN               | F1MTXIMP                   | FWLZWLZP                   |
| F1-SYNCREQUESTBOAS         | F1REQ                      | GOTOREC                    |
| F1-WEBSVCBOAS              | F1REQTYP                   | LISTBILLVIEW               |
| F1ADMIN                    | F1STRDIS                   | PERTREE                    |
| F1ATTACH                   | F1STREAS                   | POLICYCANRSN               |
| F1ATTACHMENT               | F1SUBRQQ                   | RECDTSTA                   |
| F1CATTCH                   | F1SYNCRM                   | RECON                      |
| F1CONFIGLOG                | F1SYNCRQ                   | RECONDTL                   |
| F1DEBUG                    | F1TBLEXC                   | RSTRSN                     |
| F1EXLKP                    | F1UIZONE                   | SACHGLNK                   |
| F1EXLKPS                   | F1USERLOG                  | SATYPCHG                   |
| F1LCAMRP                   | F1WBSVCM                   | SATYPES                    |
| F1LEXTLKUP                 | F1WBSVCS                   | F1_BTST                    |
| F1LTAMTP                   | F1WEBSVC                   | F1_USRFVAVSCH              |
| F1MGDEXP                   | F1MGDEXS                   | C1LASGN                    |
| C1BCHGUPLREQ               | C1DELCTL                   | C1PIASGN                   |
| C1BILLCYCLEUPDTUPL         | C1ELGPA                    | C1PLASGNM                  |
| C1CONTRIDERUPDTUPL         | C1GETELIGPT                | C1REFUPLREQ                |
| C1DCDTLC                   | C1HOLDUPLREQ               | C1UPLDRQ                   |
| C1UPLREQ                   | C1WOUPLREQ                 | C1LCPASP                   |
| C1-PROSPECTCRET            | C1ADDRS                    | C1DSPTTY                   |
| C1ACRLCL                   | C1ADDRSBO                  | C1PAREQ                    |
| C1ACRLTP                   | C1ADDRSRC                  | C1PARQMN                   |
| C1ADDRDP                   | C1DSPT                     | C1PARQTY                   |
| C1ADDRDTL                  | C1DSPTRQ                   | C1PI                       |
| C1ADDRESS                  | C1DSPTRT                   | C1PL                       |
| C1PRICEASGN                | C1_DSPT_REQ                | F1-ARQPR                   |
| F1-AVALG                   | F1-LKPIL                   | F1-SICRL                   |
| F1-AVBT                    | F1-MGDIM                   | F1-SRCRL                   |
| F1-AVMO                    | F1-MGDPR                   | F1-SRLRQ                   |

| <b>Application Service</b> | <b>Application Service</b> | <b>Application Service</b> |
|----------------------------|----------------------------|----------------------------|
| F1-AVTBL                   | F1-MGOAP                   | F1-STATSM                  |
| F1-AVTD                    | F1-MGOPR                   | F1-STCRL                   |
| F1-BFCRL                   | F1-MGTAP                   | F1-STKDF                   |
| F1-BSFLG                   | F1-MGTPR                   | F1-STKTR                   |
| F1-BUNPR                   | F1-NDPUR                   | F1-SUBRQ                   |
| F1-DTDOM                   | F1-ORCRL                   | F1-SYNEF                   |
| F1-FCTRN                   | F1-OUCL                    | F1-SYNIL                   |
| F1-FKVBP                   | F1ACGRPM                   | F1-SYNRQ                   |
| F1-FLUSH                   | F1ACGRPQ                   | F1-SYSRQ                   |
| F1-ILMIN                   | F1-REQTY                   | F1-TDCRL                   |
| F1-LANG                    | F1-REVPR                   | F1-TDEER                   |
| F1-LDAP                    | F1-SAKRQ                   | F1-XMLPG                   |
| C1-DISC-REPT               | C1-PTD-CAL                 | C1APAYRT                   |
| C1OFPRED                   | C1OFPREQ                   | C1PARAM                    |
| C1PERS                     | C1PERSDP                   | C1PERSON                   |
| C1SRCAPP                   | C1VIEWWRL                  | C1_INVCN                   |
| C1_PRODUCT                 | C1_RLTPM                   | C1_RLTVW                   |
| C1LRULTP                   | C1-PRRLTYP                 | C1ENTITYREPORT             |
| C1PROAPP                   | C1PRTYP                    | C1_PRICE                   |
| C1PRICEPARM                | C1-CUSTREGTEMPL_SERV       | C1-CUSTREGTYPE             |
| C1-GETPRICINGENTITY        | C1MASPRI                   | C1MPRISR                   |
| C1RETMPL                   | F1OUMSTQ                   | F1OUMSTY                   |
| PRICECOMPSEQ               | C1CREGSR                   | C1CTRGHC                   |
| C1CUREG                    | C1CURETY                   | C1CUSTREG                  |
| C1CUSTRG                   | AUDITEVENT                 | C1-AUDEVTTYPE              |
| C1-HEALTHCARE              | C1ADEVSR                   | C1AUDEVT                   |
| C1AUDTY                    | C1RETMPLHC                 | C1ENTDTL                   |
| C1INREQ                    | C1INRETY                   | C1INVRED                   |
| GETDEALTYPE                | C1-FIELDMAP                | C1-FIELDMAP_SERV           |
| C1-TNC                     | C1FLDMAP                   | C1RELSTR                   |

| <b>Application Service</b> | <b>Application Service</b> | <b>Application Service</b> |
|----------------------------|----------------------------|----------------------------|
| C1TERCO                    | C1TERMNCO                  | C1TNCSRH                   |
| C1_MEMRL_SUBT              | PRICEITEM_SERV             | C1MEIDTY                   |
| C1BENSTY                   | C1BUSRD                    | F1ALGQ                     |
| F1ALGTQ                    | F1APPSVM                   | F1APPSVQ                   |
| F1BOQ                      | F1BSVQ                     | F1BTCHQ                    |
| F1CHRTYP                   | F1CHRTYQ                   | F1DTARQ                    |
| F1FCFGQ                    | F1FIELD                    | F1FKRFQ                    |
| F1FLDQ                     | F1LKUPQ                    | F1MANCQ                    |
| F1MENUQ                    | F1MOQ                      | F1MSG                      |
| F1MSGC                     | F1MSGQ                     | F1NAVKQ                    |
| F1NAVOQ                    | F1PRTL                     | F1PRTLQ                    |
| F1SCRQ                     | F1TABLE                    | F1TBLQ                     |
| F1TDDASH                   | F1TMZNM                    | F1TODO                     |
| F1TODOEQ                   | F1UIMPQ                    | F1WRKCAL                   |
| F1WRKCLQ                   | F1ZONE                     | F1ZONEQ                    |
| C1-AUTOPAYREQ_SERV         | C1APAY                     | C1APAYREQ                  |
| C1APAYRQ                   | C1TRLBILL                  | C1TRLBLSEG                 |

## Appendix C : Changing the DB User Password

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If you have changed the database user password, you need to execute the following steps before installing the rollup pack for Oracle Utilities Application Framework Version 4.5.0.0.0:

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

**AIX, Linux:**

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

**Windows:**

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

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

**AIX, Linux:**

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

**Windows:**

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

# Appendix D : New Objects in the Oracle Utilities Application Framework V4.5.0.0.0 Database

This section lists the objects that are newly added in the Oracle Utilities Application Framework V4.5.0.0.0 database. These objects are classified under the following two sections:

- [Schema Changes](#)
- [New System Data](#)

## D.1 Schema Changes

This section lists schema related changes made in the Oracle Utilities Application Framework V4.5.0.0.0 database.

### D.1.1 New Tables

The following tables are newly added in the Oracle Utilities Application Framework V4.5.0.0.0 database:

| Table               | Description                            |
|---------------------|----------------------------------------|
| CI_MD_IDX           | Indexes                                |
| CI_MD_IDX_FLD       | Index Fields                           |
| CI_MD_TBL_ADDTL     | Table Additional Attributes            |
| F1_IWS_SVC_FLDTEXT  | Inbound Web Service Help Text Field    |
| F1_IWS_SVC_OPER_L   | Inbound Web Service Operation Language |
| F1_IWS_SVC_OPER_OPT | Inbound Web Service Operation Option   |
| F1_IWS_SVC_SCHEMA   | Inbound Web Service Data Area          |
| F1_MO_UPD_BACKLOG   | Data Export Update Backlog             |
| F1_TAG              | Entity Tag                             |
| F1_TAG_CHAR         | Entity Tag Characteristics             |
| F1_TAG_L            | Entity Tag Language                    |
| F1_TAGGED_ENTITY    | Tagged Entity                          |

## D.1.2 Added Views

The following views are newly added in the Oracle Utilities Application Framework V4.5.0.0.0 database:

| View                 | Description            |
|----------------------|------------------------|
| F1_BATCH_CONF_VW     | Batch Performance View |
| F1_BATCH_RUN_HIST_VW | Batch Run History View |
| F1_BATCH_THD_CAP_VW  | Thread Metrics View    |
| F1_BATCH_THD_HIST_VW | Batch Thread View      |
| F1_BATCH_VOL_VW      | Batch Volume View      |

## D.1.3 Dropped Tables

None

## D.1.4 Unsupported Tables

None

## D.1.5 Added Columns

The following columns are newly added in the Oracle Utilities Application Framework V4.5.0.0.0 database:

| Table            | Column              | Column Description      | Required (Yes or No) |
|------------------|---------------------|-------------------------|----------------------|
| CI_NT_XID        | OWNER_FLG           | Owner                   | Yes                  |
| CI_NT_XID_L      | OWNER_FLG           | Owner                   | Yes                  |
| CI_PORTAL_ZONE   | ZONE_HEIGHT_FLG     | Height                  | Yes                  |
|                  | ZONE_MAX_HEIGHT_PCT | Max Height %            | Yes                  |
|                  | ZONE_ROWS           | Rows                    | Yes                  |
|                  | ZONE_LAYOUT         | Start Layout            | Yes                  |
|                  | ZONE_WIDTH_FLG      | Width                   | Yes                  |
| CI_XAI_SENDER    | OWNER_FLG           | Owner                   | Yes                  |
| CI_XAI_SENDER_L  | OWNER_FLG           | Owner                   | Yes                  |
| CI_XAI_SNDR_CTX  | OWNER_FLG           | Owner                   | Yes                  |
| F1_BATCH_CONF_VW | AVG_ELAPSED         | Average Elapsed Time    | No                   |
|                  | BATCH_CD            | Batch Control           | Yes                  |
|                  | BATCH_PERF_COUNT    | Batch Performance Count | No                   |
|                  | BEST_ELAPSED        | Best Elapsed Time       | No                   |

| Table                | Column                 | Column Description     | Required (Yes or No) |
|----------------------|------------------------|------------------------|----------------------|
|                      | CONFIDENCE             | Confidence Interval    | No                   |
|                      | MED_ELAPSED            | Median Elapsed Time    | No                   |
|                      | SAMPLE_SIZE            | Sample Size            | No                   |
|                      | STD_DEVIATION          | Standard Deviation     | No                   |
|                      | WORST_ELAPSED          | Worst Elapsed Time     | No                   |
| F1_BATCH_RUN_HIST_VW | BATCH_BUS_DT           | Batch Business Date    | No                   |
|                      | BATCH_CD               | Batch Control          | Yes                  |
|                      | BATCH_JOB_ID           | Batch Job ID           | Yes                  |
|                      | BATCH_NBR              | Batch Number           | Yes                  |
|                      | BATCH_RERUN_NBR        | Batch Rerun Number     | Yes                  |
|                      | BATCH_RUN_COUNT        | Batch Run Count        | No                   |
|                      | ELAPSED_TIME           | Elapsed Time           | No                   |
|                      | END_DTTM               | End Date/Time          | No                   |
|                      | PROCESS_DT             | Process Date           | No                   |
|                      | TOTAL_ERROR            | Records In Error       | No                   |
|                      | TOTAL_PROCESSED        | Records Processed      | No                   |
|                      | RUN_STATUS             | Run Status             | Yes                  |
|                      | START_DTTM             | Start Date/Time        | No                   |
|                      | THREADPOOL             | Threadpool             | No                   |
| F1_BATCH_THD_CAP_VW  | BATCH_BUS_DT           | Batch Business Date    | No                   |
|                      | BATCH_CD               | Batch Control          | No                   |
|                      | BATCH_JOB_ID           | Batch Job ID           | No                   |
|                      | BATCH_NBR              | Batch Number           | No                   |
|                      | BATCH_RERUN_NBR        | Batch Rerun Number     | No                   |
|                      | BATCH_THREAD_CAP_COUNT | Batch Thread Cap Count | No                   |
|                      | END_DT                 | End Date               | No                   |
|                      | END_MINUTES            | End Minutes            | No                   |
|                      | JOB_END_MINS           | Job End Minutes        | No                   |
|                      | JOB_START_MINS         | Job Start Minutes      | No                   |
|                      | START_DT               | Start Date             | No                   |



| Table                | Column              | Column Description        | Required (Yes or No) |
|----------------------|---------------------|---------------------------|----------------------|
|                      | START_MINUTES       | Start Minutes             | No                   |
|                      | SUBMIT_METH_FLG     | Submission Method         | No                   |
|                      | SUBMIT_USER_ID      | Submission User           | No                   |
|                      | THREAD_END_DTTM     | Thread End Date/Time      | No                   |
|                      | BATCH_THREAD_NBR    | Thread Nbr                | No                   |
|                      | THREAD_START_DTTM   | Thread Start Date/Time    | No                   |
|                      | THREADPOOL          | Threadpool                | No                   |
| F1_BATCH_THD_HIST_VW | BATCH_BUS_DT        | Batch Business Date       | No                   |
|                      | BATCH_CD            | Batch Control             | No                   |
|                      | BATCH_JOB_ID        | Batch Job ID              | No                   |
|                      | BATCH_NBR           | Batch Number              | No                   |
|                      | BATCH_RERUN_NBR     | Batch Rerun Number        | No                   |
|                      | BATCH_RUN_THD_COUNT | Batch Run Thread Count    | No                   |
|                      | ELAPSED_TIME        | Elapsed Time              | No                   |
|                      | PROCESS_DT          | Process Date              | No                   |
|                      | TOTAL_ERROR         | Records In Error          | No                   |
|                      | RECS_PER_MINUTE     | Records Per Minute        | No                   |
|                      | TOTAL_PROCESSED     | Records Processed         | No                   |
|                      | RETRY_COUNT         | Retry Count               | No                   |
|                      | RUN_STATUS          | Run Status                | No                   |
|                      | THREAD_END_DTTM     | Thread End Date/Time      | No                   |
|                      | BATCH_THREAD_NBR    | Thread Nbr                | No                   |
|                      | THREAD_START_DTTM   | Thread Start Date/Time    | No                   |
|                      | THREAD_STATUS       | Thread Status             | No                   |
|                      | THREADPOOL          | Threadpool                | No                   |
| F1_BATCH_VOL_VW      | BATCH_CD            | Batch Control             | Yes                  |
|                      | BATCH_NBR           | Batch Number              | Yes                  |
|                      | BATCH_RERUN_NBR     | Batch Rerun Number        | Yes                  |
|                      | BATCH_THD_VOL_COUNT | Batch Thread Volume Count | No                   |

| Table                 | Column          | Column Description        | Required (Yes or No) |
|-----------------------|-----------------|---------------------------|----------------------|
|                       | MAX_PROCESSED   | Maximum Records Processed | No                   |
|                       | RECS_PER_MINUTE | Records Per Minute        | No                   |
|                       | TOTAL_PROCESSED | Records Processed         | No                   |
| F1_EXTSYS_OUTMSG_PROF | OWNER_FLG       | Owner                     | Yes                  |
| F1_IWS_SVC            | PUBLISH_FLG     | Publish                   | Yes                  |
| F1_IWS_SVC_OPER       | MAINT_OBJ_CD    | Maintenance Object        | No                   |
|                       | SEQ_NUM         | Sequence                  | Yes                  |

## D.1.6 Dropped Columns

None

## D.1.7 Dropped Lookups

The following lookup is removed from the Oracle Utilities Application Framework V4.5.0.0.0 database:

| Field           | Field Value Description |
|-----------------|-------------------------|
| LDAP_ENTITY_FLG | Group                   |
|                 | User                    |

## D.1.8 Column Format Change

The format of the following columns is changed in the Oracle Utilities Application Framework V4.5.0.0.0 database:

| Table          | Column          | From           | To              |
|----------------|-----------------|----------------|-----------------|
| CI_CNV_DUP_KEY | CX_ID           | CHAR(14)       | CHAR(30)        |
| CI_CNV_KEY_TMP | CI_ID           | CHAR(14)       | CHAR(30)        |
|                | CX_ID           | CHAR(14)       | CHAR(30)        |
|                | INIT_ID         | VARCHAR2(14)   | VARCHAR2(30)    |
| F1_MD_BI_TBL   | F1_BI_HIER_DEFN | VARCHAR2(4000) | VARCHAR2(32000) |

## D.2 New System Data

The system data is used to configure various features in Oracle Utilities Application Framework. This section lists the system data that is newly added in the Oracle Utilities Application Framework V4.5.0.0.0 database.

### D.2.1 Algorithms

The following algorithms are newly added in the Oracle Utilities Application Framework V4.5.0.0.0 database:

| Algorithm    | Description                                               |
|--------------|-----------------------------------------------------------|
| F1DATASYINFO | Data Sync Information                                     |
| F1-DICONBO   | Determine Display Icon BO                                 |
| F1-IWSOPERBO | Determine IWS Operation BO                                |
| F1ONGDATASYN | Ongoing Data Synchronization                              |
| F1SYRQPRMSG  | Generic Sync Request - Process Message                    |
| F1TODOCMPLEN | Generic To Do Completion on Enter Status                  |
| F1VALGRVSCR  | Verify that Script Has Groovy Step Types                  |
| K1-CRTKYPGEN | Generate Key Value Pair for Object Storage                |
| K1-KRDCKFS   | Key Ring - Prevent Deletion if Linked to File Storage     |
| K1-KRINCKFS  | Key Ring - Prevent Inactivation if Linked to File Storage |

### D.2.2 Algorithm Types

The following algorithm types are newly added in the Oracle Utilities Application Framework V4.5.0.0.0 database:

| Algorithm Type | Description                                               |
|----------------|-----------------------------------------------------------|
| F1DATASYINFO   | Data Sync Information                                     |
| F1ONGDATASYN   | Ongoing Data Synchronization                              |
| F1SYRQPRMSG    | Generic Sync Request - Process Message                    |
| F1TODOCMPLEN   | Generic To Do Completion (Enter Status)                   |
| F1VALGRVSCR    | Verify that Script Has Groovy Step Types                  |
| K1-CRTKYPGEN   | Generate Key Value Pair for Object Storage                |
| K1-KRDCKFS     | Key Ring - Prevent Deletion if Linked to File Storage     |
| K1-KRINCKFS    | Key Ring - Prevent Inactivation if Linked to File Storage |

## D.2.3 Zones

The following zones are newly added in the Oracle Utilities Application Framework V4.5.0.0.0 database:

| Zone         | Description                   |
|--------------|-------------------------------|
| F1-ADDENT    | Tag Entities                  |
| F1-BNTBLS    | Table Search                  |
| F1BTCHBUSDT  | Batch Runs by Business Day    |
| F1BTCHDYCAT  | Batch Day by Category         |
| F1BTCHDYJOBS | Batch Jobs Summary            |
| F1BTCHDYSTS  | Batch Day by Status           |
| F1BTCHTHDS   | Thread Summary                |
| F1BTCHTHRPS  | Threads By Records Per Second |
| F1BTCHTHSTS  | Threads By Status             |
| F1BTCHHTM    | Threads By Elapsed Time       |
| F1BTCHTHVOL  | Threads By Volume             |
| F1-DSPICON   | Display Icon                  |
| F1-ENTAGDSP  | Entity Tag                    |
| F1ENTAGQ     | Entity Tag Search             |
| F1ENTAGQ1    | Entity Tag Information        |
| F1ENTAGQ2    | Tagged Entity                 |
| F1-ENTTAGS   | Entity Tags                   |
| F1-EXLKPBO   | Extendable Lookup Values      |
| F1FLDLKP     | Get Lookup Field              |
| F1FLDLKPVAL  | Lookup Values                 |
| F1-FLDREF    | Field References              |
| F1IWSHLPTXT  | Help Text Fields              |
| F1IWSOPER    | Operations                    |
| F1IWSOPEROPT | Options                       |
| F1-IWSOPREF  | IWS Operation References      |
| F1-IWSOPRM   | IWS Operation                 |
| F1IWSOPROPTV | IWS Operation Options Exist   |
| F1-IWSOPRSCH | Schema                        |
| F1IWSSCHEXT  | Schema Extensions             |

| Zone         | Description              |
|--------------|--------------------------|
| F1MENUM      | Menu                     |
| F1-MN-CCTX   | Menu Links               |
| F1MNLINES    | Menu Lines               |
| F1MNLSEC     | Menu Lines               |
| F1MNLSEC     | Menu Line Security       |
| F1-SDR-TBL   | Table Configuration      |
| F1-TAGEDETMO | Tagged Entities          |
| F1-TAGGEDENT | Tagged Entities          |
| F1TAGS       | Tags                     |
| F1-TBLIDX    | Table Indexes            |
| F1-VALTAG    | Valid Tags for an Entity |
| F1-ZONEVIS   | Default zone attributes  |

## D.2.4 Zone Types

The following zone type is newly added in the Oracle Utilities Application Framework V4.5.0.0.0 database:

| Zone Type   | Description    |
|-------------|----------------|
| F1-TAB-DISP | Tabbed Display |

## D.2.5 New Zones in Existing Portals

The following zones are added to the existing portals in the Oracle Utilities Application Framework V4.5.0.0.0 database:

| Portal       | Zone        | Zone Description    |
|--------------|-------------|---------------------|
| CI_DASHBOARD | F1TAGS      | Tags                |
| F1FIELD      | F1FLDKPVAL  | Lookup Values       |
| F1IWSVCP     | F1IWSHLPTXT | Help Text Fields    |
|              | F1IWSOPER   | Operations          |
| F1SYSDRV     | F1-SDR-TBL  | Table Configuration |

## D.2.6 UI Maps

The following UI maps are newly added in the Oracle Utilities Application Framework V4.5.0.0.0 database:

| UI Map                        | Description                               |
|-------------------------------|-------------------------------------------|
| F1-AdvLog                     | Show User Log - Advanced                  |
| F1-AdvShowLog                 | Advanced show log                         |
| F1-AppSvcsLinkedFilter        | Application Services Linked - Filters     |
| F1-AppSvcsUnlinkedFilter      | Application Services Not Linked - Filters |
| F1-BatchJobsSummaryFilter     | Batch Jobs Summary Filters                |
| F1-BatchRunDayListFilter      | Batch Runs by Business Date Filters       |
| F1-DisableGridAdd             | Disable Grid Add                          |
| F1-EntityTags                 | Entity Tags                               |
| F1-EntityTagSearchFilter      | Entity Tag - Query Filters                |
| F1-FieldBaseFieldDisp         | Base Field Display                        |
| F1-IssueDetails               | Issue Details                             |
| F1-IWSOperSchema              | Inbound Web Service Operation Schema      |
| F1-IWSOperSchemaDisplay       | IWS Operation Schema - Display            |
| F1-IWSOperSchemaEditAction    | IWS Operation - Edit Schema Action        |
| F1-IWSOperSchemaInput         | IWS Operation Schema - Input              |
| F1MenuLineInp                 | Maintain Menu Line                        |
| F1-PortalZonesDisplay         | Portal Zone - Display                     |
| F1-PortalZonesInput           | Portal Zone - Maintenance                 |
| F1-ProcessNow                 | Process Now Action                        |
| F1-RecordActionsProcessNow    | Record Actions and Process Now            |
| F1-TabbedDisplayHeaderActions | Tabbed Display Header Actions             |
| F1-TabbedDisplayHeadMenu      | Fusion Style Explorer Zone Header Menu    |
| F1-TableIndexFields           | Table Index Fields Maintenance            |
| F1-TaggedEntityAddSrchFltr    | Search for Entities to Add by MO and PKs  |
| F1-TaggedEntitySearchFilter   | Entity Tag - Filter by Tagged Entity      |
| F1-Tree                       | Generic Tree                              |
| F1-UserQueryFilter            | User - Query Filter                       |
| F1-WebServiceSchemaEditor     | Inbound Web Service Schema Editor         |

## D.2.7 Maintenance Objects

The following maintenance objects are newly added in the Oracle Utilities Application Framework V4.5.0.0.0 database:

| Maintenance Object | Description                   |
|--------------------|-------------------------------|
| F1-ENTYTAG         | Entity Tag                    |
| F1-IWSSVCOPR       | Inbound Web Service Operation |
| F1-TAGENCY         | Tagged Entity                 |

## D.2.8 To Do Types

The following To Do type is newly added in the Oracle Utilities Application Framework V4.5.0.0.0 database:

| To Do Type | Description                         |
|------------|-------------------------------------|
| F1-GENSY   | Generic Data Synchronization Errors |

## D.2.9 Business Services

The following business services are newly added in the Oracle Utilities Application Framework V4.5.0.0.0 database:

| Business Service          | Description                               |
|---------------------------|-------------------------------------------|
| F1-ConvertXMLToString     | Convert XML to String                     |
| F1-DocumentSequenceAddUpd | Sequence Maintenance                      |
| F1-ENTTAGS                | Entity Tags                               |
| F1-EXLKPBO                | Extendable Lookup Values                  |
| F1-GetBatchJobDetails     | Batch Job / Batch Run Details             |
| F1-GetIWSSchemaInfo       | Web Service Schema Information            |
| F1-LogIssueDetails        | Log Issue Details                         |
| F1MNLINES                 | Menu Lines                                |
| F1-MOGetOperationURL      | Determine an Object's 'Get' Operation URL |
| F1-MONPRBLOG              | Add Log for Monitoring Probe              |
| F1-VALTAG                 | Valid Tags for an Entity                  |
| F1-WEBSVCSHEMA            | Retrieve Web Service Schemas              |
| F1-ZONEVIS                | Default zone attributes                   |

## D.2.10 Portals

The following portals are newly added in the Oracle Utilities Application Framework V4.5.0.0.0 database:

| Portal     | Description                              |
|------------|------------------------------------------|
| F1BTCHDY   | Batch Day Dashboard                      |
| F1BTCHTH   | Batch Run Threads                        |
| F1ENTAG    | Entity Tag                               |
| F1ENTAGS   | Entity Tag Query                         |
| F1FLDREF   | Field References                         |
| F1ICON     | Display Icon                             |
| F1ICONQ    | Display Icon Query                       |
| F1IWSOPR   | Inbound Web Service Operation            |
| F1IWSOPREF | Inbound Web Service Operation References |
| F1MENU     | Menu                                     |
| F1TBLINDX  | Table Indexes                            |

## D.2.11 Business Objects

The following business objects are newly added in the Oracle Utilities Application Framework V4.5.0.0.0 database:

| Business Object               | Description                                |
|-------------------------------|--------------------------------------------|
| F1-DataSyncControl            | Data Synchronization Control               |
| F1-DisplayIcon                | Display Icon                               |
| F1-EntityTag                  | Entity Tag                                 |
| F1-EntityTagPhysicalBO        | Physical BO for Entity Tag                 |
| F1-GenericDataSync            | Generic Data Sync Request                  |
| F1-InboundWebServiceOperation | Inbound Web Service Operation              |
| F1-KnowledgeManagement        | Knowledge Management Articles              |
| F1-Menu                       | Menu                                       |
| F1-PrecompileScriptList       | Groovy Scripts Included in Pre-Compilation |
| F1-TaggedEntity               | Tagged Entity                              |
| F1-TaggedEntityPhysicalBO     | Physical BO for Tagged Entity              |
| F1-URLSubstitutionVariable    | URL Substitution Variable                  |
| K1-SignatureKeyRing           | Signature Key Ring                         |



## D.2.12 Lookups

The following lookups are newly added in the Oracle Utilities Application Framework V4.5.0.0.0 database:

| Field                  | Field Value | Description                 |
|------------------------|-------------|-----------------------------|
| ENTITY_TAG_CLASS_FLG   | F1AS        | Application Security        |
| F1_CMA_VERSION         | 4           | 4                           |
| F1_CONVERT_TO_MODE_FLG | F1IN        | Convert to Internal         |
|                        | F1EX        | Convert to External         |
| F1_EXCL_RERUNS_FLG     | F1YS        | Yes                         |
| F1_PF_USRACT_FLG       | FIN         | Finish                      |
|                        | NEXT        | Next Action                 |
|                        | PREV        | Previous Action             |
|                        | TRPV        | Train Previous Action       |
|                        | TRNE        | Train Next Action           |
| F1_SEQ_ACTION_FLG      | F1AQ        | Add Sequence                |
|                        | F1SQ        | Set Sequence Number         |
|                        | F1CN        | Get Current Sequence Number |
|                        | F1DQ        | Delete Sequence             |
|                        | F1GN        | Get Next Number             |
| F1_SUB_SOURCE_TYPE_FLG | F1CS        | Customer Specific           |
|                        | F1PR        | Predefined                  |
| F1_SYNC_OPTION_FLG     | F1PR        | Processed                   |
|                        | F1WT        | Wait                        |
|                        | F1CN        | Cancel                      |
| F1_SYNC_SCR_MODE_FLG   | F1CK        | Check                       |
|                        | F1PR        | Process                     |
| IWS_ELM_ROLE_FLG       | COLL        | Collection of Entities      |
|                        | FKGP        | Foreign Key Group           |
| IWS_ELM_USAGE_FLG      | EXCL        | Excluded                    |
|                        | BOTH        | Request and Response        |
|                        | RESP        | Response                    |

| Field               | Field Value | Description                |
|---------------------|-------------|----------------------------|
|                     | REQ         | Request                    |
| IWS_OPR_OPT_FLG     | SMRQ        | Sample Request             |
|                     | SMRP        | Sample Response            |
| IWS_SCHEMA_TYPE_FLG | OPER        | Operation                  |
| PUBLISH_FLG         | NO          | No                         |
|                     | YES         | Yes                        |
| TAG_STATUS_FLG      | F1IN        | Inactive                   |
|                     | F1AC        | Active                     |
| TBL_GEN_STATUS_FLG  | GEN         | Generated                  |
|                     | RTG         | Ready To Generate          |
|                     | P           | Pending                    |
| ZONE_HEIGHT_FLG     | CNLT        | Content (Limited Height)   |
|                     | FIXT        | Fixed Height               |
|                     | CONT        | Content (Unlimited Height) |
| ZONE_LAYOUT         | 2           | 2 Rows                     |
|                     | 3           | 3 Rows                     |
|                     | 1           | 1 Row                      |
| ZONE_ROWS           | 1           | 1                          |
|                     | 2           | 2                          |
|                     | 3           | 3                          |

## D.2.13 Foreign Key References

The following foreign key references are newly added in the Oracle Utilities Application Framework V4.5.0.0.0 database:

| Foreign Key Reference | Description                                |
|-----------------------|--------------------------------------------|
| F1-ENTAG              | Entity Tag                                 |
| F1GO-BO               | BO Option - GET Operation                  |
| F1GO-MO               | MO Option - Get Operation                  |
| F1-IWSOP              | Inbound Web Service Operation              |
| F1QN-MO               | MO Option - Query Portal Navigation Option |

## D.2.14 Batch Controls

The following batch controls are newly added in the Oracle Utilities Application Framework V4.5.0.0.0 database:

| Batch Control | Description                    |
|---------------|--------------------------------|
| F1ENTYGX      | Initial Data Export F1-ENTYTAG |
| F1TAGEYX      | Initial Data Export F1-TAGENTY |

## D.2.15 Application Services

The following application services are newly added in the Oracle Utilities Application Framework V4.5.0.0.0 database:

| Application Service | Description                          |
|---------------------|--------------------------------------|
| F1BTCHDY            | Batch Day Dashboard Portal           |
| F1BTCHTH            | Batch Run Threads Portal             |
| F1ENTAG             | Entity Tag Portal                    |
| F1ENTAGS            | Entity Tag Query Portal              |
| F1-ENTYTAG          | Entity Tag MO                        |
| F1-GENDATSYNCSOAS   | Generic Data Sync Request BO         |
| F1ICON              | Display Icon Portal                  |
| F1ICONQ             | Display Icon Query Portal            |
| F1-INTG-SUITE-API   | Integration Suite API                |
| F1IWSOPR            | Inbound Web Service Operation Portal |
| F1IWSSVCOPR         | Inbound Web Service Operation MO     |
| F1-MASTERCONFIG     | Master Configuration MO              |
| F1MENU              | Menu Portal                          |
| F1-PREISSUEDTLS     | Prepare Issue Details                |
| F1-TAGENTY          | Tagged Entity MO                     |
| F1-TAGS             | Tags Zone                            |
| F1UIVIEW            | Switch UI View                       |
| K1-SIGNKEYBO        | Signature Key Ring BO                |

## D.2.16 Characteristic Types

The following characteristic type is newly added in the Oracle Utilities Application Framework V4.5.0.0.0 database:

| Characteristic Type | Description        |
|---------------------|--------------------|
| F1MO                | Maintenance Object |

## D.2.17 Scripts

The following scripts are newly added in the Oracle Utilities Application Framework V4.5.0.0.0 database:

| Script       | Description                                       |
|--------------|---------------------------------------------------|
| F1-AdvLog    | Show User Log - Advanced                          |
| F1CharMgr    | Characteristic Conversion Manager for APIs        |
| F1CustRelM   | Customer Release Maintenance                      |
| F1CustRelMSS | Customer Release Maintenance                      |
| F1DATASYINFO | Data Sync Information                             |
| F1EnTagMain  | Entity Tag - Maintain                             |
| F1EntTgsM    | Maintain Tags for an Entity                       |
| F1EntTgsMSS  | Maintain Tags for an Entity                       |
| F1ExtLkupSvc | Extendable Lookup Services                        |
| F1FldLkp     | Field Lookup Values                               |
| F1FldLkpM    | Field Lookup Values                               |
| F1FmtTimeDur | Format Time Duration                              |
| F1GetTDELog  | Get To Do Entry Logs                              |
| F1GetToDoEn  | Get To Do Entry                                   |
| F1HlpTxtFd   | IWS Help Text Field Maintenance                   |
| F1HlpTxtFdSS | IWS Help Text Field Maintenance                   |
| F1IconDisp   | Display Icon - Retrieve Details for Display       |
| F1IconM      | Display Icon - Maintain                           |
| F1IconPre    | Display Icon - Pre-processing                     |
| F1IssDtlsM   | Prepare Issue Details                             |
| F1IwsOperDtl | Inbound Web Service Operation - Display           |
| F1IwsOperMnt | Inbound Web Service Operation - Maintain          |
| F1IwsOperPre | Inbound Web Service Operation - UI Pre-processing |

| Script       | Description                                               |
|--------------|-----------------------------------------------------------|
| F1lwsOperPst | Inbound Web Service Operation - UI Post-processing        |
| F1-lwsOpSchV | Inbound Web Services Operation Schema Visibility          |
| F1MenuCtx    | Navigate to Menu Application Security                     |
| F1MenuLine   | Maintain Menu Line                                        |
| F1MenuLineSS | Maintain Menu Line                                        |
| F1MenuM      | Menu Maintenance                                          |
| F1MLApSvc    | Maintain Menu Line Application Security for a User Group  |
| F1MLApSvcSS  | Maintain Menu Line Application Security for a User Group  |
| F1MnuDisp    | Menu - Display                                            |
| F1MnuPre     | Menu - UI Pre-processing                                  |
| F1ONGDATASYN | Ongoing Data Synchronization                              |
| F1ProcNow    | Process Now                                               |
| F1ProcNowSS  | Process Now                                               |
| F1RstlwsPre  | Inbound REST Web Service - Pre-processing                 |
| F1ShwlwsZone | REST IWS Zone Visibility                                  |
| F1ShwThdZn   | Zone Visibility - Display Batch Run Threads Zone          |
| F1SyncReqDsp | Synchronization Request - Display                         |
| F1SyncReqM   | Sync Request Maintenance                                  |
| F1TagEntAdV  | Validate Add Entities Zone Filters For Tagged Entities    |
| F1TagsVis    | Zone Visibility - Display Tags Zone on Dashboard          |
| F1TblIndex   | Table Indexes Maintenance                                 |
| F1TDMgActSS  | To Do Management - Process Actions                        |
| F1TgEntAct   | Tagged Entity - Actions                                   |
| F1TgEntActSS | Tagged Entity - Actions                                   |
| F1URLforFK   | Determine an FK's 'Get' Operation URL                     |
| F1VALGRVSCR  | Verify that Script Has Groovy Step Types                  |
| F1WbSeSchE   | Web Service Schema Editor                                 |
| F1WbSeSchESS | Web Service Schema Editor                                 |
| K1-ChkCfgExL | Check if File Storage references a Key Ring               |
| K1-KRDCKFS   | Key Ring - Prevent Deletion if Linked to File Storage     |
| K1-KRINCKFS  | Key Ring - Prevent Inactivation if Linked to File Storage |

# Appendix E : Oracle Utilities Application Framework System Table Guide

This section lists the system tables owned by Oracle Utilities Application Framework V4.5.0.0.0 and explains the data standards of the system tables. The data standards are required for the installation of Oracle Utilities Application Framework, development within Oracle Utilities Application Framework, and for 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](#)

## E.1 About the Application Framework System Tables

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

As the product adds more functionality, the list of system tables can grow. The complete list of the system tables can be found in the [System Table List](#) section.

## E.2 System Table Standards

System table standards must be observed for the following reasons:

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

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

## E.3 Guidelines for System Table Updates

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

### E.3.1 Business Configuration Tables

Most data in the tables in this group belongs to the customer. But these tables are shipped with some initial data 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.

#### E.3.1.1 Application Security and User Profile

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

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

**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.

#### E.3.1.2 Currency Code

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

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

#### E.3.1.3 Display Profile

The Display Profile Code is referenced in the User (SC\_USER) table.

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

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

### E.3.1.4 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) |

### E.3.1.5 Installation Options

Installation option has only one row that is shipped with the initial installation of Oracle Utilities Application Framework. The columns that can be updated in these tables have 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                                                                       |

**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.

### E.3.1.6 Time Zone

The installation options require a valid time zone. A value for UTC (Coordinated Universal Time) is provided. Implementations should define the appropriate time zone and update the installation option value accordingly.

| Properties   | Description                  |
|--------------|------------------------------|
| Tables       | CI_TIME_ZONE, CI_TIME_ZONE_L |
| Initial Data | UTC                          |

### E.3.1.7 To Do Priority and Role

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

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



## E.3.2 Development and Implementation System Tables

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

### E.3.2.1 Standards

When adding new data, the owner flag value of the environment must prefix certain fields of these tables. For example, when a developer adds a new algorithm type to an Oracle Revenue Management 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 Oracle Utilities Application Framework or the base products. However, some fields are exempt from this rule and can be modified by Customer Modification. These fields are listed in the Customer Modification Fields property.

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

### E.3.2.2 Algorithm Type

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

### E.3.2.3 Algorithm

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

### E.3.2.4 Application Security

| Properties            | Description                                      |
|-----------------------|--------------------------------------------------|
| Tables                | SC_APP_SERVICE, SC_APP_SERVICE_L, CI_APP_SVC_ACC |
| Standard Data Fields  | Application Service ID (APP_SVC_ID)              |
| Customer Modification | None                                             |

### E.3.2.5 Batch Control

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

### E.3.2.6 Business Object

| Properties           | Description                                                                                                                                                                                                                                                          |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tables               | F1_BUS_OBJ, F1_BUS_OBJ_L, F1_BUS_OBJ_ALG, F1_BUS_OBJ_OPT, F1_BUS_OBJ_STATUS, F1_BUS_OBJ_STATUS_L, F1_BUS_OBJ_STATUS_ALG, F1_BUS_OBJ_STATUS_OPT, F1_BUS_OBJ_STATUS_RSN, F1_BUS_OBJ_STATUS_RSN_L, F1_BUS_OBJ_STATUS_RSN_CHAR, F1_BUS_OBJ_TR_RULE, F1_BUS_OBJ_TR_RULE_L |
| Standard Data Fields | Business Object (BUS_OBJ_CD), Status Reason (BO_STATUS_REASON_CD)                                                                                                                                                                                                    |

| Properties            | Description                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Customer Modification | Batch Control (BATCH_CD), Alert (BO_ALERT_FLG), Sequence (SORT_SEQ5), Status Reason (STATUS_REASON_FLG) fields on Business Object Status Table (F1_BUS_OBJ_STATUS).<br>Instance Control (INSTANCE_CTRL_FLG), Application Service (APP_SVC_ID) on Business Object Table (F1_BUS_OBJ).<br>Status Reason Selection (STATUS_REASON_SELECT_FLG) on Status Reason Table (F1_BUS_OBJ_STATUS_RSN). |

### E.3.2.7 Business Service

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

### E.3.2.8 Characteristics

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

### E.3.2.9 Configuration Migration Assistant

| Properties            | Description                                                                                                                                                                                                         |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tables                | F1_MIGR_PLAN, F1_MIGR_PLAN_L, F1_MIGR_PLAN_INSTR, F1_MIGR_PLAN_INSTR_L, F1_MIGR_PLAN_INSTR_ALG, F1_MIGR_REQ, F1_MIGR_REQ_L, F1_MIGR_REQ_INSTR, F1_MIGR_REQ_INST R_L, F1_MIGR_REQ_INSTR_ENTITY, F1_MIGR_REQ_INCL_REQ |
| Standard Data Fields  | Migration Plan Code (MIGR_PLAN_CD), Migration Request Code (MIGR_REQ_CD)                                                                                                                                            |
| Customer Modification | None                                                                                                                                                                                                                |

### E.3.2.10 Data Area

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

### E.3.2.11 Deployment Part

| Properties            | Description                                                     |
|-----------------------|-----------------------------------------------------------------|
| Tables                | F1_DEPLOYMENT_PART, F1_DEPLOYMENT_PART_L,<br>F1_DEPLOYMENT_ITEM |
| Standard Data Fields  | Deployment ID (F1_DEPLOYMENT_ID)                                |
| Customer Modification | None                                                            |

### E.3.2.12 Display Icon

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

### E.3.2.13 Extendable Lookup

| Properties            | Description                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tables                | F1_EXT_LOOKUP_VAL, F1_EXT_LOOKUP_VAL_L,<br>F1_EXT_LOOKUP_VAL_CHAR                                                                                                                                                                                                                                                                                                                                                       |
| Standard Data Fields  | Business Object (BUS_OBJ_CD), Extendable Lookup Value<br>(F1_EXT_LOOKUP_VALUE)                                                                                                                                                                                                                                                                                                                                          |
| Customer Modification | Business Object Data Area (BO_DATA_AREA)<br>Override Description (DESCR_OVRD) on Extendable Lookup Field Value<br>Language Table (F1_EXT_LOOKUP_VAL_L)<br><br><b>Note:</b> When the product releases base owned records in Extendable<br>Lookup, if there are additional elements the business object will map the<br>element to the BO_DATA_AREA if the value is allowed to be modified by<br>the implementation team. |

### E.3.2.14 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) |

### E.3.2.15 Inbound Web Service

| Properties            | Description                                                                                                                                                                               |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tables                | F1_IWS_SVC_L, F1_IWS_SVC, F1_IWS_SVC_OPER_L, F1_IWS_SVC_OPER, F1_IWS_ANN_L, F1_IWS_ANN_PARM, F1_IWS_ANN, F1_IWS_ANN_TYPE_L, F1_IWS_ANN_TYPE, F1_IWS_ANN_TYPE_PARM, F1_IWS_ANN_TYPE_PARM_L |
| Standard Data Fields  | Webservice Name (IN_SVC_NAME), Annotation (ANN_CD), Annotation Type (ANN_TYPE_CD)                                                                                                         |
| Customer Modification | Debug (DEBUG_SW), Active (ACTIVE_SW), Trace (TRACE_SW), Request XSL (REQUEST_XSL), Response XSL (RESPONSE_XSL)                                                                            |

### E.3.2.16 Unsupported Objects

| Properties            | Description                    |
|-----------------------|--------------------------------|
| Tables                | F1_LGCY_OBJ                    |
| Standard Data Fields  | Legacy Object ID (LGCY_OBJ_ID) |
| Customer Modification | None                           |

### E.3.2.17 Lookup

| Properties           | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tables               | CI_LOOKUP_FIELD, CI_LOOKUP_VAL, CI_LOOKUP_VAL_L                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Standard Data Fields | <p>Field Name (FIELD_NAME)</p> <p>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> <p>Field Value (FIELD_VALUE)</p> <p>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.</p> |

| Properties            | Description                                                                                                                                                                                                                                                                                                                                               |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                       | Product development may add lookup values to Oracle Utilities Application Framework owned lookup field's value. When extended new value is added, the Owner Flag is used to prefix the value. For example, when the Oracle Revenue Management and Billing product adds a new value to the algorithm entity flag (ALG_ENTITY_FLG), it is prefixed with C1. |
| Customer Modification | Override Description (DESCR_OVRD) on Lookup Field Value Language Table (CI_LOOKUP_VAL_L)                                                                                                                                                                                                                                                                  |

### E.3.2.18 Map

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

### E.3.2.19 Managed Content

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

### E.3.2.20 Messages

| Properties           | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tables               | CI_MSG_CATEGORY, CI_MSG_CATEGORY_L,<br>CI_MSG, CI_MSG_L                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 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. An implementation may only use categories assigned for customization use.</li> <li>Implementer Message Categories are 80000 and 90000</li> <li>Reserved for Tests – 99999</li> </ul> <p>Message Number (MESSAGE_NBR) for 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> |

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

### E.3.2.21 Metadata - Table and Field

| Properties           | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tables               | <p>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</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Standard Data Fields | <p>Table Name (TBL_NAME)<br/> Table names must match with the physical table name or view name in the database.</p> <p>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.</p> <p>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)</p> |

| Properties            | Description                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Customer Modification | Audit Switches (AUDIT_INSERT_SW, AUDIT_UPDATE_SW, AUDIT_DELETE_SW), Override label (OVRD_LABEL) on MD Table Field Table (CI_MD_TBL_FLD). Audit Program Name (AUDIT_PGM_NAME), Audit Table Name (AUDIT_TBL_NAME), Audit Program Type (AUDIT_PGM_TYPE_FLG), Key Validation (KEY_VALIDATION_FLG) and Caching strategy (CACHE_FLG) on MD Table (CI_MD_TBL). Override Label (OVRD_LABEL) and Customer Specific Description (DESCRLONG_OVRD) on Field Table. |

### E.3.2.22 Metadata – Constraints

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

### E.3.2.23 Metadata - 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 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)                                  |



### E.3.2.24 Metadata - Program, Location and Services

| Properties            | Description                                                                                                                                                                                    |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tables                | CI_MD_PRG_COM, CI_MD_PRG_LOC,<br>CI_MD_SVC, CI_MD_SVC_L,<br>CI_MD_SVC_PRG, CI_MD_PRG_MOD, CI_MD_PRG_EL_AT,<br>CI_MD_PRG_ELEM, CI_MD_PRG_SEC,<br>CI_MD_PRG_SQL, CI_MD_PRG_VAR,<br>CI_MD_PRG_TAB |
| Standard Data Fields  | Program Component Id (PROG_COM_ID), Location Id (LOC_ID), Program Component Name (PROG_COM_NAME), Service Name (SVC_NAME), Navigation Key (NAVIGATION_KEY)                                     |
| Customer Modification | User Exit Program Name (USER_EXIT_PGM_NAME) on Program Components Table (CI_MD_PRG_COM),                                                                                                       |

### E.3.2.25 Metadata - Maintenance Object

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

### E.3.2.26 Metadata - Work Tables

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

### E.3.2.27 Metadata - Search Object

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

### E.3.2.28 Mobile Component

| Properties            | Description                                                                         |
|-----------------------|-------------------------------------------------------------------------------------|
| Tables                | F1_MOBILE_COMPONENT, F1_MOBILE_COMPONENT_L,<br>F1_MOB_COMP_CNT, F1_MOBILE_COMP_CHAR |
| Standard Data Fields  | Mobile Component Code (F1_MOB_COMP_TYPE_CD)                                         |
| Customer Modification | Expiration Days (F1_EXPIRATION_TIME_DUR)                                            |

### E.3.2.29 Navigation Option

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

### E.3.2.30 Outbound Message Type

| Properties            | Description                                 |
|-----------------------|---------------------------------------------|
| Tables                | F1_OUTMSG_TYPE, F1_OUTMSG_TYPE_L            |
| Standard Data Fields  | Outbound Message Type Code (OUTMSG_TYPE_CD) |
| Customer Modification | <b>Priority</b> (OUTMSG_PRIOR_FLG)          |

### E.3.2.31 Portal and Zone

| Properties            | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tables                | CI_PORTAL, CI_PORTAL_L,<br>CI_PORTAL_ZONE, CI_PORTAL_OPT, CI_ZONE,<br>CI_ZONE_L, CI_ZONE_PRM,<br>CI_ZONE_HDL, CI_ZONE_HDL_L,<br>CI_ZONE_HDL_PRM, CI_ZONE_HDL_PRM_L, CI_UI_ZONE, CI_PORTAL_OPT                                                                                                                                                                                                                                                                                                     |
| 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). 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). |

### E.3.2.32 Process Flow Type

| Properties            | Description                                                        |
|-----------------------|--------------------------------------------------------------------|
| Tables                | F1_PROC_DEFN, F1_PROC_DEFN_L, F1_PROC_NEXT_PANEL,<br>F1_PROC_PANEL |
| Standard Data Fields  | Process Flow Type (PROCESS_CD)                                     |
| Customer Modification | None                                                               |

### E.3.2.33 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. |

### E.3.2.34 Schema

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

### E.3.2.35 Script

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

### E.3.2.36 To Do Type

| Properties            | Description                                                                                                                                 |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Tables                | CI_TD_TYPE, CI_TD_TYPE_L,<br>CI_TD_SRTKEY_TY, CI_TD_DRLKEY_TY,<br>CI_TD_SRTKEY_TY_L                                                         |
| Standard Data Fields  | <b>To Do Type Code</b> (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 To Do Type Table (CI_TD_TYPE) |

### E.3.2.37 Web Service Category

| Properties            | Description                                   |
|-----------------------|-----------------------------------------------|
| Tables                | F1_WEB_CAT, F1_WEB_CAT_L, F1_WEB_CAT_INCL_SVC |
| Standard Data Fields  | Web Service Category code (WEB_SVC_CAT_CD)    |
| Customer Modification | None                                          |

### E.3.2.38 XAI Configuration

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

### E.3.2.39 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 (XAI_IN_SVC_ID), XAI Inbound Service Name (XAI_IN_SVC_NAME)                                                                                                                                         |
| Customer Modification | XAI Version (XAI_VERSION_ID), Trace (TRACE_SW), Debug (DEBUG_SW), Request XSL (INPUT_XSL), Response XSL (RESPONSE_XSL), Record XSL (RECORD_XSL and Post Error (POST_ERROR_SW) on XAI Inbound Service Table (CI_XAI_IN_SVC) |

### E.3.2.40 Inbound Web Service Operations Parameter

| Properties            | Description                        |
|-----------------------|------------------------------------|
| Tables                | F1_IWS_SVC_OPER_PARM               |
| Standard Data Fields  | Inbound Service Name (IN_SVC_NAME) |
| Customer Modification | None                               |

### E.3.2.41 Market Configuration

| Properties            | Description                           |
|-----------------------|---------------------------------------|
| Tables                | F1_MKTCFG                             |
| Standard Data Fields  | Market Configuration Code (MKTCFG_CD) |
| Customer Modification | None                                  |

### E.3.2.42 File Integration

| Properties            | Description                                                                                      |
|-----------------------|--------------------------------------------------------------------------------------------------|
| Tables                | F1_FILE_INT_REC, F1_FILE_INT_REC_L, F1_FILE_INT_REC_ALG,<br>F1_FILE_INT_TYPE, F1_FILE_INT_TYPE_L |
| Standard Data Fields  | File Integration Record (FILE_INT_REC_CD), File Integration Type (FILE_INT_TYPE_CD)              |
| Customer Modification | None                                                                                             |

### E.3.2.43 Meta Data - BI

| Properties            | Description                                    |
|-----------------------|------------------------------------------------|
| Tables                | F1_MD_BI_TBL, F1_MD_BI_TBL_L, F1_MD_BI_TBL_FLD |
| Standard Data Fields  | Table Name (BI_TBL_NAME)                       |
| Customer Modification | None                                           |

### E.3.2.44 Data Export Control

| Properties            | Description                                                                   |
|-----------------------|-------------------------------------------------------------------------------|
| Tables                | F1_DATA_EXPORT_CTRL, F1_DATA_EXPORT_CTRL_LOG,<br>F1_DATA_EXPORT_CTRL_LOG_PARM |
| Standard Data Fields  | F1_DATA_EXPORT_CTRL (DATA_EXPORT_CD)                                          |
| Customer Modification | None                                                                          |

## E.4 System Table List

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

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

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

**Refresh (RF):** The existing data in the table is replaced with the data from the base product table. The product does not support customer specific data in these tables.

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

| Table Name        | Upgrade Action | Description                        |
|-------------------|----------------|------------------------------------|
| CI_ALG            | MG             | Algorithm                          |
| CI_ALG_L          | MG             | Algorithm Language                 |
| CI_ALG_PARM       | MG             | Algorithm Parameters               |
| CI_ALG_TYPE       | MG             | Algorithm Type                     |
| CI_ALG_TYPE_L     | MG             | Algorithm Type Language            |
| CI_ALG_TYPE_PRM   | MG             | Algorithm Type Parameter           |
| CI_ALG_TYPE_PRM_L | MG             | Algorithm Type Parameter Language  |
| CI_ALG_VER        | MG             | Algorithm Version                  |
| CI_APP_SVC_ACC    | MG             | Application Service Access Mode    |
| CI_BATCH_CTRL     | MG             | Batch Control                      |
| CI_BATCH_CTRL_ALG | MG             | Batch Control Algorithm            |
| CI_BATCH_CTRL_L   | MG             | Batch Control Language             |
| CI_BATCH_CTRL_P   | MG             | Batch Control Parameters           |
| CI_BATCH_CTRL_P_L | MG             | Batch Control Parameters Language  |
| CI_CHAR_ENTITY    | MG             | Characteristic Type Entity         |
| CI_CHAR_TYPE      | MG             | Characteristic Type                |
| CI_CHAR_TYPE_L    | MG             | Characteristic Type Language       |
| CI_CHAR_VAL       | MG             | Characteristic Type Value          |
| CI_CHAR_VAL_L     | MG             | Characteristic Type Value Language |
| CI_DISP_ICON      | MG             | Display Icon                       |
| CI_DISP_ICON_L    | MG             | Display Icon Language              |
| CI_FK_REF         | MG             | Foreign Key Reference              |
| CI_FK_REF_L       | MG             | Foreign Key Reference Language     |
| CI_LANGUAGE       | MG             | Language Code                      |
| CI_LOOKUP_FIELD   | MG             | Lookup Field                       |
| CI_LOOKUP_VAL     | MG             | Lookup Field Value                 |

| Table Name        | Upgrade Action | Description                    |
|-------------------|----------------|--------------------------------|
| CI_LOOKUP_VAL_L   | MG             | Lookup Field Value Language    |
| CI_MD_CONST       | MG             | Constraints                    |
| CI_MD_CONST_FLD   | MG             | Constraint Fields              |
| CI_MD_FLD         | MG             | Field                          |
| CI_MD_FLD_L       | MG             | Field Language                 |
| CI_MD_MENU        | MG             | Menu Information               |
| CI_MD_MENU_IMOD   | MG             | Menu Item Module Maint         |
| CI_MD_MENU_ITEM   | MG             | Menu Item                      |
| CI_MD_MENU_ITEM_L | MG             | Menu Item Language             |
| CI_MD_MENU_L      | MG             | Menu Language                  |
| CI_MD_MENU_LINE   | MG             | Menu Line                      |
| CI_MD_MENU_LINE_L | MG             | Menu Line Language             |
| CI_MD_MENU_MOD    | MG             | Menu Product Components        |
| CI_MD_MO          | MG             | Maintenance Object             |
| CI_MD_MO_ALG      | MG             | Maintenance Object Algorithm   |
| CI_MD_MO_L        | MG             | Maintenance Object Language    |
| CI_MD_MO_OPT      | MG             | Maintenance Object Option      |
| CI_MD_MO_TBL      | MG             | Maintenance Object Table       |
| CI_MD_MO_WRK      | MG             | Maintenance Object Work Tables |
| CI_MD_NAV         | MG             | Navigation Key                 |
| CI_MD_PRG_COM     | MG             | Program Components             |
| CI_MD_PRG_ELEM    | MG             | UI Page Elements               |
| CI_MD_PRG_EL_AT   | MG             | UI Page Element Attributes     |
| CI_MD_PRG_LOC     | MG             | Program Location               |
| CI_MD_PRG_MOD     | MG             | Program Module                 |
| CI_MD_PRG_SEC     | MG             | UI Page Sections               |
| CI_MD_PRG_SQL     | MG             | MD SQL Meta Data               |
| CI_MD_PRG_TAB     | MG             | UI Tab Meta Data               |
| CI_MD_PRG_VAR     | MG             | Program Variable               |
| CI_MD_SO          | MG             | Search Object                  |
| CI_MD_SO CG       | MG             | Search Object Criteria Group   |



| 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_SVC         | MG             | MD Service                              |
| CI_MD_SVC_L       | MG             | MD Service Language                     |
| CI_MD_SVC_PRG     | MG             | MD Service Program                      |
| CI_MD_TAB_MOD     | MG             | UI Tab Module                           |
| CI_MD_TBL         | MG             | MD Table                                |
| CI_MD_TBL_FLD     | MG             | MD Table Field                          |
| CI_MD_TBL_FLD_L   | MG             | MD Table Field Language                 |
| CI_MD_TBL_L       | MG             | MD Table Language                       |
| CI_MD_WRK_TBL     | MG             | Work Table                              |
| CI_MD_WRK_TBLFLD  | MG             | Work Table Field                        |
| CI_MD_WRK_TBL_L   | MG             | Work Table Language                     |
| CI_MSG            | MG             | Message                                 |
| CI_MSG_CATEGORY   | MG             | Message Category                        |
| CI_MSG_CATEGORY_L | MG             | Message Category Language               |
| CI_MSG_L          | MG             | Message Language                        |
| CI_NAV_OPT        | MG             | Navigation Option                       |
| CI_NAV_OPT_CTXT   | MG             | Navigation Option Context               |
| CI_NAV_OPT_L      | MG             | Navigation Option Language              |
| CI_NAV_OPT_USG    | MG             | Navigation Option Usage                 |
| CI_PORTAL         | MG             | Portal                                  |
| CI_PORTAL_L       | MG             | Portal Language                         |
| CI_PORTAL_OPT     | MG             | Portal Option                           |
| CI_PORTAL_ZONE    | MG             | Portal Zone                             |
| CI_SCR            | MG             | Script                                  |

| Table Name        | Upgrade Action | Description                    |
|-------------------|----------------|--------------------------------|
| 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_PRMPPT     | MG             | Script Prompt                  |
| CI_SCR_PRMPPT_L   | MG             | Script Prompt Language         |
| CI_SCR_STEP       | MG             | Script Step                    |
| CI_SCR_STEP_L     | MG             | Script Step Language           |
| CI_SEQ            | MG             | Sequence                       |
| CI_TD_DRLKEY_TY   | MG             | To Do Type Drill Key           |
| CI_TD_SRTKEY_TY   | MG             | To Do Type Sort Key            |
| CI_TD_SRTKEY_TY_L | MG             | To Do Type Sort Key Language   |
| CI_TD_TYPE        | MG             | To Do Type                     |
| CI_TD_TYPE_L      | MG             | To Do Type Language            |
| CI_UI_ZONE        | MG             | Context Sensitive Zone         |
| CI_USR_NAV_LINK   | MG             | User Favorite Links            |
| CI_XAI_ADAPTER    | MG             | XAI Adapter                    |
| CI_XAI_ADAPTER_L  | MG             | XAI Adapter Lang               |
| CI_XAI_CLASS      | MG             | Message Class                  |
| CI_XAI_CLASS_L    | MG             | Message Class Language         |
| CI_XAI_ENV_HNDL   | MG             | XAI Envelope Handler           |
| CI_XAI_ENV_HNDL_L | MG             | XAI Envelope Handler Language  |
| CI_XAI_IN_SVC     | MG             | XAI Inbound Service            |
| CI_XAI_IN_SVC_L   | MG             | XAI Inbound Service Language   |
| CI_XAI_SVC_PARM   | MG             | XAI Inbound Service Parameters |
| CI_ZONE           | MG             | Zone                           |
| CI_ZONE_HDL       | MG             | Zone Type                      |
| CI_ZONE_HDL_L     | MG             | Zone Type Language             |
| CI_ZONE_HDL_PRM   | MG             | Zone Type Parameters           |

| Table Name              | Upgrade Action | Description                              |
|-------------------------|----------------|------------------------------------------|
| CI_ZONE_HDL_PRM_L       | MG             | Zone Type Parameters Language            |
| CI_ZONE_L               | MG             | Zone Language                            |
| CI_ZONE_PRM             | MG             | Zone Parameters                          |
| F1_BUS_OBJ              | MG             | Business Object                          |
| F1_BUS_OBJ_ALG          | MG             | Business Object Algorithm                |
| F1_BUS_OBJ_L            | MG             | Business Object Language                 |
| F1_BUS_OBJ_OPT          | MG             | Business Object Option                   |
| F1_BUS_OBJ_STATUS       | MG             | Business Object Status                   |
| F1_BUS_OBJ_STATUS_ALG   | MG             | Business Object Status Algorithm         |
| F1_BUS_OBJ_STATUS_L     | MG             | Business Object Status Language          |
| F1_BUS_OBJ_STATUS_OPT   | MG             | Business Object Status Option            |
| F1_BUS_OBJ_STATUS_RSN   | MG             | Status Reason                            |
| F1_BUS_OBJ_STATUS_RSN_L | MG             | Status Reason Language                   |
| F1_BUS_OBJ_TR_RULE      | MG             | Business Object Transition Rule          |
| F1_BUS_OBJ_TR_RULE_L    | MG             | Business Object Transition Rule Language |
| F1_BUS_SVC              | MG             | Business Service                         |
| F1_BUS_SVC_L            | MG             | Business Service Language                |
| F1_DATA_AREA            | MG             | Data Area                                |
| F1_DATA_AREA_L          | MG             | Data Area Language                       |
| F1_DB_OBJECTS_REPO      | MG             | Database Objects Repository              |
| F1_DEPLOYMENT_ITEM      | MG             | Deployment Part Item                     |
| F1_DEPLOYMENT_PART      | MG             | Deployment Part                          |
| F1_DEPLOYMENT_PART_L    | MG             | Deployment Part Language                 |
| F1_EXT_LOOKUP_VAL       | MG             | Extendable Lookup                        |
| F1_EXT_LOOKUP_VAL_L     | MG             | Extendable Lookup Language               |
| F1_EXT_LOOKUP_VAL_CHAR  | MG             | Extendable Lookup Characteristics        |
| F1_IWS_ANN              | MG             | Web Service Annotation                   |
| F1_IWS_ANN_L            | MG             | Web Service Annotation Language          |
| F1_IWS_ANN_PARM         | MG             | Web Service Annotation Parameter         |
| F1_IWS_ANN_TYPE         | MG             | Web Service Annotation Type              |
| F1_IWS_ANN_TYPE_L       | MG             | Web Service Annotation Type Language     |

| Table Name               | Upgrade Action | Description                                    |
|--------------------------|----------------|------------------------------------------------|
| F1_IWS_ANN_TYPE_PARM     | MG             | Web Service Annotation Type Parm               |
| F1_IWS_ANN_TYPE_PARM_L   | MG             | Web Service Annotation Type Parameter Language |
| F1_IWS_SVC               | MG             | Inbound Web Service                            |
| F1_IWS_SVC_L             | MG             | Inbound Web Service Language                   |
| F1_IWS_SVC_OPER          | MG             | Inbound Web Service Operations                 |
| F1_IWS_SVC_OPER_PARM     | MG             | Inbound Web Service Operations Parameter       |
| F1_MKTCFG                | MG             | Market Configuration                           |
| F1_MANAG_CONTENT         | MG             | Managed Content                                |
| F1_MANAG_CONTENT_L       | MG             | Managed Content Language                       |
| F1_MAP                   | MG             | UI Map                                         |
| F1_MAP_L                 | MG             | UI Map Language                                |
| F1_MIGR_PLAN             | MG             | Migration Plan                                 |
| F1_MIGR_PLAN_INSTR       | MG             | Migration Plan Instruction                     |
| F1_MIGR_PLAN_INSTR_ALG   | MG             | Migration Plan Instruction Algorithm           |
| F1_MIGR_PLAN_INSTR_L     | MG             | Migration Plan Instruction Language            |
| F1_MIGR_PLAN_L           | MG             | Migration Plan Language                        |
| F1_MIGR_REQ              | MG             | Migration Request                              |
| F1_MIGR_REQ_INCL_REQ     | MG             | Migration Request Grouping                     |
| F1_MIGR_REQ_INSTR        | MG             | Migration Request Instruction                  |
| F1_MIGR_REQ_INSTR_ENTITY | MG             | Migration Request Instruction Entity           |
| F1_MIGR_REQ_INSTR_L      | MG             | Migration Request Instruction Language         |
| F1_MIGR_REQ_L            | MG             | Migration Request Language                     |
| F1_MOBILE_COMPONENT      | MG             | Mobile Component                               |
| F1_MOBILE_COMPONENT_L    | MG             | Mobile Component Language                      |
| F1_MOB_COMP_CHAR         | MG             | Mobile Component Characteristics               |
| F1_MOB_COMP_CNT          | MG             | Mobile Component Content                       |
| F1_OUTMSG_TYPE           | MG             | Outbound Message Type                          |
| F1_OUTMSG_TYPE_L         | MG             | Outbound Message Type Language                 |
| F1_PROC_DEFN             | MG             | Process Flow Type                              |

| Table Name          | Upgrade Action | Description                             |
|---------------------|----------------|-----------------------------------------|
| F1_PROC_DEFN_L      | MG             | Process Flow Type Language              |
| F1_PROC_NEXT_PANEL  | MG             | Next Panel                              |
| F1_PROC_PANEL       | MG             | Process Panels                          |
| F1_SCHEMA           | MG             | Schema                                  |
| F1_WEB_CAT          | MG             | Web Service Category                    |
| F1_WEB_CAT_L        | MG             | Web Service Category Language           |
| F1_WEB_CAT_INCL_SVC | MG             | Web Service Category Included Services  |
| F1_FILE_INT_REC     | MG             | File Integration Record Table           |
| F1_FILE_INT_REC_L   | MG             | File Integration Record Language Table  |
| F1_FILE_INT_REC_ALG | MG             | File Integration Record Algorithm Table |
| F1_FILE_INT_TYPE    | MG             | File Integration Type                   |
| F1_FILE_INT_TYPE_L  | MG             | File Integration Language Table         |
| F1_MD_BI_TBL        | MG             | MD Table for BI                         |
| F1_MD_BI_TBL_L      | MG             | MD Language Table for BI                |
| F1_MD_BI_TBL_FLD    | MG             | MD Field Table for BI                   |
| SC_ACCESS_CNTL      | MG             | User Group Access Control               |
| SC_APP_SERVICE      | MG             | Application Service                     |
| SC_APP_SERVICE_L    | MG             | Application Service Language            |
| SC_USR_GRP_PROF     | MG             | User Group Profile                      |
| CI_ACC_GRP          | KP             | Access Group                            |
| CI_ACC_GRP_DAR      | KP             | Access Group / Data Access Group        |
| CI_ACC_GRP_L        | KP             | Access Group Language                   |
| CI_APP_SVC_SCTY     | KP             | Security Type Application Service       |
| CI_CAL_HOL          | KP             | Work Calendar Holidays                  |
| CI_CAL_HOL_L        | KP             | Work Calendar Holidays Language         |
| CI_CAL_WORK         | KP             | Work Calendar                           |
| CI_CAL_WORK_L       | KP             | Work Calendar Language                  |
| CI_CHTY_TDTY        | KP             | To Do Type Template Characteristics     |
| CI_COUNTRY          | KP             | Country                                 |
| CI_COUNTRY_L        | KP             | Country Language                        |
| CI_CURRENCY_CD      | KP             | Currency Code                           |

| Table Name        | Upgrade Action | Description                            |
|-------------------|----------------|----------------------------------------|
| CI_CURRENCY_CD_L  | KP             | Currency Code Language                 |
| CI_DAR            | KP             | Data Access Role                       |
| CI_DAR_L          | KP             | Data Access Language                   |
| CI_DAR_USR        | KP             | Data Access User                       |
| CI_DISP_PROF      | KP             | Display Profile                        |
| CI_DISP_PROF_L    | KP             | Display Profile Language               |
| CI_FUNC           | KP             | Function                               |
| CI_FUNC_FLD       | KP             | Function Field                         |
| CI_FUNC_FLD_L     | KP             | Function Field Language                |
| CI_FUNC_L         | KP             | Function Language                      |
| CI_GEO_TYPE       | KP             | Geographic Type                        |
| CI_GEO_TYPE_L     | KP             | Geographic Type Language               |
| CI_INSTALL_ALG    | KP             | Installation Algorithm                 |
| CI_INSTALL_MSG    | KP             | Installation Message                   |
| CI_INSTALL_MSG_L  | KP             | Installation Message Language          |
| CI_INSTALL_PROD   | KP             | Installation Product                   |
| CI_MD_RPT         | KP             | Report Definition                      |
| CI_MD_RPT_L       | KP             | Report Language                        |
| CI_MD_RPT_LBL     | KP             | Report Labels                          |
| CI_MD_RPT_PARM    | KP             | Report Parameters                      |
| CI_MD_RPT_PARM_L  | KP             | Report Parameters Language             |
| CI_MD_TOOLREP_XML | KP             | MD Tool Reference XML                  |
| CI_MD_TOOL_REP    | KP             | MD Tool Reference                      |
| CI_NT_DNTY_CTXT   | KP             | Notification Download Type Context     |
| CI_NT_DWN_FORM    | KP             | Notification Download Format           |
| CI_NT_DWN_FORM_L  | KP             | Notification Download Format Language  |
| CI_NT_DWN_PROF    | KP             | Notification Download Profile          |
| CI_NT_DWN_PROF_L  | KP             | Notification Download Profile Language |
| CI_NT_DWN_TYPE    | KP             | Notification Download Type             |
| CI_NT_DWN_TYPE_L  | KP             | Notification Download Type Language    |
| CI_NT_UP_XTYPE    | KP             | Notification Upload Type               |

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

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



| Table Name                 | Upgrade Action | Description                            |
|----------------------------|----------------|----------------------------------------|
| CI_XAI_RGRP                | KP             | XAI Rule Group                         |
| CI_XAI_RGRP_ATT            | KP             | XAI Rule Group Attachment              |
| CI_XAI_RGRP_L              | KP             | XAI Rule Group Language                |
| CI_XAI_ROUTING             | KP             | XAI Routing                            |
| CI_XAI_RT_TYPE             | KP             | XAI Route Type                         |
| CI_XAI_RT_TYPE_L           | KP             | XAI Route Type Language                |
| CI_XAI_RULE                | KP             | XAI Rule                               |
| CI_XAI_SENDER              | KP             | Message Sender                         |
| CI_XAI_SENDER_L            | KP             | Message Sender Language                |
| CI_XAI_SNDR_CTX            | KP             | Message Sender Context                 |
| F1_BKT_CONFIG              | KP             | Bucket Configuration                   |
| F1_BKT_CONFIG_L            | KP             | Bucket Configuration Language          |
| F1_BKT_CONFIG_REL_OBJ      | KP             | Bucket Configuration Related Object    |
| F1_BKT_CONFIG_VAL          | KP             | Bucket Configuration Value             |
| F1_BKT_CONFIG_VAL_L        | KP             | Bucket Configuration Value Language    |
| F1_BUS_OBJ_STATUS_RSN_CHAR | KP             | Status Reason Characteristic           |
| F1_EXTSYS_OUTMSG_PROF      | KP             | External System Outbound Message Type  |
| F1_INSTALLATION            | KP             | Installation Option - Framework        |
| F1_IWS_SVC_ANN             | KP             | Inbound Web Service Link to Annotation |
| F1_IWS_SVC_CHAR            | KP             | Inbound Web Service Characteristics    |
| F1_IWS_SVC_LOG             | KP             | Inbound Web Service Log                |
| F1_IWS_SVC_LOG_PARM        | KP             | Inbound Web Service Log Parameter      |
| F1_MAP_OVRD                | KP             | UI Map Override                        |
| F1_MD_DB_OBJ               | KP             | MD Database Object                     |
| F1_MST_CONFIG              | KP             | Master Configuration                   |
| F1_OUTMSG_TYPE             | KP             | Outbound Message Type                  |
| F1_OUTMSG_TYPE_L           | KP             | Outbound Message Type Language         |
| F1_REQ_TYPE                | KP             | Request Type                           |
| F1_REQ_TYPE_L              | KP             | Request Type Language                  |
| F1_REQ_TYPE_LOG            | KP             | Request Type Log                       |
| F1_REQ_TYPE_LOG_PARM       | KP             | Request Type Log Parameters            |

| Table Name            | Upgrade Action | Description                               |
|-----------------------|----------------|-------------------------------------------|
| F1_SVC_TASK_TYPE      | KP             | Service Task Type                         |
| F1_SVC_TASK_TYPE_CHAR | KP             | Service Task Type Characteristics         |
| F1_SVC_TASK_TYPE_L    | KP             | Service Task Type Language                |
| F1_WEB_SVC            | KP             | Web Service Adapter                       |
| F1_WEB_SVC_CHAR       | KP             | Web Service Adapter Characteristics       |
| F1_WEB_SVC_L          | KP             | Web Service Adapter Language              |
| F1_WEB_SVC_LOG        | KP             | Web Service Adapter Log                   |
| F1_WEB_SVC_LOG_PARM   | KP             | Web Service Adapter Log Parameter         |
| F1_WEB_SVC_OPERATIONS | KP             | Web Service Adapter Operations            |
| SC_USER               | KP             | User                                      |
| SC_USER_CHAR          | KP             | User Characteristic                       |
| SC_USER_GROUP         | KP             | User Group                                |
| SC_USER_GROUP_L       | KP             | User Group Language                       |
| SC_USR_GRP_USR        | KP             | User Group User                           |
| CI_MD_ATT_TY          | RF             | MD Element Attribute Type                 |
| CI_MD_AT_DTL          | RF             | MD Element Attribute Type Detail          |
| CI_MD_AT_DTL_L        | RF             | MD Element Attribute Type Detail Language |
| CI_MD_CTL             | RF             | Generator Control                         |
| CI_MD_CTL_L           | RF             | Generator Control Language                |
| CI_MD_CTL_TMPL        | RF             | Generator Control Template                |
| CI_MD_ELTY            | RF             | MD Element Type                           |
| CI_MD_ELTY_AT         | RF             | Element Type Attributes                   |
| CI_MD_ELTY_L          | RF             | Element Type Language                     |
| CI_MD_LOOKUP_F        | RF             | MD Lookup Field                           |
| CI_MD_MSG             | RF             | MD Message                                |
| CI_MD_MSG_L           | RF             | MD Message Language                       |
| CI_MD_PDF             | RF             | Predefined Fields                         |
| CI_MD_PDF_VAL         | RF             | Predefined Values                         |
| CI_MD_SRC_TYPE        | RF             | Source Type                               |
| CI_MD_SRC_TYPE_L      | RF             | Source Type Language                      |

| Table Name        | Upgrade Action | Description                |
|-------------------|----------------|----------------------------|
| CI_MD_TMPL        | RF             | Template                   |
| CI_MD_TMPL_ELTY   | RF             | Template Element Types     |
| CI_MD_TMPL_L      | RF             | Template Language          |
| CI_MD_TMPL_VAR    | RF             | Template Variable          |
| CI_MD_TMPL_VAR_L  | RF             | Template Variable Language |
| CI_MD_VAR         | RF             | Variable                   |
| CI_MD_VAR_DTL     | RF             | Variable Detail            |
| CI_MD_VAR_DTL_L   | RF             | Variable Detail Language   |
| CI_XAI_EXECUTER   | RF             | XAI Executer               |
| CI_XAI_EXECUTER_L | RF             | XAI Executer Language      |
| CI_XAI_FORMAT     | RF             | XAI Format                 |
| CI_XAI_FORMAT_L   | RF             | XAI Format Language        |
| F1_LGCY_OBJ       | RF             | Unsupported Metadata       |

## Appendix F : ORMB V5.1.0.0.0 Rollup Packs

Instead of individually applying the patches, you can download and apply the release-specific rollup packs. To view the list of rollup packs that you need to apply on the database, refer to the [ORMB V5.1.0.0.0 Patch Guide](#) (Document ID: 2941754.1) on [My Oracle Support](#).

### F.1 Applying a Rollup Pack

Once you install Oracle Revenue Management and Billing Version 5.1.0.0.0, you need to apply the rollup packs listed in the [ORMB V5.1.0.0.0 Patch Guide](#) (Document ID: 2941754.1). You can apply a rollup pack from a Windows machine and UNIX Standalone server. To apply a rollup pack:

1. Download the rollup pack from [My Oracle Support](#). A zip file is downloaded.
2. Unzip the downloaded file in your local folder. The contents include the `README.txt` file and three folders named `RMB_V5.1.0.0.0_App_Rollup`, `RMB_V5.1.0.0.0_DB_Rollup`, and `RMB_V5.1.0.0.0_PFDs`.
3. Change to the `RMB_V5.1.0.0.0_DB_Rollup` folder using the following command:

**AIX, Linux:**

```
cd <DESTINATION_FOLDER_1>/RMB_V5.1.0.0.0_DB_Rollup
```

**Windows:**

```
cd <DESTINATION_FOLDER_1>\RMB_V5.1.0.0.0_DB_Rollup
```

**Note:** The `<DESTINATION_FOLDER_1>` folder is the location where you have extracted the contents of the rollup pack.

4. Execute the `ouafDatabasePatch` utility using the following command:

**Windows:**

```
ouafDatabasePatch.cmd
```

**AIX, Linux:**

```
ouafDatabasePatch.sh
```

**Note:** On the AIX and Linux platforms, ensure that you grant the execute permission for the `ouafDatabasePatch.sh` utility using the following command:

```
chmod 755 ouafDatabasePatch.sh
```

## Appendix G : Framework Table Partitioning Scripts

To partition the **F1\_MO\_UPD** and **F1\_MO\_UPD\_BACKLOG** tables, you need to create the **F1\_MO\_UPD\_INT\_PART** and **F1\_MO\_UPD\_BACKLOG\_INT\_PART** scripts as mentioned in this section.

### G.1 F1\_MO\_UPD\_INT\_PART

You need to add the following code snippet while creating the **F1\_MO\_UPD\_INT\_PART** SQL script for partitioning the **F1\_MO\_UPD** table:

```

DECLARE
F1_TBL_NAME VARCHAR2(30) := 'F1_MO_UPD';
F1_TBL_NAME_OLD VARCHAR2(30) := 'F1_MO_UPD_OLD';
F1_TBL_NAME_NEW VARCHAR2(30) := 'F1_MO_UPD_NEW';
TBL_OWNER VARCHAR2(20) := 'CISADM';
V_COUNT NUMBER;
BEGIN
SELECT COUNT(1) INTO V_COUNT FROM DBA_TABLES WHERE TABLE_NAME =
'F1_MO_UPD_NEW' AND OWNER='CISADM';
IF V_COUNT = 0 THEN
EXECUTE IMMEDIATE 'CREATE TABLE ' || TBL_OWNER || '.' || F1_TBL_NAME_NEW
|| '(MAINT_OBJ_CD CHAR(12 BYTE) NOT NULL ENABLE, PK_VALUE1 VARCHAR2(254
BYTE) NOT NULL ENABLE, PK_VALUE2 VARCHAR2(254 BYTE), PK_VALUE3
VARCHAR2(254 BYTE), PK_VALUE4 VARCHAR2(254 BYTE), PK_VALUE5 VARCHAR2(254
BYTE), "ENT_KEY_HASH" NUMBER(5,0) NOT NULL ENABLE)' || ' PARTITION BY
RANGE (ENT_KEY_HASH) INTERVAL(1) (PARTITION VALUES LESS THAN (2))';
END IF;
EXECUTE IMMEDIATE 'INSERT INTO ' || TBL_OWNER || '.' || F1_TBL_NAME_NEW || '
SELECT * FROM ' || TBL_OWNER || '.' || F1_TBL_NAME;
EXECUTE IMMEDIATE 'ALTER TABLE ' || TBL_OWNER || '.' || F1_TBL_NAME || '
RENAME TO ' || F1_TBL_NAME_OLD;
EXECUTE IMMEDIATE 'ALTER TABLE ' || TBL_OWNER || '.' || F1_TBL_NAME_NEW || '
RENAME TO ' || F1_TBL_NAME;
END;
```

## G.2 F1\_MO\_UPD\_BACKLOG\_INT\_PART

You need to add the following code snippet while creating the **F1\_MO\_UPD\_BACKLOG\_INT\_PART** SQL script for partitioning the **F1\_MO\_UPD\_BACKLOG** table:

```
DECLARE
F1_TBL_NAME VARCHAR2(30) := 'F1_MO_UPD_BACKLOG';
F1_TBL_NAME_OLD VARCHAR2(30) := 'F1_MO_UPD_BACKLOG_OLD';
F1_TBL_NAME_NEW VARCHAR2(30) := 'F1_MO_UPD_BACKLOG_NEW';
TBL_OWNER VARCHAR2(20) := 'CISADM';
V_COUNT NUMBER;
BEGIN
SELECT COUNT(1) INTO V_COUNT FROM DBA_TABLES WHERE TABLE_NAME =
'F1_MO_UPD_BACKLOG_NEW' AND OWNER='CISADM';
IF V_COUNT = 0 THEN
EXECUTE IMMEDIATE 'CREATE TABLE ' || TBL_OWNER || '.' || F1_TBL_NAME_NEW
|| '(MAINT_OBJ_CD CHAR(12 BYTE) NOT NULL ENABLE, PK_VALUE1 VARCHAR2(254
BYTE) NOT NULL ENABLE, PK_VALUE2 VARCHAR2(254 BYTE), PK_VALUE3
VARCHAR2(254 BYTE), PK_VALUE4 VARCHAR2(254 BYTE), PK_VALUE5 VARCHAR2(254
BYTE), "ENT_KEY_HASH" NUMBER(5,0) NOT NULL ENABLE, REC_ROW_ID
VARCHAR2(100 BYTE))' || ' PARTITION BY RANGE (ENT_KEY_HASH) INTERVAL(1)
(PARTITION VALUES LESS THAN (2))';
END IF;
EXECUTE IMMEDIATE 'INSERT INTO ' || TBL_OWNER || '.' || F1_TBL_NAME_NEW || '
SELECT * FROM ' || TBL_OWNER || '.' || F1_TBL_NAME;
EXECUTE IMMEDIATE 'ALTER TABLE ' || TBL_OWNER || '.' || F1_TBL_NAME || '
RENAME TO ' || F1_TBL_NAME_OLD;
EXECUTE IMMEDIATE 'ALTER TABLE ' || TBL_OWNER || '.' || F1_TBL_NAME_NEW ||
' RENAME TO ' || F1_TBL_NAME;
END;
```

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**jQuery Wiggle**

Author: WonderGroup, Jordan Thomas

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**JSON Editor v0.7.22 - JSON Schema -> HTML Editor**

By Jeremy Dorn - <https://github.com/jdorn/json-editor/>

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Date: 2015-08-12

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**swagger-ui.js**

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Written by Kristof Coomans

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