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Version 4.0.0.0.0

Direct Database Upgrade from 2.3.0.2.0 to 4.0.0.0.0

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Preface

About This Document

This document will help you to understand how to directly upgrade the Oracle Revenue Management and Billing database from 2.3.0.2.0 or any later version to 4.0.0.0.0.

This document does not explain how to create a new application environment for ORMB Version 4.0.0.0.0. For more information on how to create the application environment, refer to the *Oracle Revenue Management and Billing Quick Installation Guide* and *Oracle Revenue Management and Billing Installation Guide*.

Note: You need to create a new application environment for ORMB Version 4.0.0.0.0 and not upgrade the existing application environment.

Intended Audience

This document is intended for the following audience:

- 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 Upgrade from 2.3.0.2.0 or Any Later Version to 4.0.0.0.0	Explains how to directly upgrade Oracle Revenue Management and Billing (ORMB) database from 2.3.0.2.0 or any later version to 4.0.0.0.0.
Section 2	Step 1A – Database Upgrade Process	Lists the packages and patches that you need to install in order to upgrade the database.
Section 3	Step 1B - Data Migration Process	Lists the patches that you need to apply and a set of activities that you to perform in order to migrate the data from 2.3.0.2.0 or any later version to 4.0.0.0.0.
Section 4	Known Issues and Solution	Lists the known issues when you upgrade ORMB database from 2.3.0.2.0 or any later version to 4.0.0.0.0 and how to handle these issues in the database.

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Conventions

The following conventions are used across the document:

Convention	Meaning
boldface	Boldface indicates graphical user interface elements associated with an action, or terms defined in the text.
italic	Italic indicates a document or book title.
monospace	Monospace indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or information that an end-user needs to enter in the application.

Acronyms

The following acronyms are used in this document:

Acronym	Meaning
ORMB	Oracle Revenue Management and Billing
OUAF	Oracle Utilities Application Framework
FW	Framework
TFM	Transaction Feed Management
SGA	System Global Area
PGA	Program Global Area

Related Documents

You can refer to the following documents for more information:

Document Name	Description
Oracle Revenue Management and Billing Version 4.0.0.0.0 Release Notes	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.

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Document Name	Description
Oracle Revenue Management and Billing Installation Guide	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.
Oracle Revenue Management and Billing Quick Installation Guide	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.
Oracle Revenue Management and Billing Database Administrator's Guide	Provides information about the supported database platforms and explains how to install database with or without demo data. It contains the standards and conventions that should be followed while working with ORMB database. In addition, it lists various configurations and implementation guidelines with respect to tablespace, encryption, storage, compression, indexes, initialization parameters, listener, table partitioning, performance monitoring, memory resource management, optimizer statistics and segment advisors, etc. It contains various appendices which lists the new objects added in ORMB, application services configured for default user groups, new objects added in OUAF, information about OUAF system tables and ORMB rollup packs, notices about third party JAR and other components.

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Document Name	Description
Oracle Revenue Management and Billing Server Administration Guide	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. 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.
Oracle Revenue Management and Billing Security Guide	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.
Oracle Revenue Management and Billing Upgrade Guide	Explains how to upgrade the ORMB application server and database from one version to another. It also explains how to migrate the ORMB data from one version to another and describes the additional tasks that you need to perform after upgrading from one version to another. It includes various appendices that contain information about new tables introduced in the current release, existing tables which are modified in the current release, dropped algorithms and algorithm types, dropped characteristic types, dropped algorithm parameters, dropped option types in feature configurations, ORMB rollup packs, and SQL statements used for data migration.
Oracle Revenue Management and Billing Upgrade Path Guide	Explains the path and pre-requisites for upgrading Oracle Revenue Management and Billing from one version to another.

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Change Log

Revision	Last Update	Updated Section	Comments
1.1	29-Jun-2022	Section 2: Step 1A – Database Upgrade Process	Added Information
1.2	11-Oct-2022	Section 1.2: Prerequisites	Updated Information
1.3	22-Oct-2022	Section 1.2: Prerequisites	Updated Information
1.4	07-Feb-2023	Section 1.1: Direct Database Upgrade	Updated Information
		Section 3: Step 1B - Data Migration Process	Updated Information

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1. Database Upgrade from 2.3.0.2.0 or Any Later Version to 4.0.0.0.0

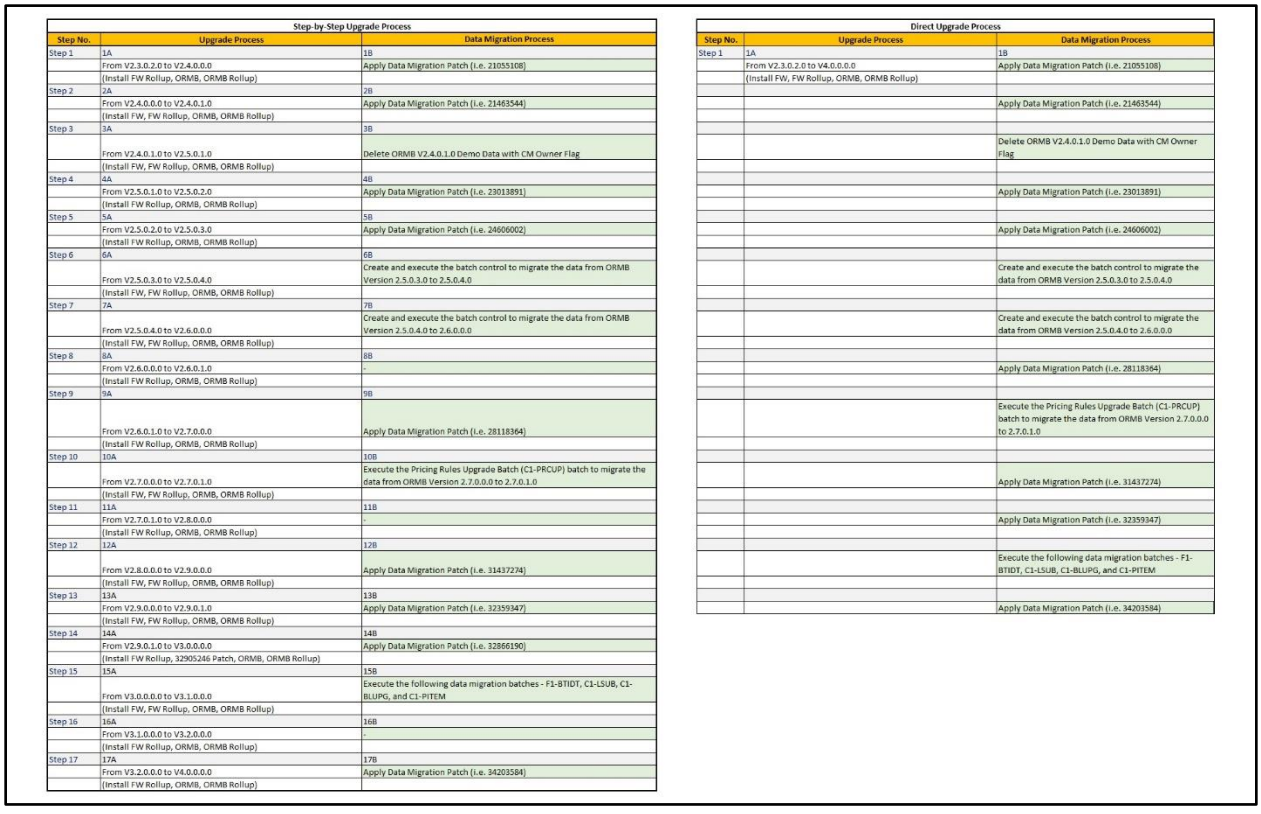
This section explains how to directly upgrade Oracle Revenue Management and Billing (ORMB) database from 2.3.0.2.0 or any later version to 4.0.0.0.0. It also lists the pre-requisites for upgrading ORMB database from 2.3.0.2.0 or any later version to 4.0.0.0.0. In addition, it lists all packages and patches that you need to download to upgrade the database.

1.1 Direct Database Upgrade

There are two ways in which you can upgrade Oracle Revenue Management and Billing (ORMB) database from 2.3.0.2.0 or any later version to 4.0.0.0.0:

- Using the Step-by-Step Upgrade Process (as shown in the left side of the below figure)
- Using the Direct Upgrade Process (as shown in the right side of the below figure)

The following figure indicates the number of steps involved in both the Step-by-Step Upgrade and Direct Upgrade processes:



Step-by-Step Upgrade Process

Step No.	Upgrade Process	Data Migration Process
Step 1	1A	1B
	From V2.3.0.2.0 to V2.4.0.0.0	Apply Data Migration Patch (i.e. 21055108)
	(Install FW Rollup, ORMB, ORMB Rollup)	
Step 2	2A	2B
	From V2.4.0.0.0 to V2.4.0.1.0	Apply Data Migration Patch (i.e. 21463544)
	(Install FW, FW Rollup, ORMB, ORMB Rollup)	
Step 3	3A	3B
	From V2.4.0.1.0 to V2.5.0.1.0	Delete ORMB V2.4.0.1.0 Demo Data with CM Owner Flag
	(Install FW, FW Rollup, ORMB, ORMB Rollup)	
Step 4	4A	4B
	From V2.5.0.1.0 to V2.5.0.2.0	Apply Data Migration Patch (i.e. 23013891)
	(Install FW Rollup, ORMB, ORMB Rollup)	
Step 5	5A	5B
	From V2.5.0.2.0 to V2.5.0.3.0	Apply Data Migration Patch (i.e. 24606002)
	(Install FW Rollup, ORMB, ORMB Rollup)	
Step 6	6A	6B
	From V2.5.0.3.0 to V2.5.0.4.0	Create and execute the batch control to migrate the data from ORMB Version 2.5.0.3.0 to 2.5.0.4.0
	(Install FW, FW Rollup, ORMB, ORMB Rollup)	
Step 7	7A	7B
	From V2.5.0.4.0 to V2.6.0.0.0	Create and execute the batch control to migrate the data from ORMB Version 2.5.0.4.0 to 2.6.0.0.0
	(Install FW, FW Rollup, ORMB, ORMB Rollup)	
Step 8	8A	8B
	From V2.6.0.0.0 to V2.6.0.1.0	-
	(Install FW Rollup, ORMB, ORMB Rollup)	
Step 9	9A	9B
	From V2.6.0.1.0 to V2.7.0.0.0	Apply Data Migration Patch (i.e. 28118364)
	(Install FW Rollup, ORMB, ORMB Rollup)	
Step 10	10A	10B
	From V2.7.0.0.0 to V2.7.0.1.0	Execute the Pricing Rules Upgrade Batch (C1-PRCUP) batch to migrate the data from ORMB Version 2.7.0.0.0 to 2.7.0.1.0
	(Install FW, FW Rollup, ORMB, ORMB Rollup)	
Step 11	11A	11B
	From V2.7.0.1.0 to V2.8.0.0.0	-
	(Install FW Rollup, ORMB, ORMB Rollup)	
Step 12	12A	12B
	From V2.8.0.0.0 to V2.9.0.0.0	Apply Data Migration Patch (i.e. 31437274)
	(Install FW, FW Rollup, ORMB, ORMB Rollup)	
Step 13	13A	13B
	From V2.9.0.0.0 to V2.9.0.1.0	Apply Data Migration Patch (i.e. 32359347)
	(Install FW, FW Rollup, ORMB, ORMB Rollup)	
Step 14	14A	14B
	From V2.9.0.1.0 to V3.0.0.0.0	Apply Data Migration Patch (i.e. 32866190)
	(Install FW Rollup, 32905246 Patch, ORMB, ORMB Rollup)	
Step 15	15A	15B
	From V3.0.0.0.0 to V3.1.0.0.0	Execute the following data migration batches - F1-BTIDT, C1-LSUB, C1-BLUPG, and C1-PITEM
	(Install FW, FW Rollup, ORMB, ORMB Rollup)	
Step 16	16A	16B
	From V3.1.0.0.0 to V3.2.0.0.0	-
	(Install FW Rollup, ORMB, ORMB Rollup)	
Step 17	17A	17B
	From V3.2.0.0.0 to V4.0.0.0.0	Apply Data Migration Patch (i.e. 34203584)
	(Install FW Rollup, ORMB, ORMB Rollup)	

Direct Upgrade Process

Step No.	Upgrade Process	Data Migration Process
Step 1	1A	1B
	From V2.3.0.2.0 to V4.0.0.0.0	Apply Data Migration Patch (i.e. 21055108)
	(Install FW, FW Rollup, ORMB, ORMB Rollup)	
		Apply Data Migration Patch (i.e. 21463544)
		Delete ORMB V2.4.0.1.0 Demo Data with CM Owner Flag
		Apply Data Migration Patch (i.e. 23013891)
		Apply Data Migration Patch (i.e. 24606002)
		Create and execute the batch control to migrate the data from ORMB Version 2.5.0.3.0 to 2.5.0.4.0
		Create and execute the batch control to migrate the data from ORMB Version 2.5.0.4.0 to 2.6.0.0.0
		Apply Data Migration Patch (i.e. 28118364)
		Execute the Pricing Rules Upgrade Batch (C1-PRCUP) batch to migrate the data from ORMB Version 2.7.0.0.0 to 2.7.0.1.0
		Apply Data Migration Patch (i.e. 31437274)
		Apply Data Migration Patch (i.e. 32359347)
		Execute the following data migration batches - F1-BTIDT, C1-LSUB, C1-BLUPG, and C1-PITEM
		Apply Data Migration Patch (i.e. 34203584)

Figure 1: Database Upgrade Process

To follow the Step-by-Step Upgrade process, you need to refer the *Oracle Revenue Management and Billing Upgrade Path Guide* and *Oracle Revenue Management and Billing Upgrade Guide* of the respective version.

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To follow the Direct Upgrade process, you need to execute the following steps:

Step	For more information, refer to…
1A	Step 1A - Database Upgrade Process
1B	Step 1B - Data Migration Process

We recommend you to follow the direct upgrade process while upgrading the ORMB database from 2.3.0.2.0 or any later version to 4.0.0.0.0 because it involves less number of steps and saves time.

1.2 Prerequisites

If you are already using the Transaction Feed Management feature and want to upgrade to Oracle Revenue Management and Billing Version 4.0.0.0.0, then you need to ensure the following (before upgrading):

- All bills generated in the system are in the **Complete** status. In other words, there should not be any bills in the **Pending** status. If there are any bills in the **Pending** status or if any billable charge (generated through TFM) is not yet billed, disaggregation and cancellation of transactions which are uploaded using 2.3.0.2.0 or any later version will not happen successfully.
- Transactions which are uploaded using 2.3.0.2.0 or any later version must not be in the **Initial Product Determined (INPD)** status. They can be in the **Uploaded (UPLD)**, **Invalid (INVL)**, **Error (EROR**), **Completed (COMP)**, or **Cancelled (CNCL)** status.
- Equal to (=) or tilde (~) symbol is not used in any existing price item parameter code or value. Otherwise, erroneous results might occur.

If you are already using the On Demand Billing feature and want to upgrade to Oracle Revenue Management and Billing Version 4.0.0.0.0, then you need to ensure the following (before upgrading):

- The billable charges and adhoc bills are generated and completed for the usage data files where billing method is set to **Adhoc Billing**.
- The file types created in 2.3.0.2.0 or any later version must no longer be used in 4.0.0.0.0. You should create new file types in 4.0.0.0.0.

Also, ensure that no data exists in the CI_BCHG_TEMP table before you start the upgrade process. If there is data in the CI_BCHG_TEMP table, it means all billing batches are not yet executed for a set of bills. We recommend you to either complete the billing process for such bills by executing all the billing batches or delete the data from the CI_BCHG_TEMP table. Otherwise, erroneous results might occur when you execute the billing batches after the upgrade.

In addition, you need to ensure the following before upgrading ORMB database from 2.3.0.2.0 or any later version to 4.0.0.0.0:

- ORMB data is imported on Oracle Database Server 19c and the `MAX_STRING_SIZE` parameter is set to `EXTENDED`.

Note: For more information on how to set the `MAX_STRING_SIZE` parameter to `EXTENDED`, refer to the pre-requisites information available in the **Upgrading *the ORMB Database*** *section of the Oracle Revenue Management and Billing Version 4.0.0.0.0 Upgrade Guide*.

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- Allocate minimum SGA and PGA memory per node (i.e. approximately 150 to 200 GB for SGA and 60 to 90 GB for PGA) so that you can execute the upgrade process with parallel threads 32/64/128 depending on the number of available CPUs.
- Remove the `ALTER_CI_PRCE_CALC_LN.sql` script from the `CDIIni.Drv` file which is located at `<DESTINATION_FOLDER_1>/RMB/Upgrade/Oracle/Install-Upgrade` and add it in the beginning of the `CDIPost.Drv` file which is located at `<DESTINATION_FOLDER_1>/RMB/Upgrade/Oracle/Install-Upgrade`.

Note: The `<DESTINATION_FOLDER_1>` folder is the location where you have extracted the contents of the **Oracle Revenue Management and Billing V4.0.0.0.0 Oracle Database** package.

- Take a backup of the **CI_BATCH_RUN_CNTRL** table and then truncate this table.
- Execute the `Pre_BlueprintScript.sql` query which is available in the **Apply the PACKAGE FOR DATA UPGRADE FROM 2.3.0.2.0 to 2.4.0.0.0** patch (Patch Number: 21055108) before you upgrade the database from 2.3.0.2.0 to 4.0.0.0.0. For more information, refer to the **Executing the Pre_BlueprintScript.sql Query** section in the *Oracle Revenue Management and Billing Version 2.4.0.0.0 Upgrade Guide.* Note that this prerequisite is applicable only when you are upgrading from 2.3.0.2.0 to 4.0.0.0.0 and not applicable when you are upgrading from any version later than 2.3.0.2.0 to 4.0.0.0.0.

Besides the above changes, you need to ensure the following before upgrading ORMB database from 2.9.0.1.0 to 4.0.0.0.0:

- Execute the **PreprocessingScript.sql** query which is available in the **V30000 MIGRATION PATCH DEPLOYMENT ISSUE AFTER DIRECT UPGRADE FROM 29010 TO 31000** patch (Patch Number: 33459344).

We have articulated some known issues that you may come across while upgrading ORMB database from 2.3.0.2.0 or any later version to 4.0.0.0.0. Please read the Known Issues and Solution section before you start upgrading the database.

1.3 Downloading the ORMB Packages and Patches

For upgrading from Oracle Revenue Management and Billing Version 2.3.0.2.0 or any later version to 4.0.0.0.0, you must download the following packages from the Oracle Revenue Management and Billing V4.0.0.0.0 media pack which is available on Oracle Software Delivery Cloud:

- Oracle Utilities Application Framework V4.4.0.3.0 Single Fix Prerequisite Rollup for RMB V4.0.0.0.0
- Oracle Revenue Management and Billing V4.0.0.0.0 Oracle Database

In addition, you must download the following patches from My Oracle Support:

- PACKAGE FOR DATA UPGRADE FROM 2.3.0.2.0 to 2.4.0.0.0 (Patch Number: 21055108)
- PACKAGE FOR DATA UPGRADE FROM 2.4.0.0.0 TO 2.4.0.1.0 (Patch Number: 21463544)
- UPGRADE FROM 2.5.0.1.0 to 2.5.0.2.0 (Patch Number: 23013891)
- UPGRADE FROM 2.5.0.2.0 to 2.5.0.3.0 (Patch Number: 24606002)
- UPGRADE FROM 2.6.0.1.0 TO 2.7.0.0.0 (Patch Number: 28118364)

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- V2.9 UPGRADE - DEFERRED REVENUE RECOGNITION FUNCTIONALITY ISSUES (Patch Number: 31437274)

Note: You must download this patch only when you are upgrading the ORMB database from any version below 2.6.0.1.0 to 4.0.0.0.0.

- UPGRADE FROM 2.9.0.0.0 TO 2.9.0.1.0 (Patch Number: 32359347)
- PRE BLUEPRINT SCRIPT TO BE APPLIED BEFORE UPGRADING TO 3.0.0.0.0 (Patch Number: 32905246)
- UPGRADE FROM 3.2.0.0.0 TO 4.0.0.0.0 (Patch Number: 34203584)

The downloaded files will be in the ZIP format.

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2. Step 1A – Database Upgrade Process

While upgrading from Oracle Revenue Management and Billing Version 2.3.0.2.0 or any later version to 4.0.0.0.0, you need to install the following on the database (in the specified order):

1. Oracle Utilities Application Framework (OUAF) Version 4.4.0.3.0
2. Rollup Pack for Oracle Utilities Application Framework (OUAF) Version 4.4.0.3.0
3. Oracle Revenue Management and Billing (ORMB) Version 4.0.0.0.0

Once you install ORMB Version 4.0.0.0.0, you need to apply the release-specific patches on the database. To view the list of patches that you need to apply on the database, refer to the *ORMB V4.0.0.0.0 Patch Guide (Document ID: 2878927.1)* on My Oracle Support.

Note: There might be situations when you do not want to recreate one or more table indexes. You can skip the recreation process of one or more table indexes by adding the following line in the `<DESTINATION_FOLDER_1>/RMB/Upgrade/Oracle/Install-Upgrade/CDXSchUpg.inp` file:

```
-INDEX: 'INDEX1', 'INDEX2', 'INDEX3'
```

For example, `-INDEX: 'XXT033P0', 'XXT034P0', 'XXT035P0'`

For more information on how to install the packages and patches on the database, refer to the respective section in the *Oracle Revenue Management and Billing Version 4.0.0.0.0 Upgrade Guide*.

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 J: ORMB V4.0.0.0.0 Rollup Packs** in the Oracle *Revenue Management and Billing Version 4.0.0.0.0 Upgrade Guide*.

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Once you install the packages and patches on the database, you need to drop few columns and tables from the database using the following SQL commands:

```
ALTER TABLE CI_BSEG_CALC_LN DROP COLUMN PRICEITEM_PARM_GRP_ID;
ALTER TABLE CI_TXN_REC_TYPE DROP COLUMN RULE_VAL_ALG_CD;
ALTER TABLE CI_CC DROP COLUMN DESCR254;
ALTER TABLE CI_TXN_DTL_PRITM_SUMMARY DROP COLUMN AGG_FREQ;
ALTER TABLE CI_TXN_DTL_PRITM_SUMMARY DROP COLUMN CIS_DIVISION;
ALTER TABLE CI_TXN_DTL_PRITM_SUMMARY DROP COLUMN FINAL_PRICE_ITEM_CD;
ALTER TABLE CI_TXN_DTL_PRITM_SUMMARY DROP COLUMN FINAL_TOU_CD;
ALTER TABLE CI_TXN_DTL_PRITM_SUMMARY DROP COLUMN INITIAL_PRICE_ITEM_CD;
ALTER TABLE CI_TXN_DTL_PRITM_SUMMARY DROP COLUMN INTIAL_TOU_CD;
ALTER TABLE CI_TXN_DTL_PRITM_SUMMARY DROP COLUMN TXN_END_DT;
ALTER TABLE CI_TXN_DTL_PRITM_SUMMARY DROP COLUMN TXN_MMYYYY;
DROP TABLE CI_ACCT_EXTN;
DROP TABLE CI_ACCT_EXTN_K;
DROP TABLE CI_CIS_DIV_EXT;
DROP TABLE CI_PER_EXTN;
DROP TABLE CI_PER_EXTN_K;
DROP TABLE CI_TXN_DTL_PRITM_SUMMARY_GTT;
DROP TABLE CI_TXN_DTL_PRITM_VP_CHUNK_GTT;
DROP TABLE CI_TXN_DTL_PRITM_VP_GTT;
DROP TABLE SNP_CHECK_TAB;
```

Note: If any of the above table or column does not exist in the database, ignore the error message and proceed further.

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3. Step 1B - Data Migration Process

Once you upgrade the ORMB database, you need to do the following to migrate the data from 2.3.0.2.0 to 4.0.0.0.0:

1. **Apply the PACKAGE FOR DATA UPGRADE FROM 2.3.0.2.0 to 2.4.0.0.0 Patch (Patch Number: 21055108)** – For more information on how to apply this patch, refer to the **Migrating Data** section in the *Oracle Revenue Management and Billing Version 2.4.0.0.0 Upgrade Guide.*
2. **Apply the PACKAGE FOR DATA UPGRADE FROM 2.4.0.0.0 TO 2.4.0.1.0 Patch (Patch Number: 21463544)** – For more information on how to apply this patch, refer to the **Migrating Data** section in the *Oracle Revenue Management and Billing Version 2.4.0.1.0 Upgrade Guide.*
3. **Delete ORMB V2.4.0.1.0 Demo Data with CM Owner Flag** - Execute the following SQL commands to delete the ORMB V2.4.0.1.0 demo data with the CM owner flag:
    - `DELETE FROM SC_ACCESS_CNTL WHERE USR_GRP_ID = 'ALL_SERVICES' AND APP_SVC_ID = 'CIPRICEPARM' AND ACCESS_MODE='A' AND OWNER_FLG='CM';`
    - `DELETE FROM SC_ACCESS_CNTL WHERE USR_GRP_ID = 'ALL_SERVICES' AND APP_SVC_ID = 'CIPRICEPARM' AND ACCESS_MODE='C' AND OWNER_FLG='CM';`
    - `DELETE FROM SC_ACCESS_CNTL WHERE USR_GRP_ID = 'ALL_SERVICES' AND APP_SVC_ID = 'CIPRICEPARM' AND ACCESS_MODE='D' AND OWNER_FLG='CM';`
    - `DELETE FROM SC_ACCESS_CNTL WHERE USR_GRP_ID = 'ALL_SERVICES' AND APP_SVC_ID = 'CIPRICEPARM' AND ACCESS_MODE='F1EX' AND OWNER_FLG='CM';`
    - `DELETE FROM SC_ACCESS_CNTL WHERE USR_GRP_ID = 'ALL_SERVICES' AND APP_SVC_ID = 'CIPRICEPARM' AND ACCESS_MODE='R' AND OWNER_FLG='CM';`
    - `DELETE FROM SC_USR_GRP_PROF WHERE USR_GRP_ID = 'ALL_SERVICES' AND APP_SVC_ID = 'CIPRICEPARM' AND OWNER_FLG='CM';`
4. **Apply the UPGRADE FROM 2.5.0.1.0 to 2.5.0.2.0 Patch (Patch Number: 23013891)** – For more information on how to apply this patch, refer to the **Migrating Data** section in the *Oracle Revenue Management and Billing Version 2.5.0.2.0 Upgrade Guide.*
5. **Apply the UPGRADE FROM 2.5.0.2.0 to 2.5.0.3.0 Patch (Patch Number: 24606002)** - For more information on how to apply this patch, refer to the **Migrating Data** section in the *Oracle Revenue Management and Billing Version 2.5.0.3.0 Upgrade Guide.*
6. **Create and Execute the Batch Control to Migrate the Data from ORMB Version 2.5.0.3.0 to 2.5.0.4.0** - For more information on how to create the batch, refer to the **Migrating Data** section in the *Oracle Revenue Management and Billing Version 2.5.0.4.0 Upgrade Guide.*
7. **Create and Execute the Batch Control to Migrate the Data from ORMB Version 2.5.0.4.0 to 2.6.0.0.0** - For more information on how to create the batch, refer to the **Migrating Data** section in the *Oracle Revenue Management and Billing Version 2.6.0.0.0 Upgrade Guide.*

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8. **Apply the UPGRADE FROM 2.6.0.1.0 TO 2.7.0.0.0 Patch (Patch Number: 28118364)** - For more information on how to apply this patch, refer to the **Migrating Data** section in the *Oracle Revenue Management and Billing Version 2.7.0.0.0 Upgrade Guide.*

Note: If you are directly upgrading the ORMB database from 2.3.0.2.0 or any later version earlier than 2.6.0.1.0 to 4.0.0.0.0, you should not execute the **Upgrade Batch for Deferred Revenue Recognition (C1-RRUPG)** and **Revenue Recognition Division Upgrade Batch (C1-RRDIV)** batches mentioned in the **Data Migration** section of the *Oracle Revenue Management and Billing Version 2.7.0.0.0 Upgrade Guide.* Otherwise, erroneous results might occur.

9. **Execute the Pricing Rules Upgrade Batch (C1-PRCUP) Batch to Migrate the Data from ORMB Version 2.7.0.0.0 to 2.7.0.1.0** - For more information about this batch, refer to the **Migrating Data** section in the *Oracle Revenue Management and Billing Version 2.7.0.1.0 Upgrade Guide.*
10. **Apply the V2.9 UPGRADE - DEFERRED REVENUE RECOGNITION FUNCTIONALITY ISSUES Patch (Patch Number: 31437274)** - For more information on how to apply this patch, refer to the **Migrating Data from ORMB Version Below 2.6.0.1.0 to 2.9.0.0.0** section in the *Oracle Revenue Management and Billing Version 2.9.0.0.0 Upgrade Guide.*

Note: You must execute the above step (10) only when you are upgrading the ORMB database from any version below 2.6.0.1.0 to 4.0.0.0.0.

11. **Apply the UPGRADE FROM 2.9.0.0.0 TO 2.9.0.1.0 Patch (Patch Number: 32359347)** - For more information on how to apply this patch, refer to the **Migrating Data** section in the *Oracle Revenue Management and Billing Version 2.9.0.1.0 Upgrade Guide.*
12. **Execute the following data migration batches: F1-BTIDT, C1-LSUB, C1-BLUPG, and C1-PITEM** - For more information about the **C1-LSUB**, **C1-BLUPG**, and **C1-PITEM** batches, refer to the **Data Migration** section in the *Oracle Revenue Management and Billing Version 3.1.0.0.0 Upgrade Guide.* And, for more information about the **F1-BTIDT** batch, refer to the **Start Date, End Date, and Time Added to Batch Thread Instance** section in the *Oracle Revenue Management and Billing Version 3.1.0.0.0 Release Notes* or refer to the detailed description of the batch in the application.

Note: You must execute the above step (12) only when you are upgrading the ORMB database from any version below 3.1.0.0.0 to 4.0.0.0.0 and not when you are upgrading the ORMB database from 3.1.0.0.0 or 3.2.0.0.0 to 4.0.0.0.0.

13. **Apply the UPGRADE FROM 3.2.0.0.0 TO 4.0.0.0.0 Patch (Patch Number: 34203584)** - For more information on how to apply this patch, refer to the **Migrating Data** section in the *Oracle Revenue Management and Billing Version 4.0.0.0.0 Upgrade Guide.*

If you upgrade the ORMB database from a version later than 2.3.0.2.0 to 4.0.0.0.0, you need to accordingly perform the steps listed above to migrate the data. For example, if you want to directly upgrade the ORMB database from 2.6.0.0.0 to 4.0.0.0.0, you just need to follow the steps from 8 to 13 to migrate the data.

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4. Known Issues and Solution

This section lists the known issues that may occur when you upgrade ORMB database from 2.3.0.2.0 or any later version to 4.0.0.0.0 and how to handle these issues in the database.

Issue	**ORA-38824: A CREATE OR REPLACE command may not change the EDITIONABLE property of an existing object**
Solution	Drop all views and functions before you upgrade ORMB database from 2.3.0.2.0 or any later version to 4.0.0.0.0. The **Oracle Revenue Management and Billing V4.0.0.0.0 Oracle Database** package will recreate the required views and functions in the ORMB database.

Issue	**ORA-01451: Column to be modified to NULL cannot be modified to NULL**
Solution	Drop the primary key from the table using the following command: ALTER TABLE <TABLE_NAME> DROP PRIMARY KEY Example 1 **Error:** ALTER TABLE CI_CONSTRUCT_LOG MODIFY SEQ_NUM NULL; **Solution:** ALTER TABLE CI_CONSTRUCT_LOG DROP PRIMARY KEY Example 2 **Error:** ALTER TABLE CI_ACCUM_GRP_SL_PRICEITEM MODIFY HCC_CD NULL; **Solution:** ALTER TABLE CI_ACCUM_GRP_SL_PRICEITEM DROP PRIMARY KEY **Note:** The primary key will be automatically created for such tables while installing Oracle Revenue Management and Billing (ORMB) Version 4.0.0.0.0.

Issue	**ORA-01439: column to be modified must be empty to change datatype**
Solution	Backup data from the tables where the issue occurs and then truncate the table. Once the ORMB database is upgraded, you need to insert the backup data in the respective tables before you proceed with the data migration process.

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