Database Setup
Oracle Banking Liquidity Management
Release 14.1.0.0.0
[May] [2018]

ORACLE
FINANCIAL SERVICES

ORACLE

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1. LM Database Setup Configuration

1.1 Introduction

This chapter details out the configuration of LM Database.

1.2 Prerequisites

1.2.1 Software pre-requisites

Oracle Database 12c Enterprise Edition Release 12.2.0.1.0

1.2.2 Set a KeyStore location

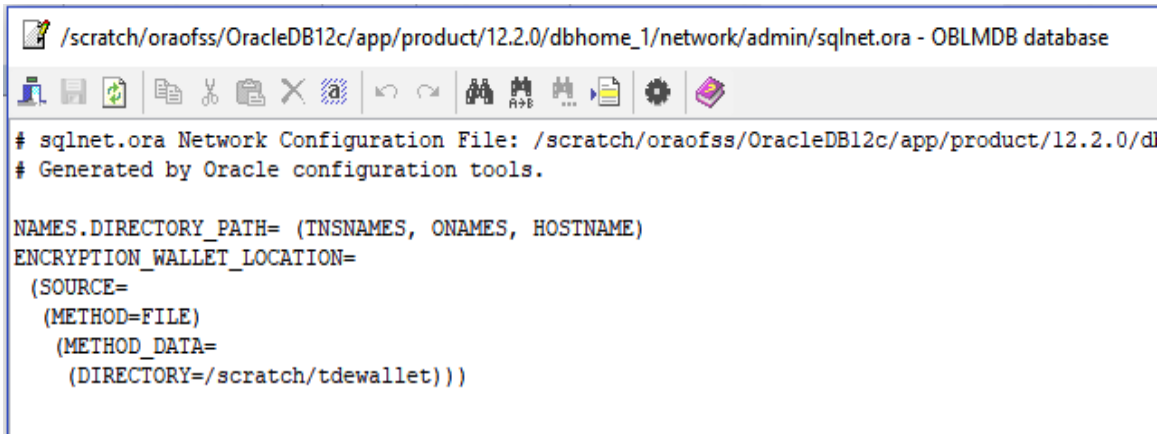
Set a KeyStore location in SQLNET.ORA (Database needs to be restarted after update)

a. Create a folder in server to create keystore. Example : /scratch/tdewallet
b. ORACLE_HOME/network/admin/SQLNET.ORA and add the entries specified below.

Entry to be added in SQLNET.ORA

```
ENCRYPTION_WALLET_LOCATION=

 (SOURCE=

  (METHOD=FILE)

   (METHOD_DATA=

    (DIRECTORY=path_to_keystore)))
```

Example



For configuring a software keystore for multiple databases that share the same SQLnet.ora file or for oracle automatic storage management please refer URL

https://docs.oracle.com/cloud/latest/db121/ASOAG/asotrans_config.htm#GUID-278422A5-1F77-4E82-B4A1-578F03AE30FD

1.2.3 Create the Software Keystore

a. Login as SYSKM or a user who has ADMINISTER KEY MANAGEMENT or SYSKM privilege.

```
-bash-4.2$ ./sqlplus syskm/lmoracle123@OBLMDB as syskm

SQL*Plus: Release 12.2.0.1.0 Production on Thu Mar 8 00:39:59 2018

Copyright (c) 1982, 2016, Oracle.  All rights reserved.


Connected to:
Oracle Database 12c Enterprise Edition Release 12.2.0.1.0 - 64bit Production
```

Run the following command to create a key store

```
ADMINISTER KEY MANAGEMENT CREATE KEYSTORE 'keystore_location'
IDENTIFIED BY software_keystore_password;
```

Example

```
SQL> ADMINISTER KEY MANAGEMENT CREATE KEYSTORE '/scratch/tdewallet' identified by lmoracle123;

keystore altered.
```

Check status of the keystore. Keystore status will be closed initially.

```
SQL> select WRL_PARAMETER,STATUS,WALLET_TYPE from v$encryption_wallet;

WRL_PARAMETER
--------------------------------------------------------------------------------
STATUS                         WALLET_TYPE
------------------------------ --------------------
/scratch/tdewallet2/
CLOSED                         UNKNOWN
```

1.2.4 Exit sqlplus and login again as syskm user

```
SQL> exit
Disconnected from Oracle Database 12c Enterprise Edition Release 12.2.0.1.0 - 64bit Production
-bash-4.2$ ./sqlplus syskm/lmoracle123@OBLMDB as syskm

SQL*Plus: Release 12.2.0.1.0 Production on Thu Mar 8 00:44:12 2018

Copyright (c) 1982, 2016, Oracle.  All rights reserved.


Connected to:
Oracle Database 12c Enterprise Edition Release 12.2.0.1.0 - 64bit Production
```

1.2.5 Open the Software Keystore

ADMINISTER KEY MANAGEMENT SET KEYSTORE OPEN IDENTIFIED BY <<Password>>;

```
SQL> ADMINISTER KEY MANAGEMENT SET KEYSTORE OPEN IDENTIFIED BY lmoracle123;

keystore altered.
```

Check the status of keystore. Keystore status will be marked as **OPEN_NO_MASTER_KEY**

```
SQL> select WRL_PARAMETER,STATUS,WALLET_TYPE from v$encryption_wallet;

WRL_PARAMETER
--------------------------------------------------------------------------------
STATUS                         WALLET_TYPE
------------------------------ --------------------
/scratch/tdewallet2/
OPEN_NO_MASTER_KEY             PASSWORD
```

1.2.6 Set the Software TDE Master Encryption Key

ADMINISTER KEY MANAGEMENT SET KEY IDENTIFIED BY <<Password>> WITH BACKUP USING '<<Backupkey name>>';

```
SQL> ADMINISTER KEY MANAGEMENT SET KEY IDENTIFIED BY lmoracle123 WITH BACKUP USING 'oblmkeybkup';

keystore altered.
```

Check the status of keystore. Keystore status will be marked as **OPEN**

```
SQL> select WRL_PARAMETER,STATUS,WALLET_TYPE from v$encryption_wallet;

WRL_PARAMETER
--------------------------------------------------------------------------------
STATUS                         WALLET_TYPE
------------------------------ --------------------
/scratch/tdewallet2/
OPEN                           PASSWORD
```

Check if encryption key is created by this query

```
SQL> select KEY_ID, CREATOR_DBNAME,ACTIVATING_PDBNAME from v$encryption_keys;

KEY_ID
--------------------------------------------------------------------------------
CREATOR_DBNAME
--------------------------------------------------------------------------------
ACTIVATING_PDBNAME
--------------------------------------------------------------------------------
Adi8c51fIk+Hv57BVDqTPNYAAAAAAAAAAAAAAAAAAAAAAAAAAAA
OBLMDB
```

1.2.7 Create an Auto-Login Software Keystore

```
SQL> ADMINISTER KEY MANAGEMENT CREATE LOCAL AUTO_LOGIN KEYSTORE FROM KEYSTORE '/
scratch/tdewallet2' identified by lmoracle123;

keystore altered.
```

Check the WALLET_TYPE. WALLET_TYPE will be **LOCAL_AUTOLOGIN**

```
SQL> select WRL_PARAMETER,STATUS,WALLET_TYPE from v$encryption_wallet;

WRL_PARAMETER
--------------------------------------------------------------------------------
STATUS                         WALLET_TYPE
------------------------------ --------------------
/scratch/tdewallet2/
OPEN                           LOCAL_AUTOLOGIN
```

1.2.8 Create and Encrypt tablespace

create tablespace <<Tablespace name>> datafile '<<datafile location>>/<<tablespacefilename>>.dbf' size 50m autoextend on maxsize unlimited extent management local uniform size 1m ENCRYPTION USING 'AES256' DEFAULT STORAGE (ENCRYPT);

Example

```
SQL> create tablespace OBLMTDETS datafile '/scratch/oraofss/OracleDB12c/app/oradata/OBLMDB/OBLMTDETS.dbf' size 50m autoextend on maxsize unlimited extent management loc
al uniform size 1m ENCRYPTION USING 'AES256' DEFAULT STORAGE (ENCRYPT);

Tablespace created.
```

Check the encryption status from this query

```
select ts#,
       name,
       decode(online$, 1, 'online', 2, 'offline', 3, 'dropped') status,
       decode(bitand(flags, 16384), 16384, 'YES') encrypted
  from ts$
 where name = 'OBLMTDETS1';
```

```
SQL> select ts#, name, decode(online$,1,'online',2,'offline',3,'dropped') status
,decode(bitand(flags,16384),16384,'YES') encrypted from ts$ where name='OBLMTDET
S1';

       TS# NAME                           STATUS  ENC
---------- ------------------------------ ------- ---
       170 OBLMTDETS1                     online  YES
```

1.2.9 Create User

Create the user

Example:

create user <user_name> identified by <password> default tablespace <tablespace> temporary tablespace <tablespace> quota unlimited on <tablespace>;

1.2.10 Grant Privileges

Ensure that all the following grants are given to the DB schema before running *setup.plb*.

grant execute on dbms_sql to <schema_service_name>;

grant execute on dbms_lock to <schema_service_name>;

grant execute on dbms_job to <schema_service_name>;

grant execute on dbms_alert to <schema_service_name>;

grant execute on dbms_refresh to <schema_service_name>;

grant execute on dbms_pipe to <schema_service_name>;

grant execute on dbms_shared_pool to <schema_service_name>;

grant execute on dbms_application_info to <schema_service_name>;

grant execute on utl_file to <schema_service_name>;

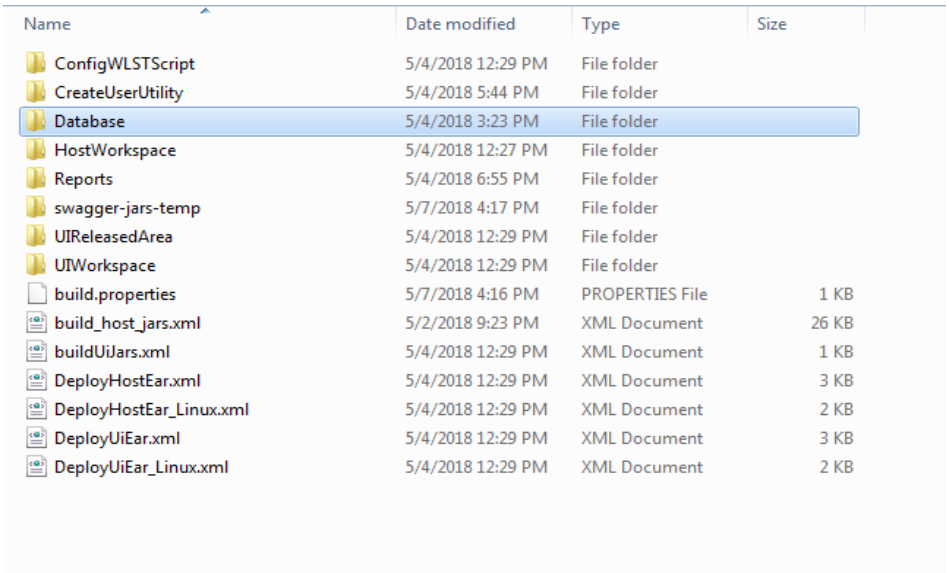
grant select on v_$process to <schema_service_name>;

grant select on v_$session to <schema_service_name>;

grant select on v_$timer to <schema_service_name>;
grant select on v_$database to <schema_service_name>;
grant select on v_$parameter to <schema_service_name>;
grant select on v_$nls_parameters to <schema_service_name>;
grant select on v_$instance to <schema_service_name>;
grant select on dba_jobs_running to <schema_service_name>;
grant create session to <schema_service_name>;
grant create synonym to <schema_service_name>;
grant execute on dbms_shared_pool to <schema_service_name>;
grant create view to <schema_service_name>;
grant create sequence to <schema_service_name>;
grant create table to <schema_service_name>;
grant create procedure to <schema_service_name>;
grant create trigger to <schema_service_name>;
grant create type to <schema_service_name>;
grant create library to <schema_service_name>;
grant create database link to <schema_service_name>;
grant select on v_$instance to <schema_service_name>;
grant create any synonym to <schema_service_name>;
grant select any table to <schema_service_name>;
grant execute on dbms_shared_pool to <schema_service_name>;
grant all on dbms_aqadm to <schema_service_name>;
grant all on dbms_aq to <schema_service_name>;
grant aq_administrator_role to <schema_service_name>;
grant aq_user_role to <schema_service_name>;
grant imp_full_database to <schema_service_name>;
grant execute on dbms_monitor to <schema_service_name>;
grant all on redaction_policies to <schema_service_name>;
grant all on redaction_columns to <schema_service_name>;
grant all on dbms_redact to <schema_service_name>;

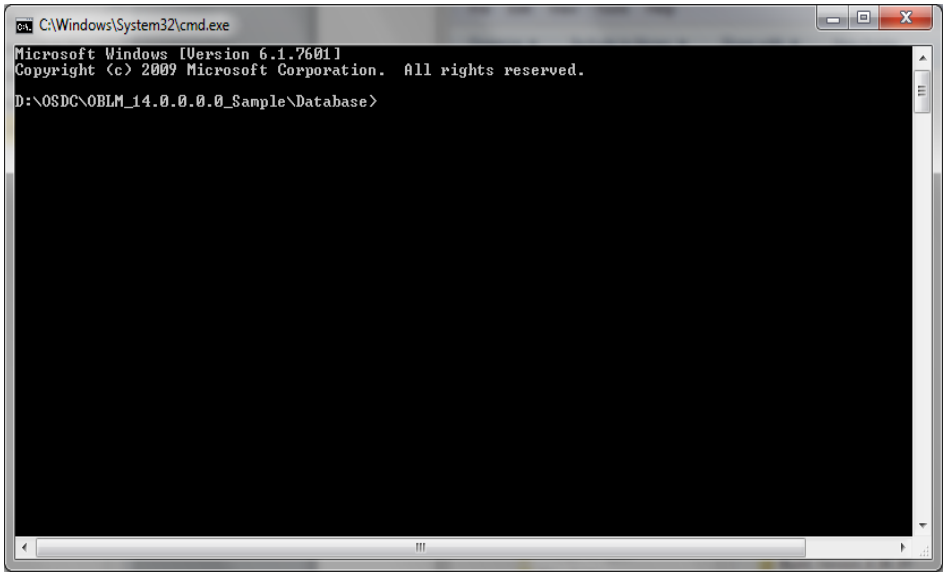
1.3 Steps to be followed

1. Go to OSDC package and select the Database folder present inside OBLM (OBLM-> Database).



Name	Date modified	Type	Size
ConfigWLSTScript	5/4/2018 12:29 PM	File folder	
CreateUserUtility	5/4/2018 5:44 PM	File folder	
Database	5/4/2018 3:23 PM	File folder	
HostWorkspace	5/4/2018 12:27 PM	File folder	
Reports	5/4/2018 6:55 PM	File folder	
swagger-jars-temp	5/7/2018 4:17 PM	File folder	
UIReleasedArea	5/4/2018 12:29 PM	File folder	
UIWorkspace	5/4/2018 12:29 PM	File folder	
build.properties	5/7/2018 4:16 PM	PROPERTIES File	1 KB
build_host_jars.xml	5/2/2018 9:23 PM	XML Document	26 KB
buildUiJars.xml	5/4/2018 12:29 PM	XML Document	1 KB
DeployHostEar.xml	5/4/2018 12:29 PM	XML Document	3 KB
DeployHostEar_Linux.xml	5/4/2018 12:29 PM	XML Document	2 KB
DeployUiEar.xml	5/4/2018 12:29 PM	XML Document	3 KB
DeployUiEar_Linux.xml	5/4/2018 12:29 PM	XML Document	2 KB

2. Right Click and Select the **"CMD Prompt Here as Administrator"** to open the Command Prompt

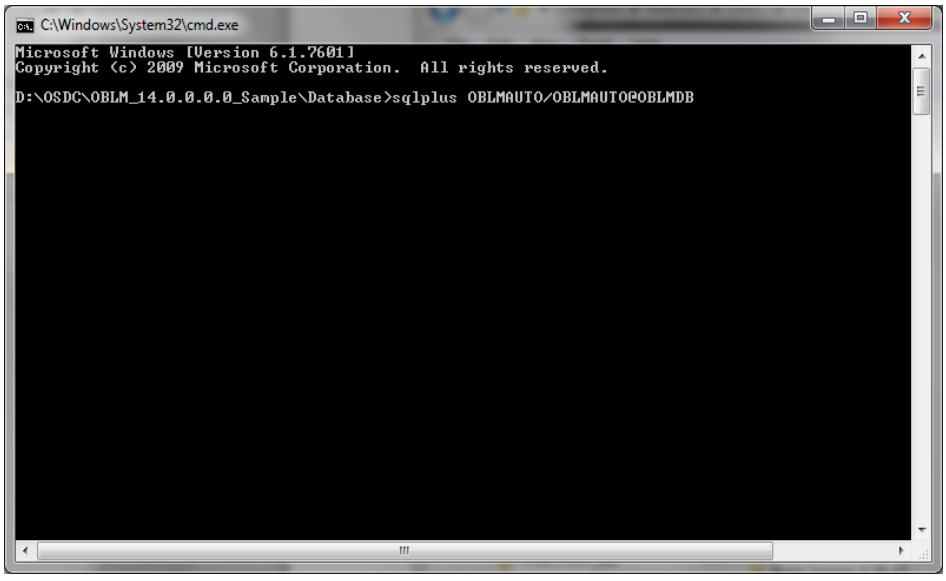


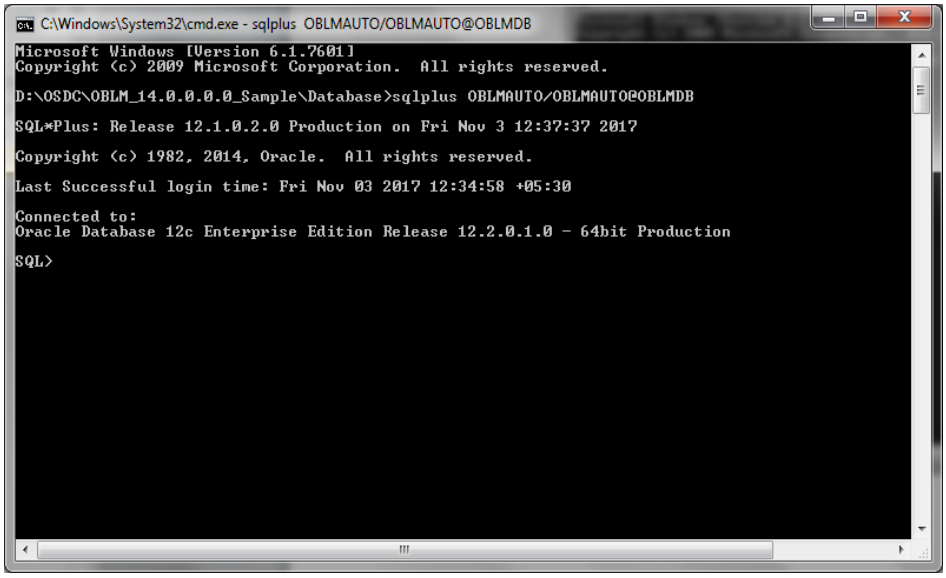
NOTE: Linux users open terminal

3. **Run the following command:**

sqlplus <username>/<password>@<schema_name>

(To run the *sqlplus* command you should have the Oracle Database Client installed in your machine)





NOTE: Linux users follow these steps.

i. For **bash (/bin/bash)** users:

a. Export ORACLE_HOME variable to the path pointing to *client_1* (for e.g. …/app/oracle_client/product/12.1.0/client_1) folder of Oracle Database Client installation by executing the following command.

export ORACLE_HOME=<path_to_client_1>

b. Execute the following command:

export PATH=$ORACLE_HOME/bin:$PATH

ii. For **csh (/bin/csh)** users:

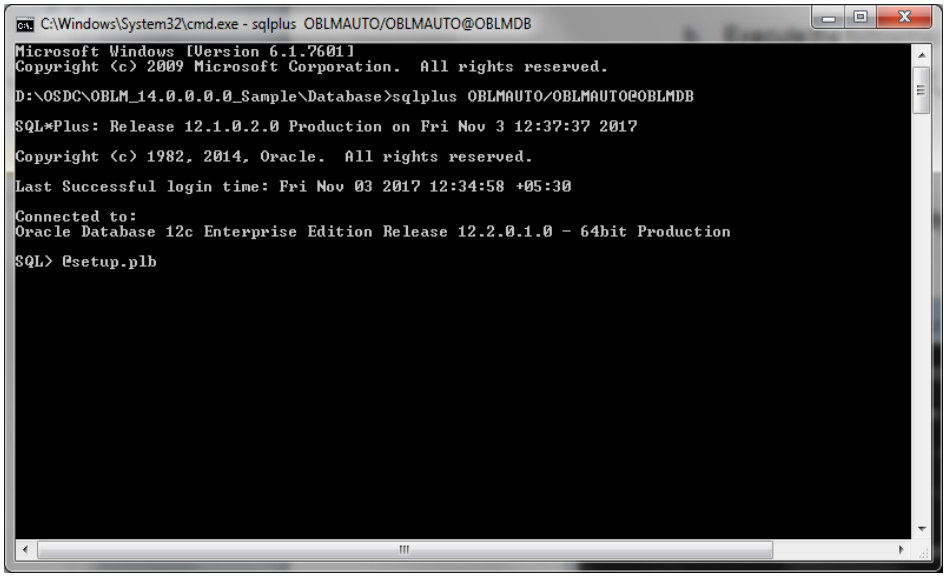
a. Set ORACLE_HOME variable to the path pointing to *client_1* (for e.g. …/app/oracle_client/product/12.1.0/client_1) folder of Oracle Database Client installation by executing the following command.

set ORACLE_HOME=<path_to_client_1>

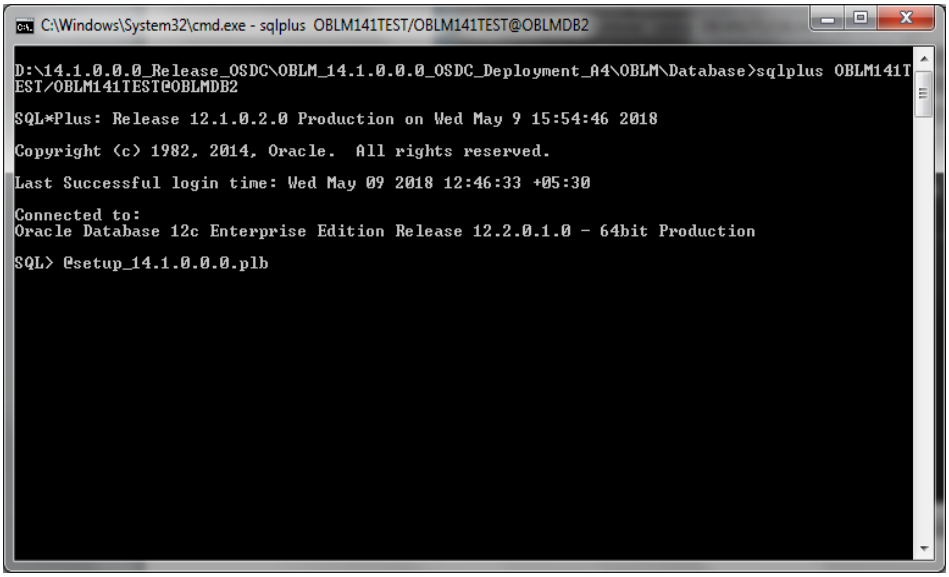
b. Execute the following command:

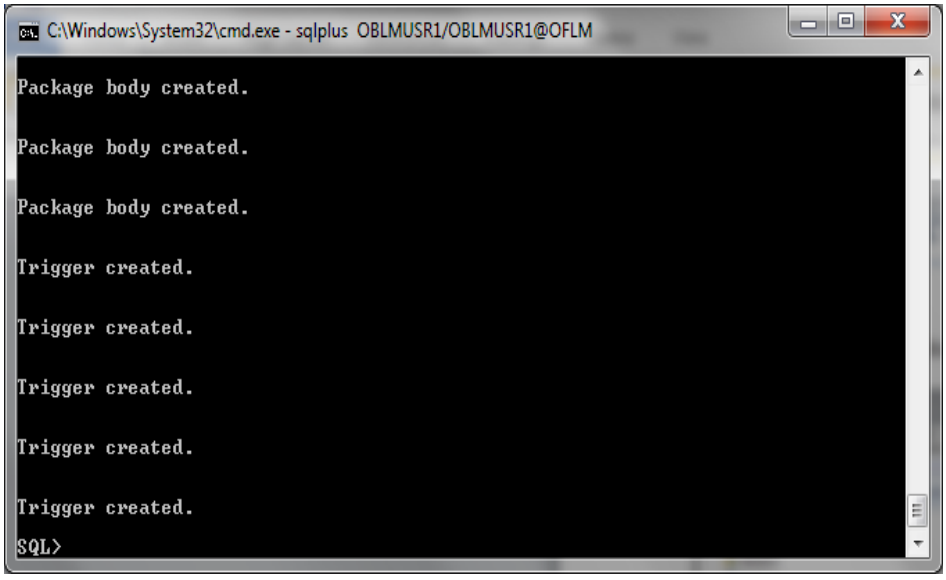
set PATH=$ORACLE_HOME/bin:$PATH

4. If you are installing from scratch then, **execute the setup.plb file by running the following command.**



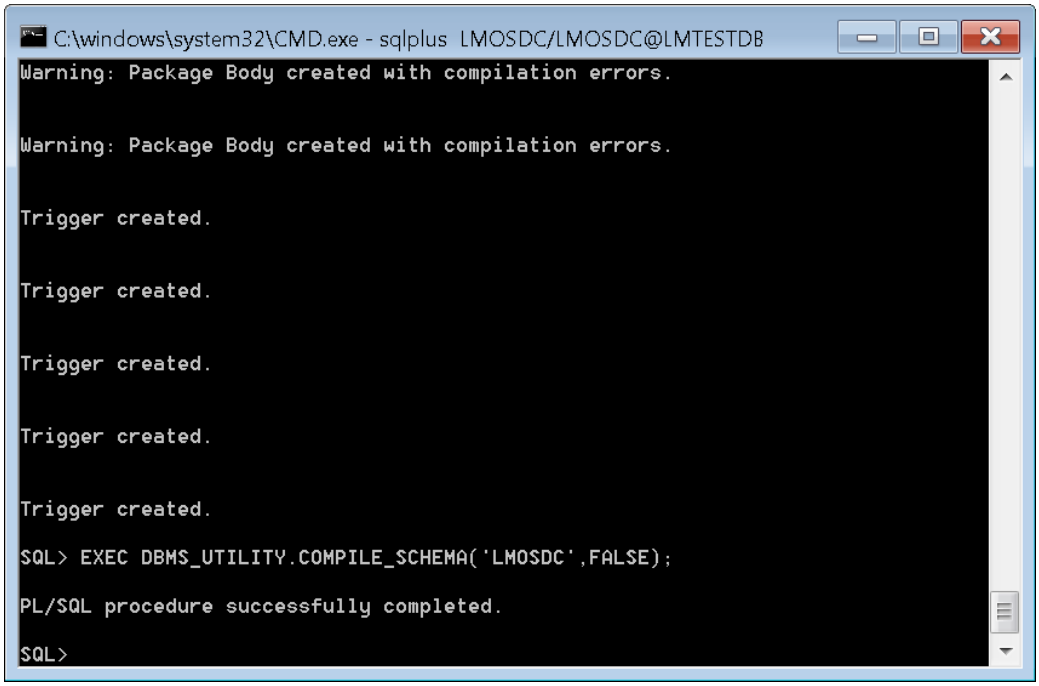
****NOTE:** If you already have an existing OBLM setup and has had applied all the previous patchsets (untill OBLM_14.0.0.0.2) then only **execute setup_14.1.0.0.0.plb file.**





5. **Compile the invalid objects by executing this command**

EXEC DBMS_UTILITY.COMPILE_SCHEMA('<SCHEMA_NAME>',FALSE);



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Oracle Banking Liquidity Management
Version 14.1.0.0.0
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