Machine Learning Installation Manual
Oracle FLEXCUBE Universal Banking
Release 14.8.3.0.0
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1 Abbreviations

Abbreviation	Detailed Description
FCUBS	**Oracle FLEXCUBE Universal Banking**
ML	**Machine Learning**
LTV	**Lifetime Value**
OML4R	**Previously Oracle R Enterprise (ORE)**
IDE	**Integrated Development Environment**

2 Introduction

This document contains detailed guidelines for installing the Oracle FLEXCUBE Machine Learning framework.

***Note**: Refer to the Oracle FLEXCUBE Machine Learning User Manual for Model execution and control.*

3 Application Compatibility

3.1 Oracle FLEXCUBE Universal Banking

Version: 14.8.0.0.0

3.2 OML4R (Previously Oracle R Enterprise (ORE))

- All the Machine Learning models were built using OML4R (Previously Oracle R Enterprise). Please choose the version as per the following table**.**

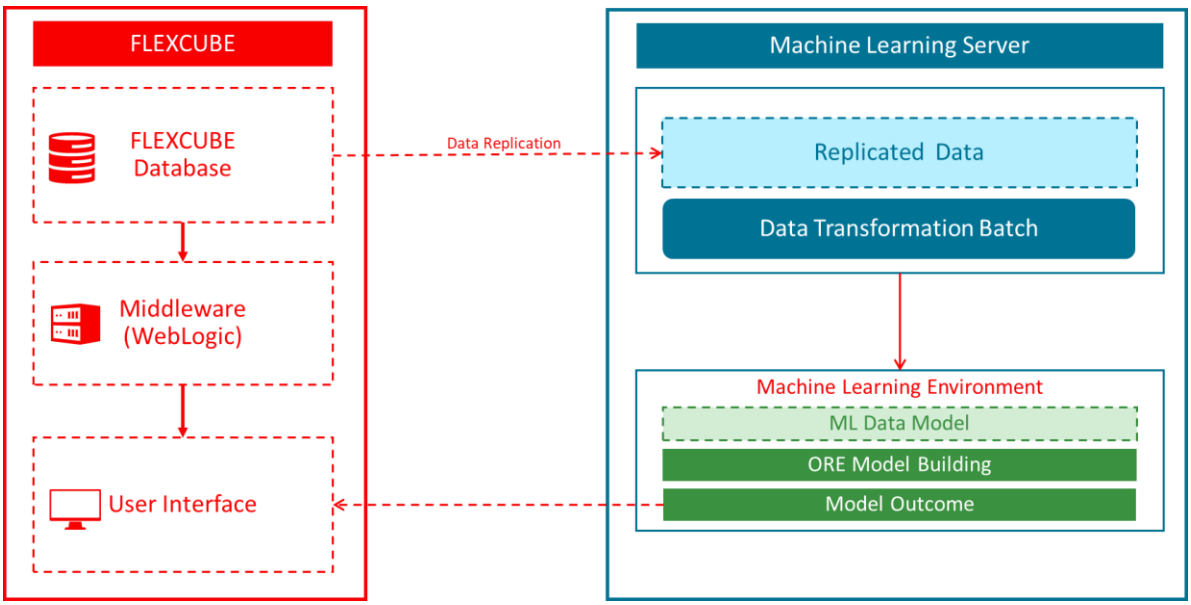
Linux Server/Version	**OML4R Version**
Oracle Linux server 7.1 (x86 64 bit)	OML4R 1.5.1
Oracle Linux server 8.1(x86 64 bit)	OML4R 2.0

- For installation and setup please refer to the guidelines received with the licensed version of OML4R (Previously Oracle R Enterprise Software).
  Refer the following link for Oracle Machine Learning for R Configuration Requirements and Server Support Matrix.

3.3 Machine Learning Database

- Oracle Database 19.6c

4 Oracle FLEXCUBE Machine Learning Architecture



Note:

i. FLEXCUBE database and Machine learning database should be on two different servers.
ii. This is to ensure that the machine learning workload is not on the critical path of banking operations and hog critical server memory.

5 Pre-Installation Checklist

5.1 FLEXCUBE Database Instance

- The FLEXCUBE database instance should be up and available.

5.2 Machine Learning Database Instance

Note: OML4R (Previously ORE) database MUST be a separate instance from Oracle FLEXCUBE Instance. This is to ensure that the machine learning workload is not on the critical path of banking operations and hog critical server memory

Please follow the sequential steps are detailed below.

1) Install Oracle Database on the Machine Learning server. Refer to 3.3 for compatible database versions**.**

2) OML4R (Previously Oracle R Enterprise) should be installed in Machine Learning database server. Refer to 3.2 for compatible OML4R (Previously ORE) version.

3) For OML4R (Previously ORE) installation and setup please refer to the guideline received with licensed version.
4) R Client needs to be installed to access OML4R (Previously Oracle R Enterprise) server from client machine. R client could be open-source R or Oracle R Distribution. Below are the links to install the same.

    a. Open-source R: https://cran.r-project.org/bin/windows/base/
    b. Oracle R Distribution (ORD): https://oss.oracle.com/ORD/

5) RStudio IDE can be installed for developer friendly environment. Below is the link to download RStudio. Download the version based on the operating system in client machine https://www.rstudio.com/products/rstudio/download/#download

6) Set up OML4R (Previously Oracle R Enterprise) client in client machine. Please refer to the guideline received with licensed version.

For more information on R Installation and Administration Guide refer the below table.

OML Version	OML Release	URL Reference
OML4R 1.5.1	1.5.1 E97849-11 April 2021	https://docs.oracle.com/en/database/oracle/machine-learning/oml4r/2.0.0/oread/index.html
OML4R 2.0	F22960-04 April 2025	https://docs.oracle.com/en/database/oracle/machine-learning/oml4r/2.0.0/oread/changes-in-ORE-installation-administration-guide.html#GUID-4E9A8524-BF2E-49BF-B4EA-91F651D51014

5.3 Data Replication



Data replication from FLEXCUBE to the Machine learning server is outside the purview of this document.

Any data replication software could be deployed to replicate FLEXCUBE data to the Machine Learning database Instance

It is left to the bank/solution team to decide on the data Replication Software including the mode of replication and frequency of replication

Please ensure FLEXCUBE data is already replicated into the Machine Learning Schema, before proceeding ahead with the Installation

6 Installation Steps

To proceed with the installation steps first check if all the checkpoints mentioned in section **Pre-Installation Checklist** are met. Follow below steps sequentially for the installation**.**

6.1 Machine Learning Instance

6.1.1 Object Summary

No.	OBJECT TYPE	COUNT
1	TABLES	27
2	VIEWS	08
3	INSERT SCRIPTS (INC)	01
4	SEQUENCE (SEQ)	01
5	PROCEDURE (PRC)	01
6	PACKAGE SPECIFICATION(SPC)	02
7	PACKAGE BODY (SQL)	02
8	FUNCTION (FNC)	01
9	R BINARY PACKAGES (OML4R, old ORE)	02
10	R WRAPPER SCRIPT (OML4R, old ORE)	01
	Total Object Count	**46**

6.1.2 User Creation and granting Privileges

6.1.2.1 Create User

Log in to the Machine Learning database with SYSDBA credentials and execute below query to create a machine learning user.

CREATE USER <*username*> IDENTIFIED BY <*password*>;

If the user has been already created at the time of OML4R (previously ORE) installation, then proceed to next step.

6.1.2.2 Give Necessary Privileges

Grant the below privileges to the machine learning user created in the previous step (6.1.2.1)**.**

i. **grant CONNECT, RQADMIN TO <*username*>;**
ii. **grant CREATE SESSION to <*username*>;**
iii. **grant CREATE TABLE to <*username*>;**
iv. **grant CREATE VIEW to <*username*>;**
v. **grant CREATE DATABASE LINK to <*username*>;**
vi. **grant CREATE MINING MODEL to <*username*>;**
vii. **grant CREATE PROCEDURE to <*username*>;**
viii. **grant CREATE JOB to <*username*>;**

6.1.3 Installation of Database Objects

6.1.3.1 Login to the Machine Learning Schema

Connect using the user credentials defined in step (6.1.2.1).

6.1.3.2 Execute DDL Scripts

Execute the DDL scripts mentioned in the section *Machine Learning Data Model*. Below are the DDL scripts (27 Tables):

1. MLTB_BRN_RISK.ddl
2. MLTB_BRN_SEGMENT.ddl
3. MLTB_CUST_ACQ_COST.ddl
4. MLTB_CUST_CHRN_LTV_SEG.ddl
5. MLTB_CUST_ICCF_INCOME.ddl
6. MLTB_DEBUG.ddl
7. MLTB_ENT_RISK.ddl
8. MLTB_ENT_SEGMENT.ddl
9. MLTB_MODEL_PERF_LOG.ddl
10. MLTB_PARAM.ddl
11. MLTB_PROC_STAT_DETAIL.ddl
12. MLTB_PROC_STAT_DETAIL_HIST.ddl
13. MLTB_PROC_STAT_MASTER.ddl
14. MLTB_PROC_STAT_MASTER_HIST.ddl
15. MLTB_RETAIL_CUST_ENG.ddl
16. MLTB_RETAIL_CUST_ENG_HIST.ddl
17. MLTB_RETAIL_CUST_TXN_TREND.ddl
18. MLTB_STAT_DETAIL_PREV_RUN.ddl
19. MLTB_STAT_MASTER_PREV_RUN.ddl
20. MLTG_TREND_TXN_DATES.DDL
21. MLTM_STG_RETAIL_CUST_PROFILE.ddl
22. MLTB_DATA_TRANSFORM_JOB_PARAM.ddl
23. MLTB_PROD_CUST_SCORE.ddl
24. MLTG_PROD_CUST_SCORE_VAMI.ddl
25. MLTG_PROD_CUST_SCORE_ROLL.ddl
26. MLTG_PROD_CUST_SCORE_CLOS.ddl
27. MLTB_PROD_FEATURE.ddl

6.1.3.3 *Execute the VIEW scripts*

With reference to the section 5.3 Data replication, the below views are used for data replication from FCUBS.

Execute the VW scripts mentioned in the section *Machine Learning Data Model*. Below are the VW scripts (8 Views):

1. mlvw_brn_seg.vw
2. mlvw_brn_seg_det.vw
3. mlvw_cust_ltv_bank.vw
4. mlvw_cust_ltv_seg.vw
5. mlvw_ent_seg.vw
6. mlvw_ent_seg_det.vw
7. mlvw_retail_cust_eng.vw
8. mlvw_prod_desc.vw

6.1.3.4 *Execute the INSERT Scripts*

Execute the INC scripts mentioned in the section *Machine Learning Data Model*. Below are the INC scripts (1 INC).

1. MLTB_PARAM.INC

6.1.3.5 *Execute Sequence Scripts*

Execute the SQL scripts mentioned in the section *Machine Learning Data Model*. Below are the SEQ scripts (One).

1. SEQ_ML_DEBUG.SQL

6.1.3.6 *Create PROCEDURE*

Compile the SQL script(s) mentioned in the section *Machine Learning Data Model*. Below are the SQL script(s) for creating procedure(s) (one SQL).

1. PR_ML_DEBUG.SQL

6.1.3.7 *Create PACKAGES*

Compile the SQL script(s) mentioned in the section *Machine Learning Data Model*. Below are the SQL script(s) for creating package specification(s) and body (One SPC and one SQL).

1. MLPKS_DATA_TRANSFORMATION.SPC
2. MLPKS_DATA_TRANSFORMATION.SQL
3. MLPKS_PROD_TRANSFORMATION.SPC
4. MLPKS_PROD_TRANSFORMATION.SQL

6.1.3.8 Create FUNCTION

Compile the SQL script(s) mentioned in section *Machine Learning Data Model*. Below are the SQL script(s) for creating function(s) (one SQL)

1. FN_MODELCONEX.SQL

6.1.4 Installation of OML4R (previously ORE) Packages

6.1.4.1 Download ML binary packages.

There will be two binary packages, one for the global function, and another one for the FCUBS. Please install the appropriate binary packages according to the Linux server version.

Linux Server Version	Binary Package
Linux Binary Packages for Linux Server 7 version	1. globalfunction_0.1.0_R_x86_64-pc-linux-gnu.tar.gz 2. FCUBSML_0.2.0_R_x86_64-pc-linux-gnu.tar.gz
Linux Binary Packages for Linux Server 8 version:	1.globalfunction_0.1.0_OML4R2.0_x86_64-pc-linux8-gnu.tar.gz 2. FCUBSML_0.2.0_OML4R2.0_x86_64-pc-linux8-gnu.tar.gz

Check the user access and environment variables.

Usually, those things are already set up while installing OML4R (Previously ORE) in the server. The user should have the following access rights.

- *Has sudo rights access or root access for installing Oracle R Distribution.*
- *Is a member of the dba group for installing and using OML4R (Previously Oracle R Enterprise)*
- *Has write access to $ORACLE_HOME/lib.*

The following environment variable should be set up.

- *$ORACLE_SID specifies the identifier (SID) of the database.*
- *$ORACLE_HOME specifies the home directory of the database.*
- *$LD_LIBRARY_PATH includes $ORACLE_HOME/lib.*
- *$PATH includes $ORACLE_HOME/bin*

6.1.4.2 Now install the packages in the server by executing following command.

Use the pseudo command in case the current user does not have write access to the OML4R (Previously ORE) library folder.

ORE CMD INSTALL {package name}

If it is Linux Server 7 version then below files to be installed,

Example: -

ORE CMD INSTALL globalfunction_0.1.0_R_x86_64-pc-linux-gnu.tar.gz

ORE CMD INSTALL FCUBSML_0.2.0_R_x86_64-pc-linux-gnu.tar.gz

```
-bash-4.2$ sudo ORE CMD INSTALL globalfunction_0.1.0_R_x86_64-pc-linux-gnu.tar.gz
* installing to library '/scratch/db/db1900/product/19.0.0/dbhome_1/R/library'
* installing *binary* package 'globalfunction' ...
* DONE (globalfunction)
```

```
-bash-4.2$ sudo ORE CMD INSTALL FCUBSML_0.2.0_R_x86_64-pc-linux-gnu.tar.gz
[sudo] password for kibose:
* installing to library '/scratch/db/db1900/product/19.0.0/dbhome_1/R/library'
* installing *binary* package 'FCUBSML' ...
* DONE (FCUBSML)
```

If it is Linux Server 8 version then below files to be installed,

Example:-

ORE CMD INSTALL globalfunction_0.1.0_OML4R2.0_x86_64-pc-linux8-gnu.tar.gz

ORE CMD INSTALL FCUBSML_0.2.0_OML4R2.0_x86_64-pc-linux8-gnu.tar.gz

6.1.4.3 After successful installation the packages will be present in OML4R (Previously ORE) library path.

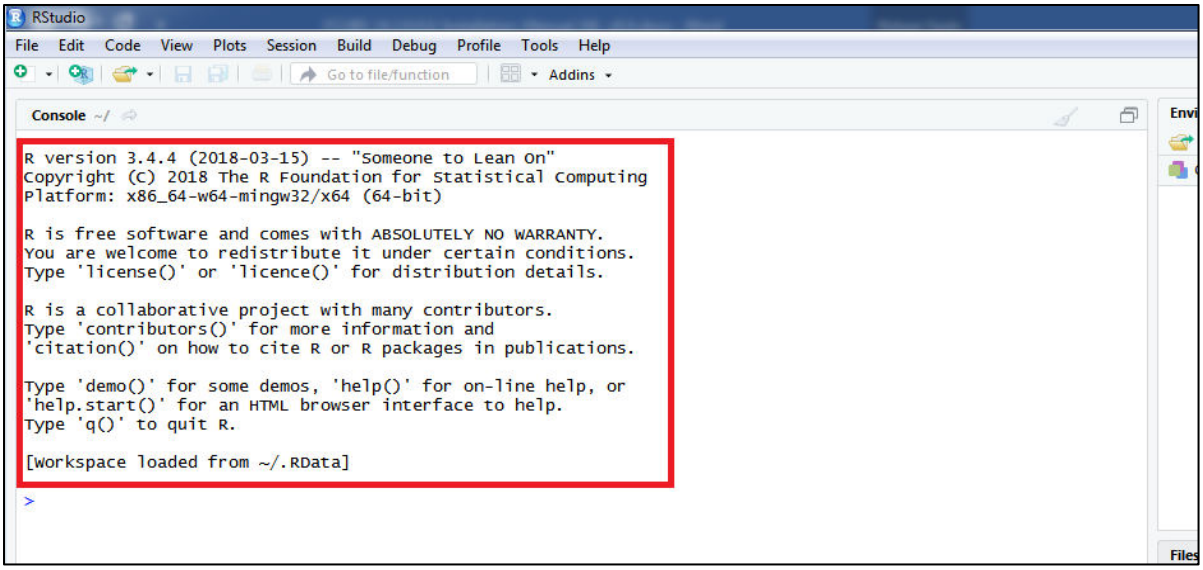
```
-bash-4.2$ cd /scratch/db/db1900/product/19.0.0/dbhome_1/R/library
-bash-4.2$ pwd
/scratch/db/db1900/product/19.0.0/dbhome_1/R/library
-bash-4.2$ ll
total 100
drwxr-xr-x 9 db1900 oinstall 4096 Aug 19 17:13 arules
drwxr-xr-x 7 db1900 oinstall 4096 Aug 19 17:13 Cairo
drwxr-xr-x 7 db1900 oinstall 4096 Aug 19 17:13 DBI
drwxrwxr-x 6 root   root     4096 Nov 26 15:33 FCISML
drwxrwxr-x 6 root   root     4096 Nov 26 15:53 FCUBSML
drwxrwxr-x 6 root   root     4096 Nov 26 15:55 globalfunction
```

6.1.5 Installation of OML4R (previously ORE) wrapper scripts

6.1.5.1 Launch R Studio

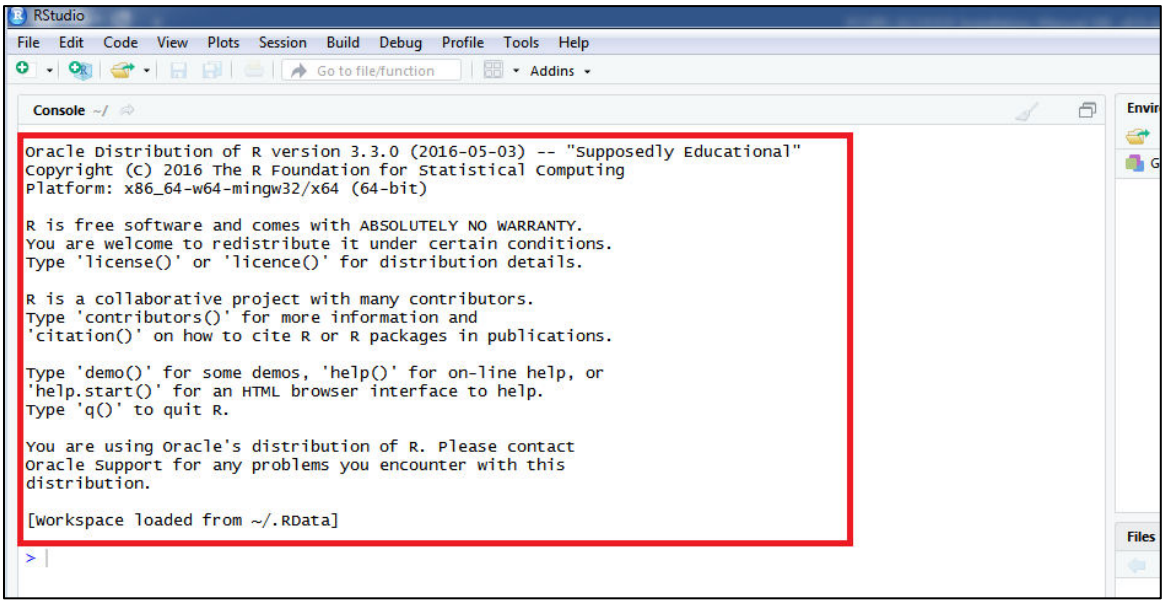
1. Launch RStudio IDE.
2. The default screen will be displayed as shown below.
3. If open-source R is installed, then it will show the version of Open Source R

Open Source R:



4. Or, if the Oracle R Distribution (ORD) is used, it will show the version of ORD.

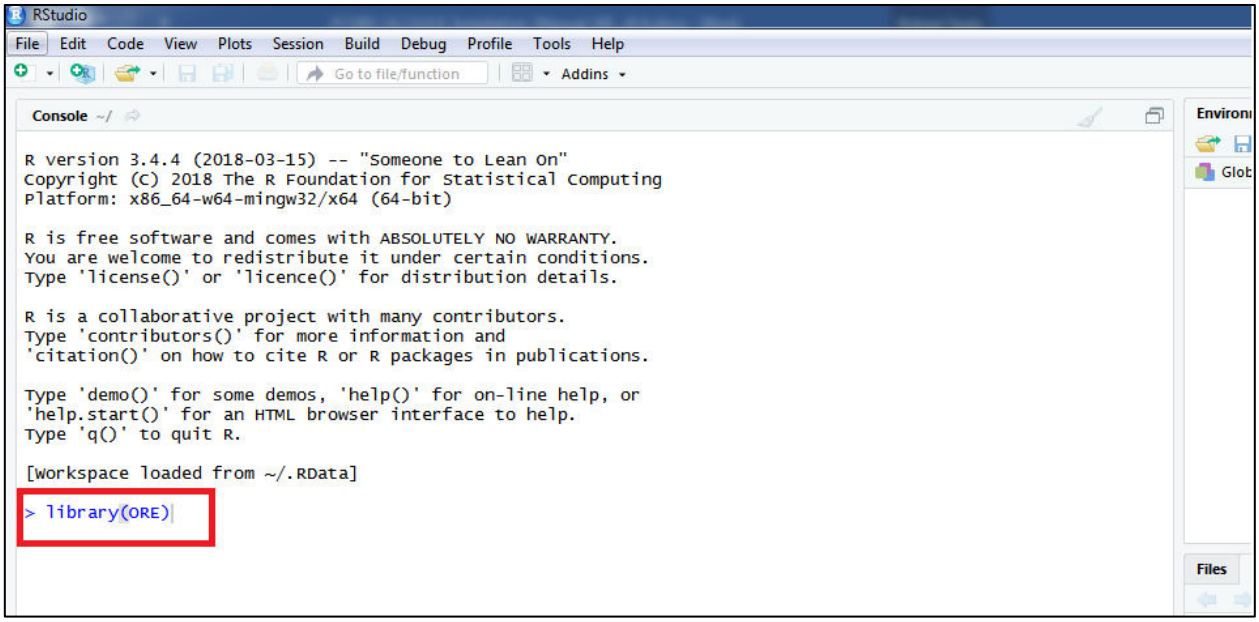
Oracle R Distribution (ORD):



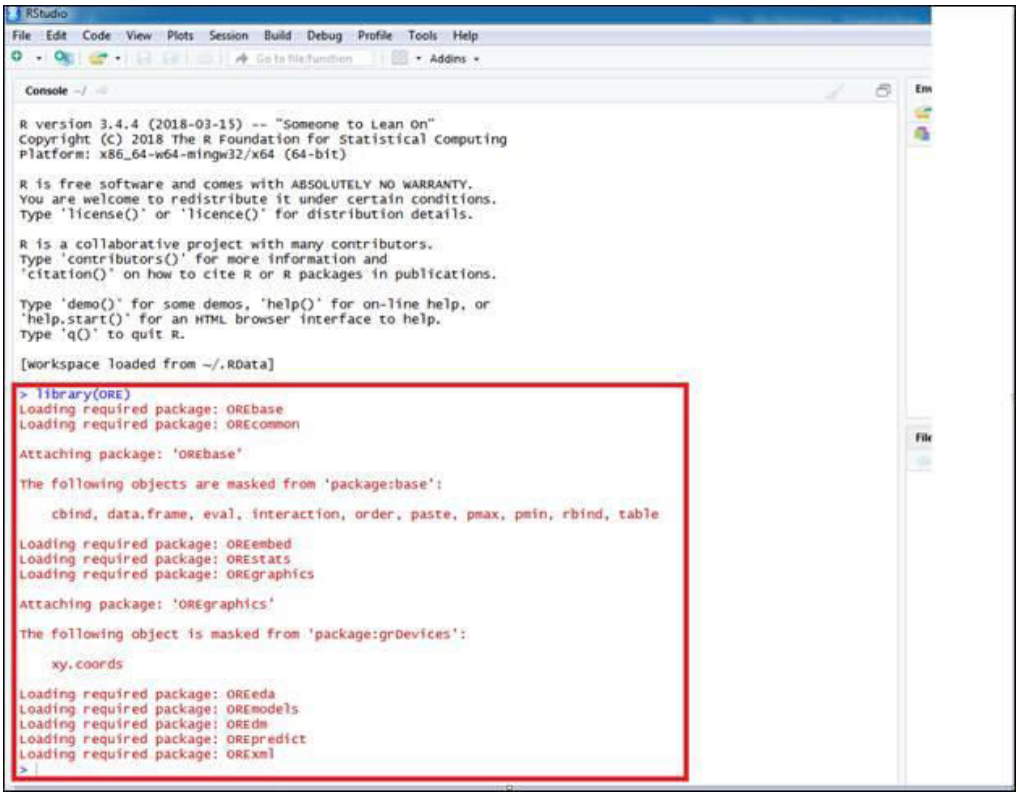
6.1.5.2 Loading ORE Library

1. From RStudio console, execute the below command.

```
> library(ORE)
```



2. Once executed, it will show the following output in the console.

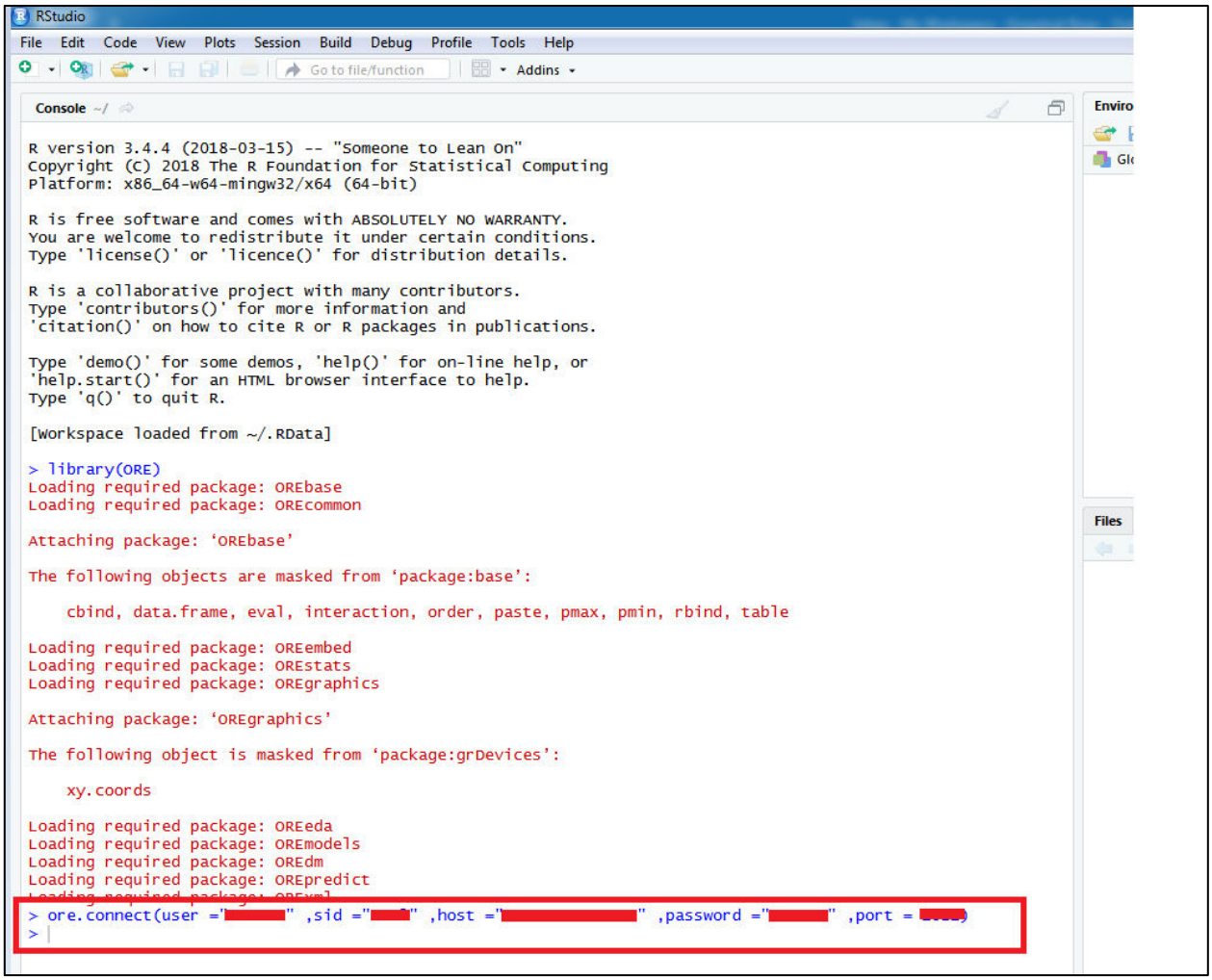


6.1.5.3 Connecting to the ORE Server

1. To connect the ORE server from the client machine, execute the below command.

ore.connect (user = <username>, sid =<sid>, host =<hostname>, password=<password>, port = <port>)

Note: *The credential created in step 6.1.2.1*

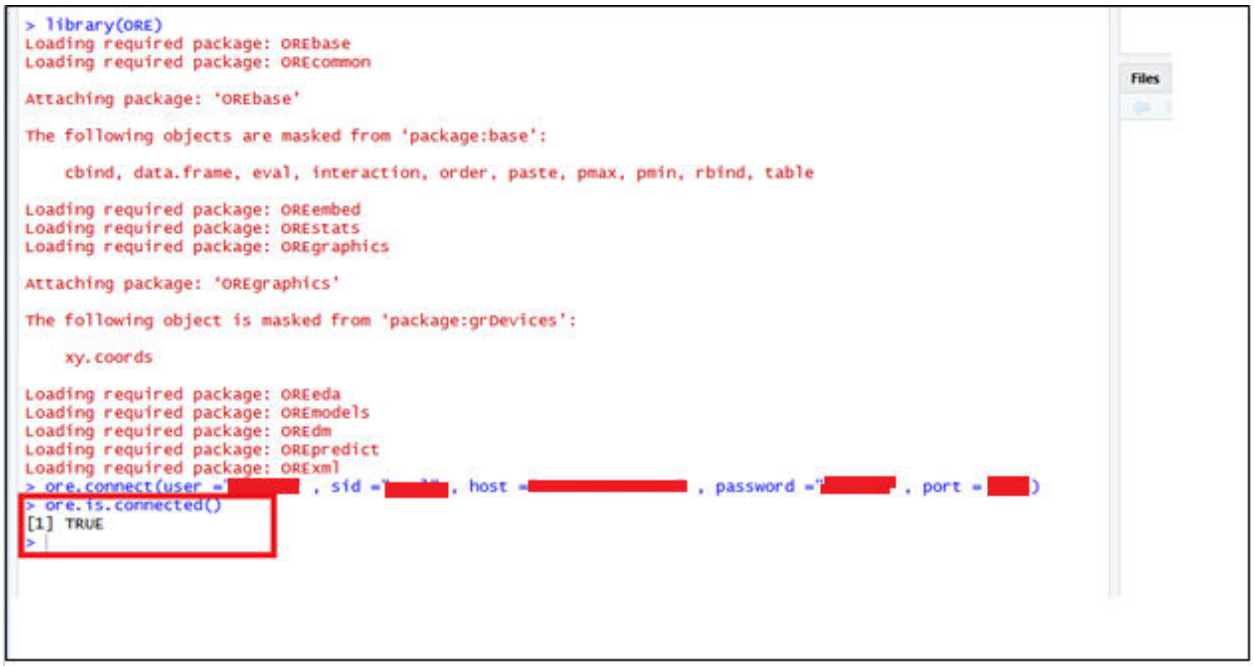


6.1.5.4 Testing the ORE Connection

1. To check if the ORE client is connected to the ORE server, execute the below command from the RStudio console.

   ore.is.connected()

2. It should return TRUE if the ORE connection is successful, otherwise, it will return FALSE.



6.1.5.5 *Download the FCUBSML wrapper script and save it in a local directory*

Example:- D:\FCUBSML

6.1.5.6 *Run ORE Scripts*

1. To run ORE scripts, execute the below commands from RStudio console with appropriate FCUBS wrapper source as per table given below.

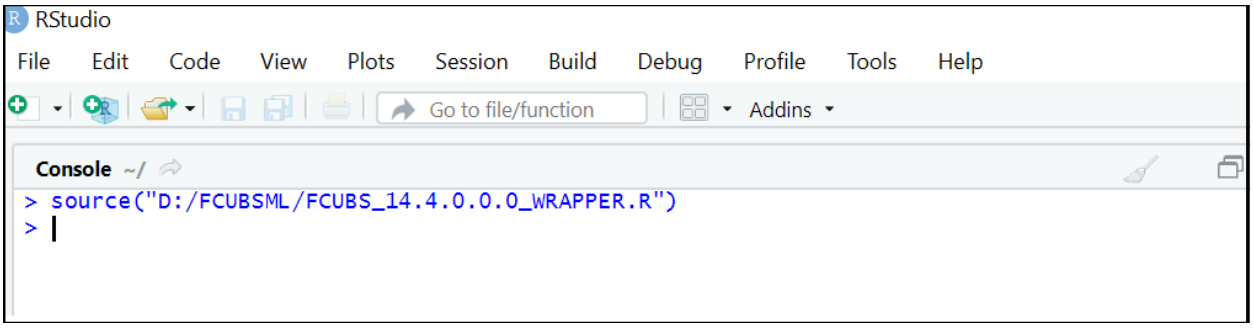
Linux Server Version	**FCUBS Wrapper source**
Oracle Linux server 7.1 (x86 64 bit)	FCUBS_14.4.0.0.0_WRAPPER.R
Oracle Linux server 8.1(x86 64 bit)	FCUBS_WRAPPER.R

Command Template and example:

>source("<directory_path>/<filename.R>")

Example:- source("D:/FCUBSML/FCUBS_14.4.0.0.0_WRAPPER.R")

Note: Please note the forward slash ("/")



6.2 FLEXCUBE Instance

6.2.1 Object Summary

No.	OBJECT TYPE	COUNT
1	Database Link	01
2	INC	13
3	Function IDs	04
4	View	01
	Total Object Count	**19**

6.2.2 Login to FLEXCUBE Instance

Connect to the FLEXCUBE Database using the required credentials.

6.2.3 Database Link

1. The database link FCUBSML must point to the machine learning user.
2. Edit the database link script FCUBSML.SQL with the machine learning user credentials created as part of section 6.1.2.1.
3. Execute the modified script FCUBSML.sql

Note: Do not change the Database link name FCUBSML

6.2.4 Execute the INSERT Scripts

Execute the INC scripts mentioned in section FLEXCUBE database objects, under section 5.1.2 below is the INC scripts.

1. SMTB_FUNCTION_DESCRIPTION.INC
2. ERTB_MSGS.INC
3. CSTB_OTHER_LABELS.INC
4. CSTB_SUMMARY_INFO.INC
5. SMTB_FCC_FCJ_MAPPING.INC

6. SMTB_MENU.INC
7. SMTB_ROLE_DETAIL.INC
8. STTB_AUDIT_PK_COLS.INC
9. CSTB_FID_DATA_BLOCKS.INC
10. CSTB_FIELD_LABELS.INC
11. CSTB_ITEM_DESC.INC
12. CSTB_LABELS.INC
13. CSTB_LOV_INFO.INC

6.2.5 FLEXCUBE User Interfaces

Refer to the standard Oracle FLEXCUBE Installation Manual for deploying these new user interface screens:

1. STDASHBC
2. STDASHAB
3. STDASHCD
4. STDDRMBE

6.2.6 Execute View Scripts

1. Parent_view.vw

6.3 Machine Learning Validation Checkpoints

6.3.1 Validate Database Tables

1. Log in to the Machine Learning schema and run the SQL query given below:

```
Select owner, object_name, object_type, status, created from all_objects
where object_name in
('MLTB_BRN_RISK','MLTB_BRN_SEGMENT','MLTB_CUST_ACQ_COST',
'MLTB_CUST_CHRN_LTV_SEG','MLTB_CUST_ICCF_INCOME','MLTB_DEBUG',
'MLTB_ENT_RISK','MLTB_ENT_SEGMENT','MLTB_MODEL_PERF_LOG','MLTB_PARAM',
'MLTB_RETAIL_CUST_ENG','MLTB_RETAIL_CUST_ENG_HIST',
'MLTB_RETAIL_CUST_TXN_TREND','MLTG_TREND_TXN_DATES',
'MLTM_STG_RETAIL_CUST_PROFILE','MLTB_PROC_STAT_DETAIL',
'MLTB_PROC_STAT_DETAIL_HIST','MLTB_PROC_STAT_MASTER',
'MLTB_PROC_STAT_MASTER_HIST','MLTB_STAT_DETAIL_PREV_RUN',
'MLTB_STAT_MASTER_PREV_RUN','
MLTB_DATA_TRANSFORM_JOB_PARAM','MLTB_PROD_CUST_SCORE',
'MLTG_PROD_CUST_SCORE_VAMI','MLTG_PROD_CUST_SCORE_ROLL',
'MLTG_PROD_CUST_SCORE_CLOS','MLTB_PROD_FEATURES')
```

2. The SQL query should return 27 rows with the following details.

OWNER	OBJECT NAME	OBJECT TYPE	STATUS	CREATED
< *Schema name*>	MLTB_BRN_RISK	TABLE	VALID	Creation Date

OWNER	OBJECT NAME	OBJECT TYPE	STATUS	CREATED
< *Schema name*>	MLTB_BRN_SEGMENT	TABLE	VALID	Creation Date
< *Schema name*>	MLTB_CUST_ACQ_COST	TABLE	VALID	Creation Date
< *Schema name*>	MLTB_CUST_CHRN_LTV_SEG	TABLE	VALID	Creation Date
< *Schema name*>	MLTB_CUST_ICCF_INCOME	TABLE	VALID	Creation Date
< *Schema name*>	MLTB_DEBUG	TABLE	VALID	Creation Date
< *Schema name*>	MLTB_ENT_RISK	TABLE	VALID	Creation Date
< *Schema name*>	MLTB_ENT_SEGMENT	TABLE	VALID	Creation Date
< *Schema name*>	MLTB_MODEL_PERF_LOG	TABLE	VALID	Creation Date
< *Schema name*>	MLTB_PARAM	TABLE	VALID	Creation Date
< *Schema name*>	MLTB_PROC_STAT_DETAIL	TABLE	VALID	Creation Date
< *Schema name*>	MLTB_PROC_STAT_DETAIL_HIST	TABLE	VALID	Creation Date
< *Schema name*>	MLTB_PROC_STAT_MASTER	TABLE	VALID	Creation Date
< *Schema name*>	MLTB_PROC_STAT_MASTER_HIST	TABLE	VALID	Creation Date
< *Schema name*>	MLTB_RETAIL_CUST_ENG	TABLE	VALID	Creation Date
< *Schema name*>	MLTB_RETAIL_CUST_ENG_HIST	TABLE	VALID	Creation Date
< *Schema name*>	MLTB_RETAIL_CUST_TXN_TREND	TABLE	VALID	Creation Date
< *Schema name*>	MLTB_STAT_DETAIL_PREV_RUN	TABLE	VALID	Creation Date
< *Schema name*>	MLTB_STAT_MASTER_PREV_RUN	TABLE	VALID	Creation Date
< *Schema name*>	MLTG_TREND_TXN_DATES	TABLE	VALID	Creation Date
< *Schema name*>	MLTM_STG_RETAIL_CUST_PROFILE	TABLE	VALID	Creation Date
< *Schema name*>	MLTB_DATA_TRANSFORM_JOB_PARAM	TABLE	VALID	Creation Date
< *Schema name*>	MLTB_PROD_CUST_SCORE	TABLE	VALID	Creation Date
< *Schema name*>	MLTG_PROD_CUST_SCORE_VAMI	TABLE	VALID	Creation Date
< *Schema name*>	MLTG_PROD_CUST_SCORE_ROLL	TABLE	VALID	Creation Date
< *Schema name*>	MLTG_PROD_CUST_SCORE_CLOS	TABLE	VALID	Creation Date
< *Schema name*>	MLTB_PROD_FEATURES	TABLE	VALID	Creation Date

6.3.2 Validate Views

1. Log in to the Machine Learning schema and run the SQL query given below:

```
Select owner, object_name, object_type, status, created from all_objects
where object_name in
('MLVW_BRN_SEG','MLVW_BRN_SEG_DET','MLVW_CUST_LTV_BANK',
'MLVW_CUST_LTV_SEG','MLVW_ENT_SEG','MLVW_ENT_SEG_DET',
'MLVW_RETAIL_CUST_ENG',' MLVW_PROD_DESC','PARENT_VIEW') ;
```

2. The SQL query should return 8 rows with the following details.

OWNER	OBJECT NAME	OBJECT TYPE	STATUS	CREATED
< *Schema name*>	MLVW_BRN_SEG	VIEW	VALID	Creation Date
< *Schema name*>	MLVW_BRN_SEG_DET	VIEW	VALID	Creation Date
< *Schema name*>	MLVW_CUST_LTV_BANK	VIEW	VALID	Creation Date
< *Schema name*>	MLVW_CUST_LTV_SEG	VIEW	VALID	Creation Date
< *Schema name*>	MLVW_ENT_SEG	VIEW	VALID	Creation Date
< *Schema name*>	MLVW_ENT_SEG_DET	VIEW	VALID	Creation Date

OWNER	OBJECT NAME	OBJECT TYPE	STATUS	CREATED
< *Schema name*>	MLVW_RETAIL_CUST_ENG	VIEW	VALID	Creation Date
< *Schema name*>	MLVW_PROD_DESC	VIEW	VALID	Creation Date
< *Schema name*>	PARENT_VIEW	VIEW	VALID	Creation Date

6.3.3 Validate PL/SQL Objects

1. Log in to the Machine Learning schema and run the SQL query given below:

   select owner,object_name,object_type,status,created
   from all_objects where object_name in
   ('MLPKS_DATA_TRANSFORMATION','MLPKS_PROD_TRANSFORMATION','PR_ML_DEBUG','
   FN_MODELCONEX')

2. The SQL query should produce the following result:

OWNER	OBJECT NAME	OBJECT TYPE	STATUS	CREATED
<*Schema name*>	MLPKS_DATA_TRANSFORMATION	PACKAGE	VALID	Creation Date
<*Schema name*>	MLPKS_DATA_TRANSFORMATION	PACKAGE BODY	VALID	Creation Date
<*Schema name*>	PR_ML_DEBUG	PROCEDURE	VALID	Creation Date
<*Schema name*>	FN_MODELCONEX	FUNCTION	VALID	Creation Date
<*Schema name*>	MLPKS_PROD_TRANSFORMATION	PACKAGE	VALID	Creation Date
<*Schema name*>	MLPKS_PROD_TRANSFORMATION	PACKAGE BODY	VALID	Creation Date

6.3.4 Validate OML4R (Previously ORE) Scripts

1. Log in to the Machine Learning schema and run the SQL query given below:

   *select * from user_rq_scripts ;*

2. The SQL query should produce the following result:

NAME	SCRIPT
ML_FCUBS_CUSCRN_ORE_BLD	<CLOB content>
ML_FCUBS_CUSCRN_ORE_EXEC	<CLOB content>
ML_FCUBS_CUSLTV_MARKOV_ORE	<CLOB content>
ML_FCUBS_CUSSEG_ORE_BLD	<CLOB content>
ML_FCUBS_PROD_REC_ORE_BLD	<CLOB content>
ML_FCUBS_PROD_REC_ORE_EXEC	<CLOB content>
ML_FCUBS_PROD_REC_CUST_COLD_ORE_EXE	<CLOB content>

6.4 FLEXCUBE Validation Checkpoints

6.4.1 Validate database link creation

1. Log in to the Machine Learning schema and run the SQL query given below.
   select DB_LINK,USERNAME, HOST, CREATED from user_db_links where DB_LINK='FCUBSML'

2. The SQL query should produce the following result:

DB_LINK	USERNAME	HOST	CREATED
FCUBSML.IN.ORACLE.COM	<username>	*<connection string>*	Creation Date

6.4.2 Validate database link credentials

1. Execute the following SQL query in FLEXCUBE database:
   select param_name, param_val from MLTB_PARAM@FCUBSML

2. It should produce the following result:

PARAM_NAME	PARAM_VAL
LOG_REQD	N

6.4.3 Validate FLEXCUBE Menu

1. Execute the following SQL query in FLEXCUBE database:
   select LANG_CODE,FUNCTION_ID,MAIN_MENU,SUB_MENU_1,SUB_MENU_2 , RAD_FUNCTION_ID
   from smtb_function_description where function_id in ('STDASHBC','STDASHAB','STDASHCD','STDDRMBE')

2. It should produce the following result:

LANG_CODE	FUNCTION_ID	MAIN_MENU	SUB_MENU_1	SUB_MENU_2	RAD_FUNCTION_ID
ENG	STDASHBC	Machine Learning Retail	Customer	Enterprise Dashboard	STDASHBC
ENG	STDASHAB	Machine Learning Retail	Customer	Branch Dashboard	STDASHAB
ENG	STDASHCD	Machine Learning Retail	Customer	Customer Query Board	STDASHCD
ENG	STDDRMBE	Machine Learning Retail	Customer	Model Execution and Control	STDDRMBE

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