Setting up Database
Oracle FLEXCUBE Enterprise Limits and Collateral Management
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1. Setting up Database

1.1 Introduction

This document explains the steps to install the Host and Branch database. These steps include Load objects, Import Dump, Basic Setup, and Clone Database.

This tool automates the creation of the database. The database created using this tool will have the database objects and the corresponding data required for the following application.

- Oracle FLEXCUBE Enterprise Limits and Collaterals

1.2 Prerequisites

Following are the prerequisites for installing decentralize branch database:

Prerequisite	Description
Operating System	Windows 2000 / Windows XP / Windows 7, UNIX

Note the following:

- Ensure that Oracle FLEXCUBE Schema (Branch) and database connectivity details are as per the standards.
- Make sure that Oracle FLEXCUBE Schema and database connectivity exist as per the norms in 'TNSNAMES.ORA' file of Oracle 11g Client or later versions.
- During the setup, service/DB jobs should not be running in the schema. If some services are still running in the schema, use 'exec dbms_job.remove('||job||');' from user_jobs.

1.3 Pre-Installation Tasks

1.3.1 Purpose

To guide DBA to setup the database for Oracle FLEXCUBE and to do the routine DBA basic activities for the following DB version:

DB version	Refer Release Certificate
Oracle FLEXCUBE version	Oracle Database 11g Enterprise Edition(Latest Qualified Version) - 64bit Production

Note: For details on latest version of the software qualified with Oracle FLEXCUBE, refer to the release certificate.

1.3.2 Setting up Database for Oracle FLEXCUBE

This section guides you through the steps to setup database for Oracle FLEXCUBE.

1.3.2.1 Environment Setup Phase

Following are the main Kernel and database initialization parameters that you need to setup as part of the environment.

Sun Solaris Kernel Parameters

Kernel Parameter	Suggested Starting Value	Description
SHMMAX	4294967295 or 70% of physical memory (whichever is larger)	Maximum size of a single shared memory segment
SHMMIN	1	Minimum size of a single shared memory segment
SHMMNI	100	Maximum number of shared memory segments in entire system
SHMSEG	10	Maximum number of shared memory segments one process can attach
SEMMNS	2000	Maximum number of semaphores in entire system
SEMMSL	1000	Maximum number of semaphores per set
SEMMNI	100	Maximum number of semaphore sets in entire system
Swap Space	Twice the physical memory present	
Patches	Verify as per Oracle's platform specific release notes	

IBM AIX Kernel Parameters

Unlike other UNIX platforms, AIX does not have the ability to directly configure Kernel parameters. Instead, the AIX Kernel dynamically allocates and reallocates resources as they are needed, up to a predefined limit, making the traditional practice of tuning parameters unnecessary. The only tuneable Kernel parameter is 'maxuprc' (maximum number of processes per user ID) which can be modified via SMIT (AIX's menu-based system administration utility) or the command line utility.

Swap Space	Twice the Physical memory present
Patches	Verify as per Oracle's platform specific release notes

HP UNIX Kernel Parameters

Kernel Parameter	Suggested Starting Value	Description
aio_max_ops	2048	Maximum number of queued AIO ops

Kernel Parameter	Suggested Starting Value	Description
dbc_min_pct	2	Minimum percentage of system memory used for buffer cache
dbc_max_pct	ensure <= 128MB	Maximum percentage of system memory used for buffer cache
Fsasync	0	Asynchronous i/o on file systems
max_async_ports	1024	Maximum ports for asynchronous I/O operations
maxdsiz64	1Gb	Shadow process heap size
Maxfiles	512	Soft limit number of open files per process
maxfiles_limit	1024	Hard limit number of open files per process
Maxusers	no of Oracle connections+64	Influences nproc, nfile, ninode and maxuprc
Maxuprc	maxusers*5	Number of processes per user ID
nfile	use SAM formula	Open files system wide
Nflocks	>= (200 + (sum of db files))	File locks system wide
Nproc	use SAM formula	Processes system wide
Shmmax	4294967295	Maximum size of a single shared memory segment
Swap Space	Twice the physical memory present	
Patches	Verify as per Oracle's platform specific release notes	

1.3.2.2 Database Setup

This section contains the following details:

- Create database using Oracle DBCA utility with jvm and xdb options and NLS as UTF
- Create Oracle FLEXCUBE schema
- Storage for Oracle FLEXCUBE schema

TABLESPACES	Storage %	Table Space Name	Table Space Type	Extent Size (KB)	Extent Allocation Type	Segment Space Management
FCC Data	60%	FCCDATASML 15% or 4 GB	DATA	128 1024	UNIFORM	AUTO

TABLESPACES	Storage %	Table Space Name	Table Space Type	Extent Size (KB)	Extent Allocation Type	Segment Space Management
		FCCDATAMED 25% or 20 GB FCCDATALAR 60%		5120		
FCC Index	40%	FCCINDXSML 15% or 4 GB FCCINDXMED 25% or 20 GB FCCINDXLAR 60%	INDEX	128 512 5120	UNIFORM	AUTO
System	5 GB	SYSTEM	SYSTEM		Not applicable	Not applicable
Temporary	5 GB	TEMP	TEMP	1024	Not applicable	Not applicable
Undo	5 GB	UNDO	UNDO		Not applicable	Not applicable

Note: The storage parameters for FCC Data and FCC Index table spaces are provided as percentage. The exact sizing for these table spaces need to be worked out based on the sizing of Oracle FLEXCUBE, which is a factor of volumes at the bank.

For the parameters to be set at the database level for Oracle FLEXCUBE, refer to the excel sheet 'Initparameters_to_change.xls'.

Granting Rights to Oracle FLEXCUBE Schema

You need to disable the password case sensitivity and grant rights to the schema. While doing this, ensure that you are connected to the database as 'sys' user.

Before granting rights to the schema, you need to execute the following command:

ALTER SYSTEM SET SEC_CASE_SENSITIVE_LOGON = FALSE;

Note: The above command should be executed if the database is Oracle 11G and the application server is Oracle SOA Suite. This command disables the case sensitivity of the schema password.

Further, execute the following script to grant rights to the schema. This should also be executed while connected as "sys" user to the database.

Refer 'grants_dbms.sql' file.

Listener and Tnsentries Setup

Create the Listener and Tnsentries using Oracle net manager utility.

Invalid Objects and Recompile

Find all the invalid objects and recompile the invalid units using the following syntax.

exec utl_recomp.recomp_parallel(4, 'FCUBS_SCHEMA')

Note:

- Here, 'FCUBS_SCHEMA' is an example for the name of the schema created for FCUBS data installation.
- Before executing the above command, ensure that you are connected as a sys/sysdba user.

Database Statistics Gathering

The script for gathering database statistics creates two jobs. Once job gathers the DICTIONARY_STATS of the instance and the other job gathers the Oracle FLEXCUBE schema stats. The script is given below:

Refer 'StatsJobs.sql' file.

You need to run the 'StatsJobs.sql' in the user schema. GRANTS for DBMS_STATS should be given before running this script.

1.4 Before Getting Started

Before going to the next step, you need to run the command given below:

Go to **Start > Run** on your system and enter the command given below and press Enter key:

Sqlplus (schema_name)/(password)@(connect_string)

Example

Suppose that you are connecting to a schema FCUBS (schema_name). The password is FCUBS and connect string is FCUBS.WORLD (connect_string). In that case, you need to run the following command:

Sqlplus FCUBS/FCUBS@FCUBS.WORLD

Ensure that you are able to connect to the schema without errors. Also, check the SQL* Plus version is Latest Qualified Version.

Note: For details on latest version of the software qualified with Oracle FLEXCUBE, refer to the release certificate.

2. Setting up ELCM Database

2.1 Introduction

This chapter explains the steps to setup ELCM database.

2.2 Creating ELCM Schema by Importing Full Dump

You can create the ELCM schema by way of a full dump import. This is a manual activity. For details, refer to the section 'Creating Oracle FLEXCUBE Schema by Importing Full Dump'. You may follow the same steps for ELCM database setup.

2.3 Creating ELCM Schema from Shipment media

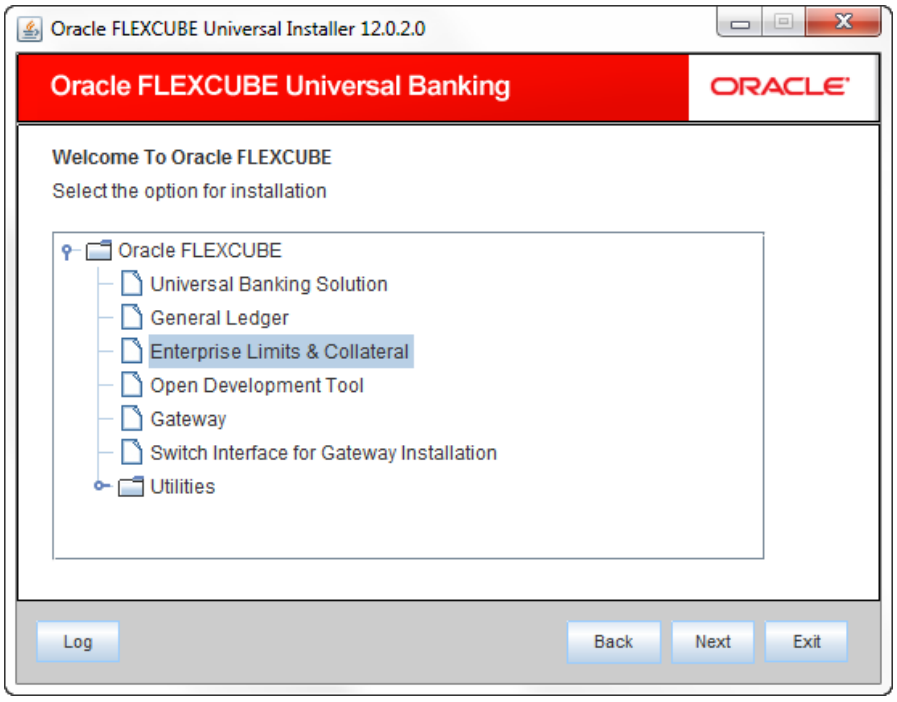
You can create the ELCM schema by loading the objects from the shipment media itself. The method is described under the following headings.

2.3.1.1 Loading Objects from Shipment media

This section explains the steps to load objects for setting up the ELCM database. Database installation includes the provision of schema details and source of objects.

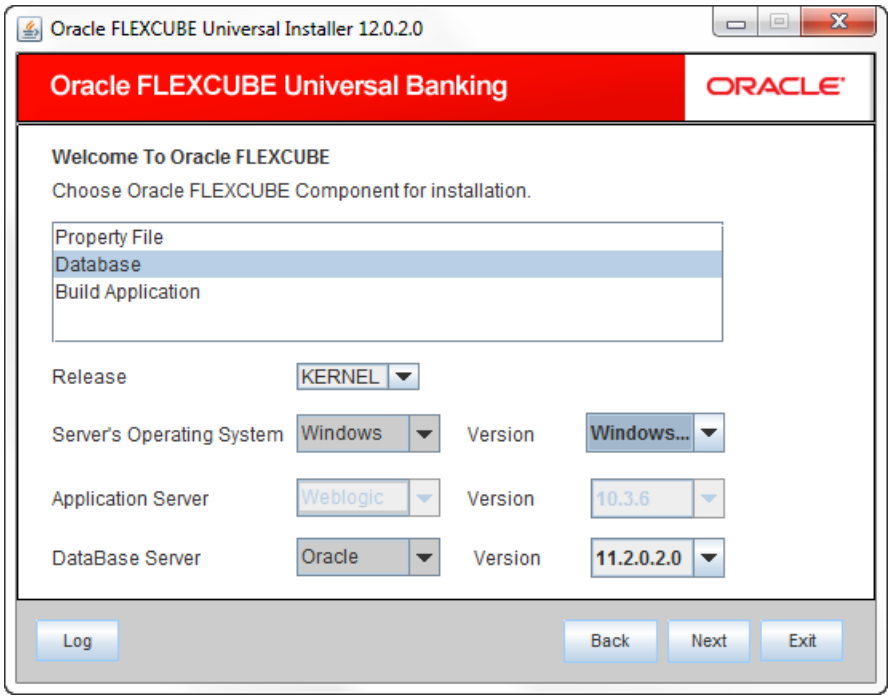
The steps to load objects from the Shipment Media are given below:

1. Launch Oracle FLEXCUBE Universal Banking Solution Installer.



2. Choose 'Enterprise Limits & Collaterals'. Click 'Next'.

The following screen is displayed:



3. Choose ‘Database Setup’.
4. Specify the following details:

Operating System and Version

Specify the operating system in which you are installing Oracle FLEXCUBE.

You also need to specify the version of the operating system.

Application Server and Version

Specify the application server on which you are installing Oracle FLEXCUBE. You also need to specify the version of the application server.

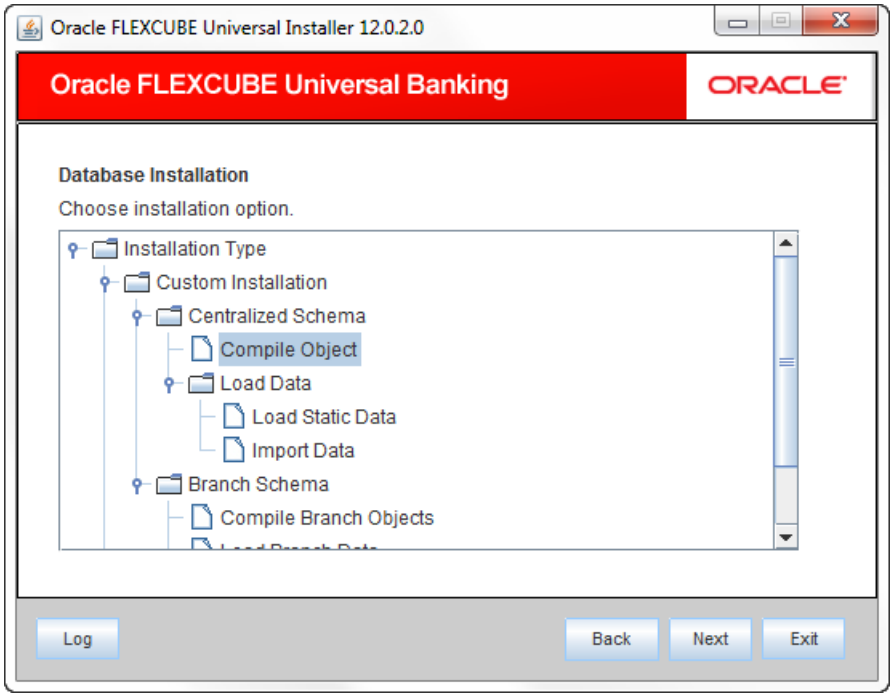
Database Server and Version

Specify the database server on which you are installing Oracle FLEXCUBE. You also need to specify the version of the database server.

Release

Specify the release which you want to install. Choose the appropriate one from the drop-down list.The list takes two values KERNEL and VN Cluster.

5. Once you have specified the above details, click ‘Next’. The following screen is displayed:



As you see on this screen, you can install Oracle FGL in two methods:

- Custom Installation
- Template Installation

6. Select the appropriate installation method and click ‘Next’.

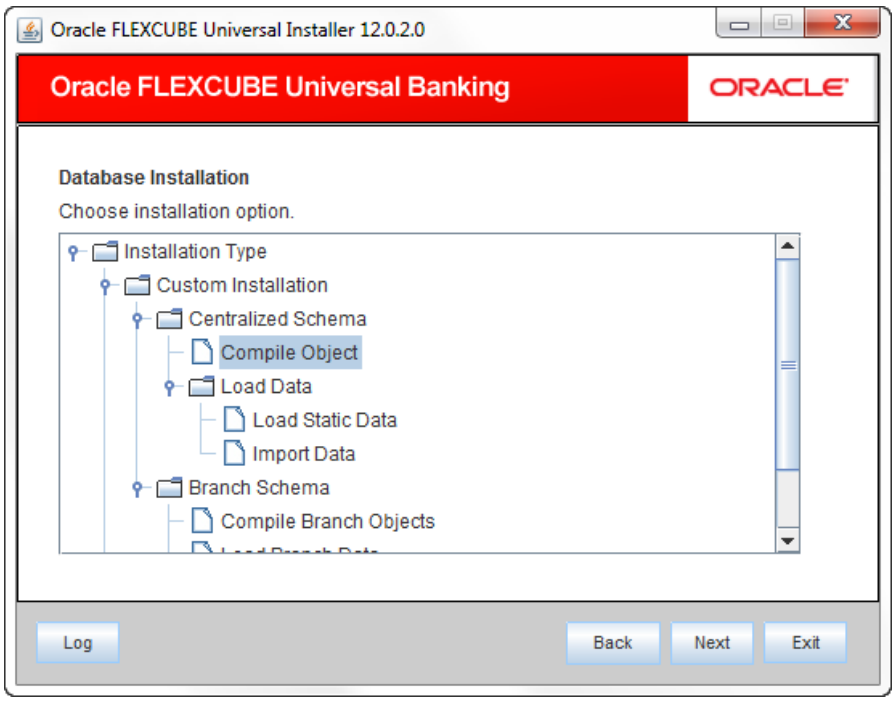
Template installation is performed through Oracle DBCA tool.

2.3.2 Custom Installation

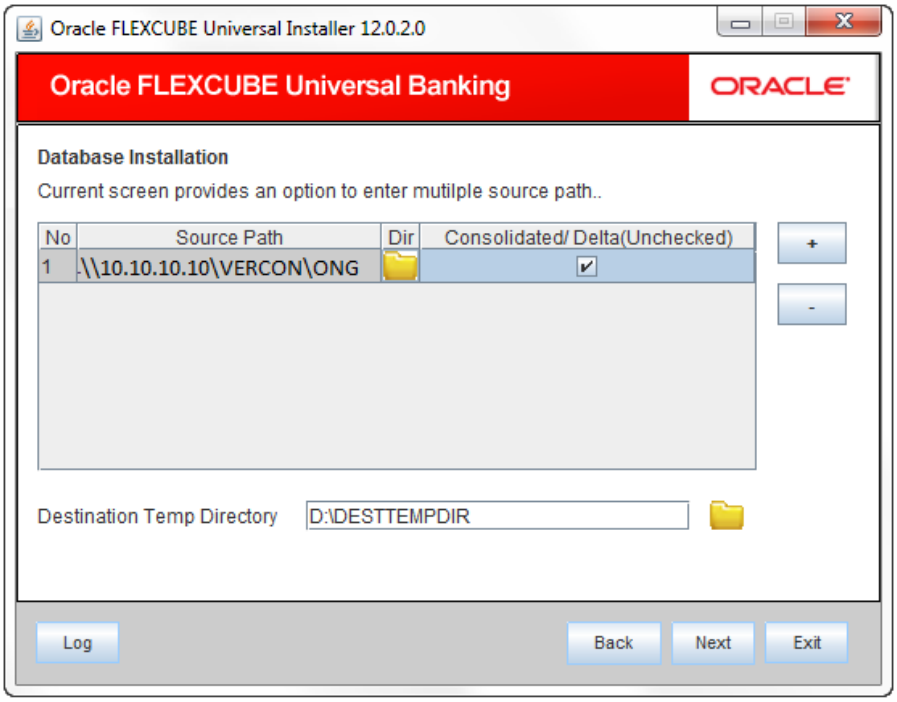
The Oracle FLEXCUBE Universal Solutions installer supports custom installation of Oracle FLEXCUBE in two methods:

- Compile objects and load static data into the database
- Load objects and data by importing data and objects from the import file

1. Select the installation type ‘Custom Installation’.



2. Select ‘Compile Objects’ under ‘Custom Installation’ and click ‘Next’. The following screen is displayed.



3. Specify the following details:

Source Path

Specify the source directory location. The source directory should have the ‘MAIN’ folder and the contents. Use the directory icon to browse the source directory.

Destination Temp Directory

Specify the destination directory. Use the directory icon to browse the destination directory.

Consolidated

Check this box if you are going for a consolidated installation.

In case you need to compile a single patch into the database, you can leave this box unchecked and specify the source of the patch in the field 'Source Directory'.

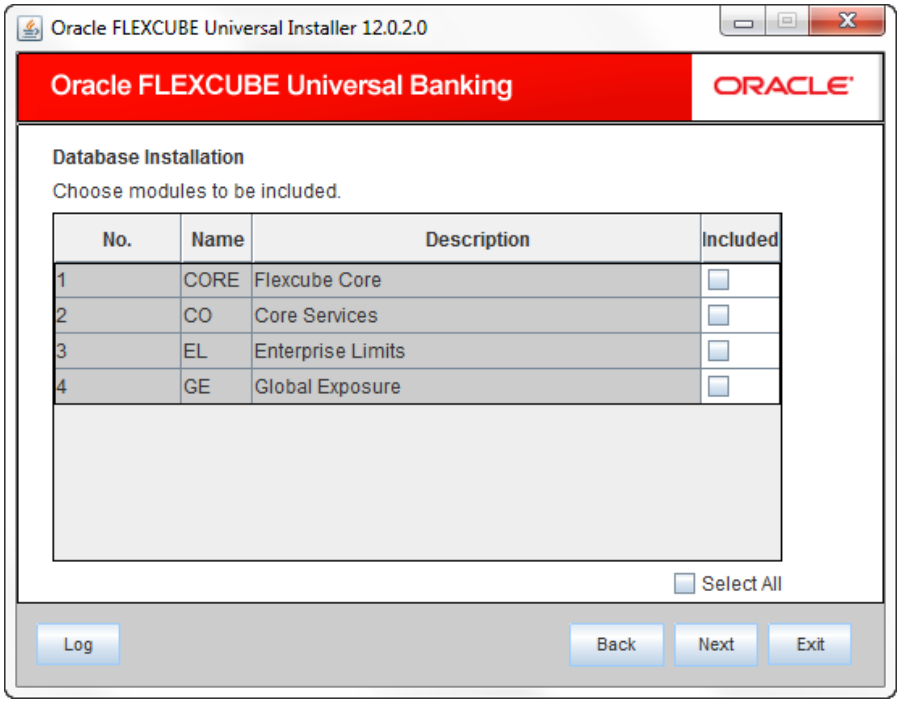
'+' Button

In case of Cluster and Patch installations, you can install the files from multiple source directories by clicking this button.

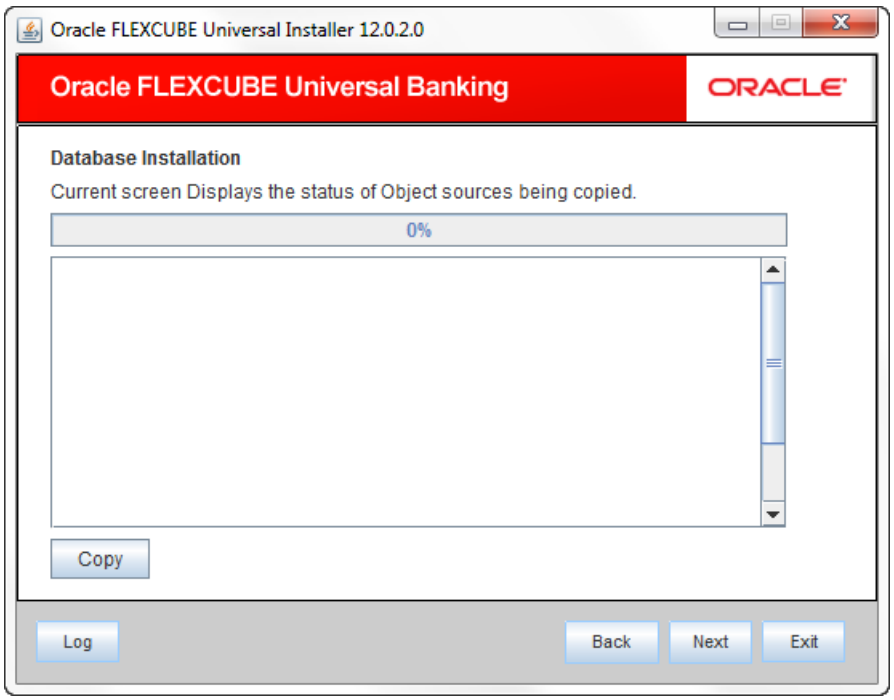
'-' Button

You can remove the files from multiple source directories by clicking this button.

4. Once you have specified the details, click 'Next'. The following screen is displayed.

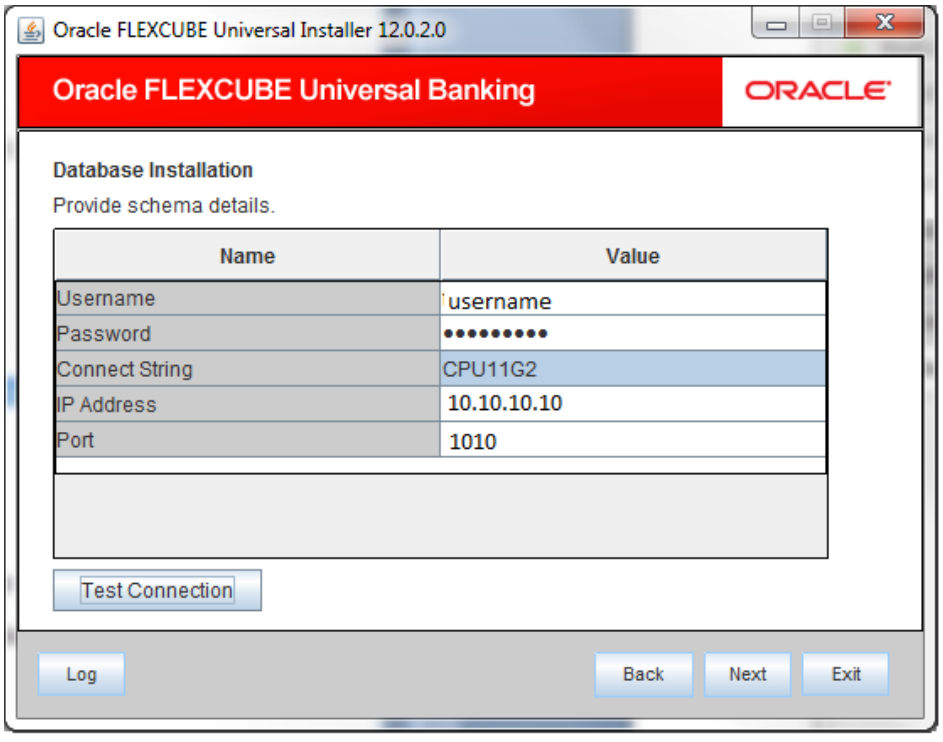


5. Choose the modules to be include and on clicking next the following field will be displayed



6. Click ‘Copy’ button. The Installer will copy the source files from the source directory to the destination directory. The files are taken from this location for compilation.

   Wait until all the files are copied. Once the copy process is completed, the Installer navigates you to the following screen.



7. Specify the following schema details:

User Name

Specify the user name to access the schema.

Password

Enter the schema password.

Connect String

Specify a valid connect string that contains the details for database connectivity.

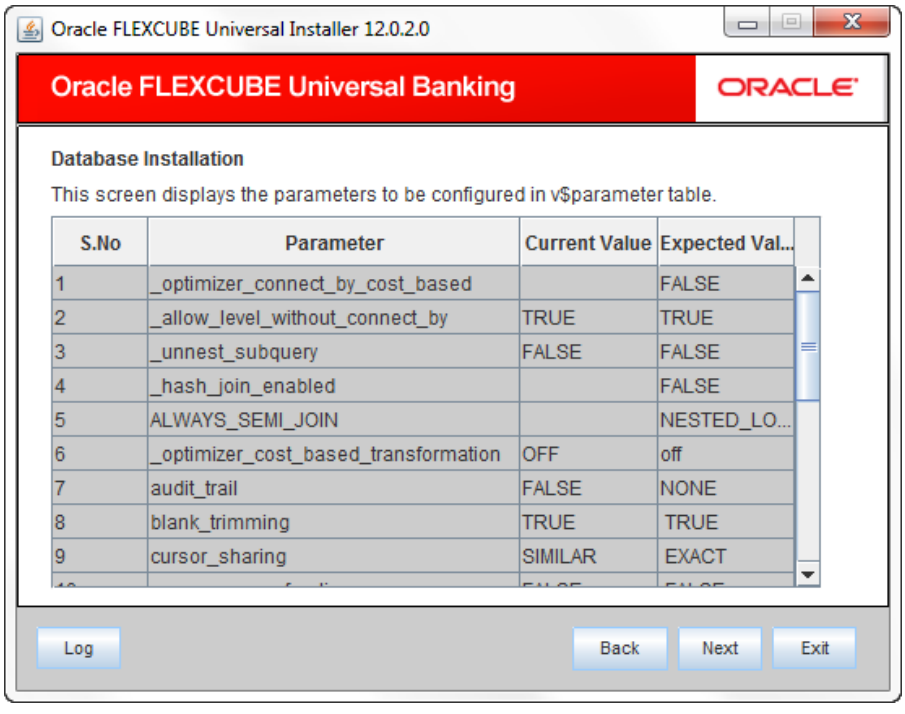
IP Address

Specify the IP address of the system where the database schema is installed.

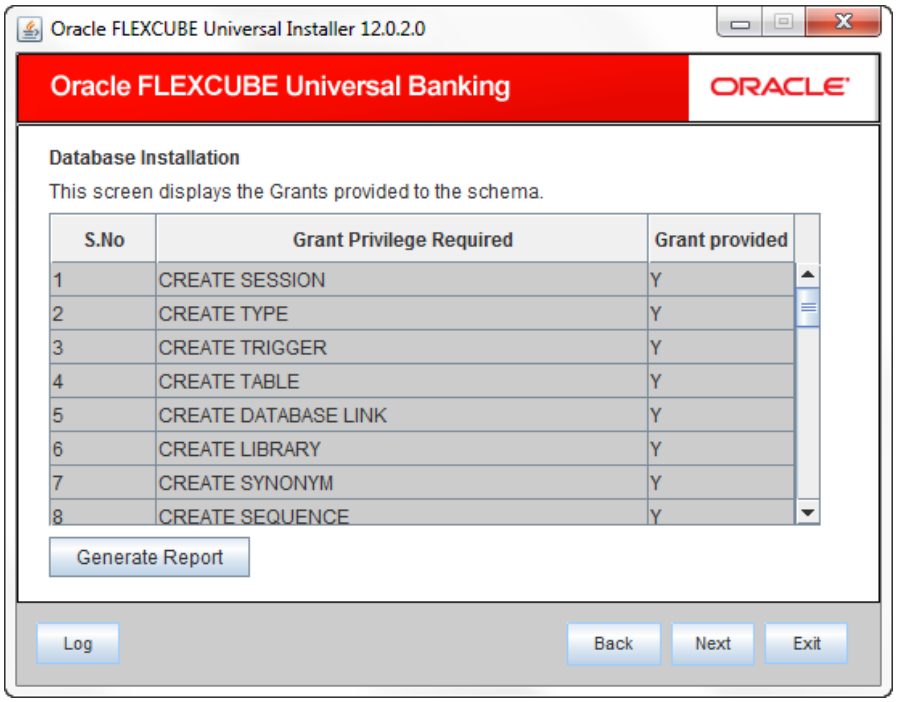
Port

Specify the port number.

8. Once you have entered the details, you can test the database schema connection using ‘Test Connection’ button.
9. After testing the connection, click ‘Next’. The following screen is displayed.

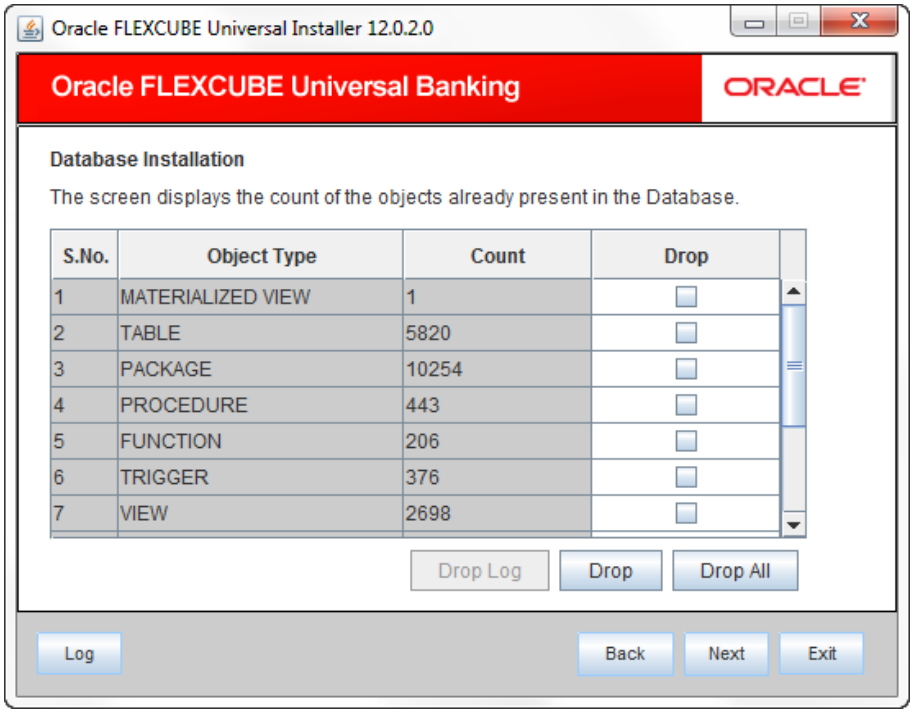


10. This screen displays the parameter details of the database. This is for information purpose.
11. Click ‘Next’. The following screen is displayed.



12. This screen displays the grants provided to the schema. If object compilation is required and the privilege is not given, then you can find that out from this screen. This is for information purpose.

13. If you click ‘Generate Report’ button, in the ‘Logs’ folder, the installer creates an SQL file ‘grantScript.sql’ containing the script for granting the privileges. You can use this file to get the access. The following screen is displayed.

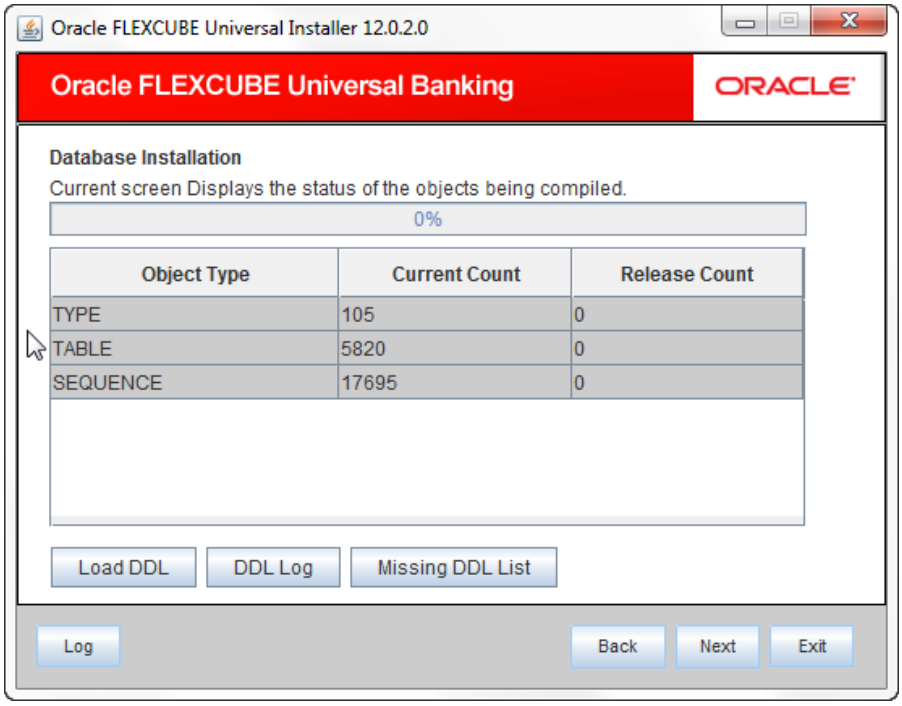


14. You can select the objects to be dropped and click ‘Drop’ button to drop the selected objects. As you drop the objects, the count in this screen is updated.

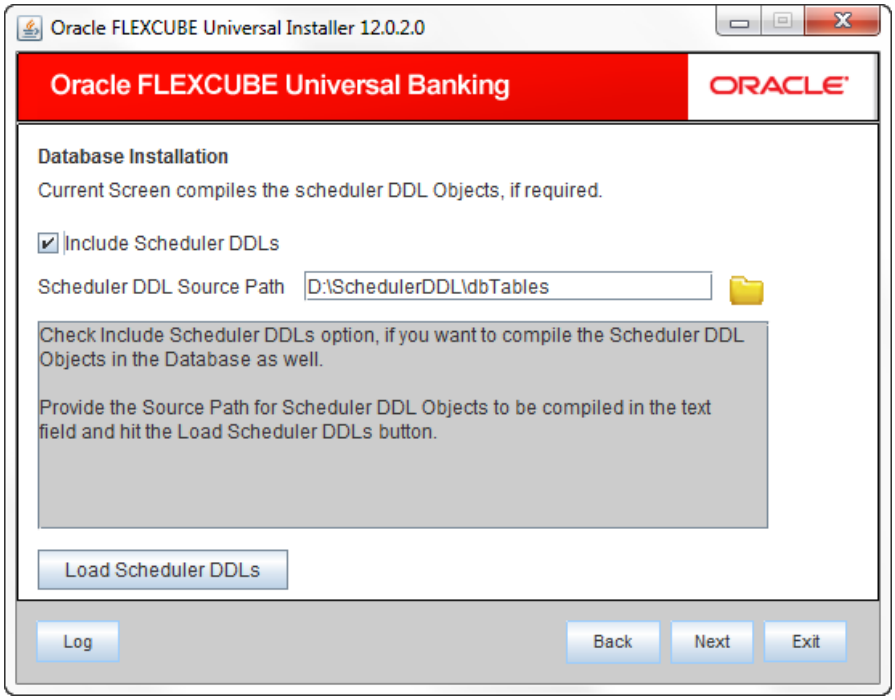
15. Click ‘Drop Log’ button to view the drop log.

Note: The details of the drop process are logged in a file ‘Drop_All.log’ in the folder <Destination Folder>/DBLogs.

16. If all the objects do not get dropped at the first time, you can drop them again.
17. Click ‘Next’ button, the following screen is displayed.



18. The table, sequences and type objects are compiled and the count is updated.
19. You can verify the DDL objects compilation by comparing the current count and the release count.
20. Click ‘DDL Log’ button to view the DDL logs. The log file ‘LoadDDL.log’ will be available in the destination directory under the folder ‘DBLogs’.
21. Click ‘Missing DDL List’ button to view the list of DDL files that are available in the source directory, but not in the schema. The list ‘FilesNotCompiled_DDLObj.txt’ will be available in the destination directory under the folder ‘DBLogs’.
22. Click ‘Next’. The following screen is displayed.



23. Specify the following details:

Include Scheduler DDLs

Check this box to include scheduler DDLs. If you do not need to include the scheduler DDLs, leave this field unchecked.

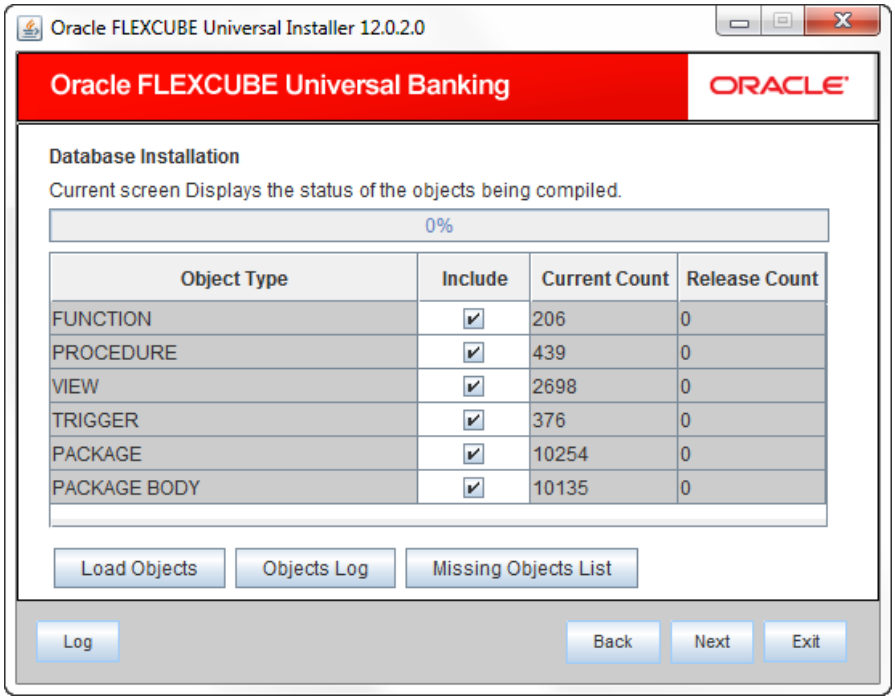
Scheduler DDL Source Path

Specify the location of the ‘tables_oracle.sql’ folder, which is available in extracted ‘quartz.jar’.

Note: Quartz is an open source job scheduling service. You can use Quartz to create schedules for executing jobs whose tasks are defined as standard Java components. You first need to download the file ‘quartz.jar’ and extract it to the local machine. In the extracted folder, find the location of the folder ‘dbTables’ and enter that path in the field ‘Scheduler DDL Source Path’.

24. Click ‘Load Scheduler DDLs’ to compile the files.

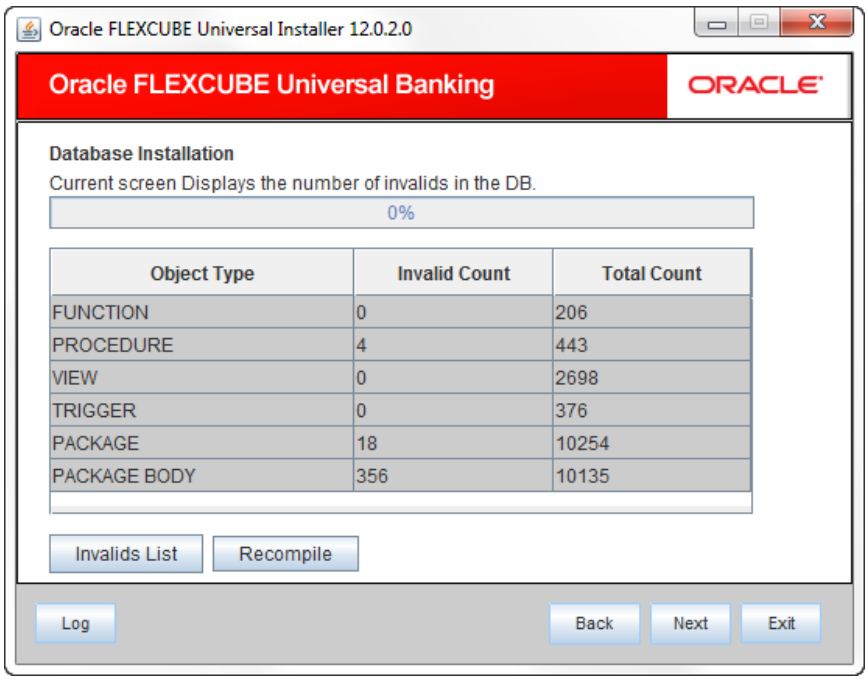
25. Click ‘Next’. The following screen is displayed.



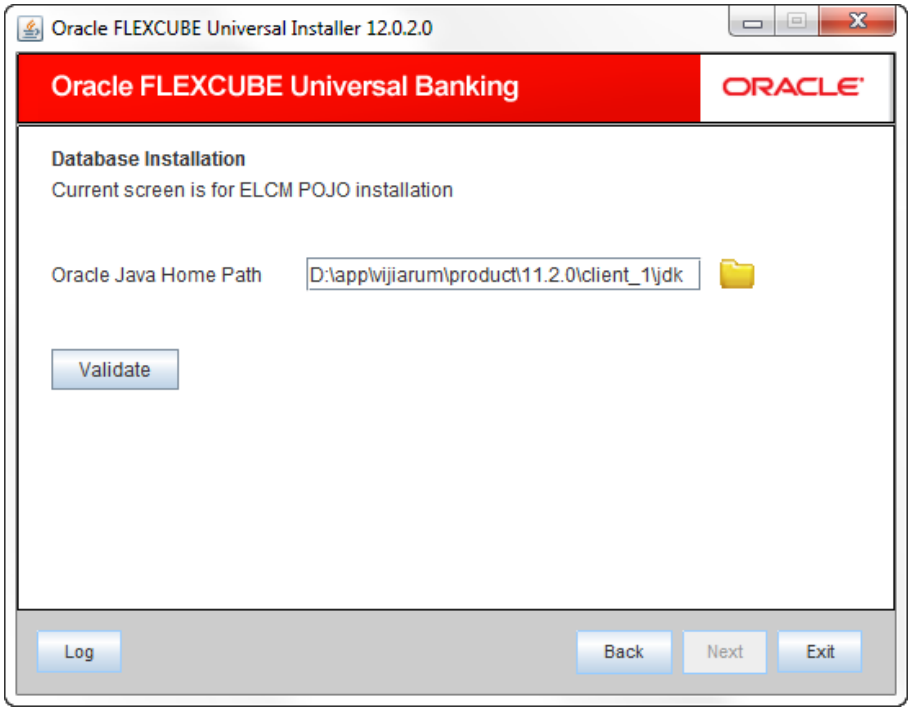
26. Check the objects that you need to load.
27. Click ‘Load Objects’ button. The installer loads the functions, procedures, views, triggers and packages as per your selection and compiles them.

Note: You can verify the application objects compilation by comparing the count shown in this screen with the release count.

28. Click ‘Objects Log’ button to view the log. The log file ‘LoadAppObj.log’ will be available in the destination directory under the folder ‘DBLogs’.
29. Click ‘Missing Object List’ button to view the list of application object files that are available in the source directory but not in the schema. You can view this list in the file ‘FilesNotCompiled_APPObj.txt’ available in the destination directory under the folder ‘DBLogs’.
30. The installer loads the DDL and application objects of the selected modules.
31. You can view the list of invalid objects in the following screen.



32. Click ‘Invalid List’ button to view the count of invalid objects. The installer creates the file ‘InvalidList.txt’ in the destination directory under the folder ‘DBLogs’.
33. You can use the ‘Recompile’ button to do a cyclic recompilation. This will reduce the invalid objects count.
34. You can view the recompile logs by clicking ‘Log’ button. The installer creates a file ‘recompile.log’ in the destination directory under the folder ‘DBLogs’.
35. Click ‘Next’. The following screen is displayed. This starts the ELCM POJO installation process.



36. Specify the following details:

Oracle Java Home Path

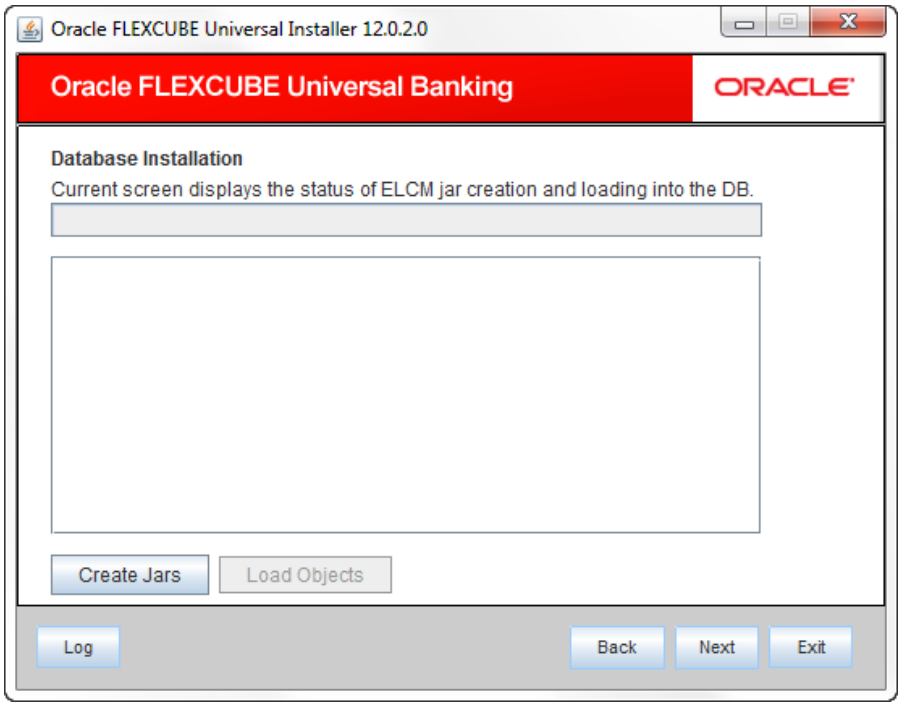
Specify the Oracle Java home location. This is required for ELCM POJO compilation.

Note: You need to set the following two environment variables for the successful compilation of ELCM POJO JAR files.

- ORACLE_HOME (Eg: 'D:\app\ishroy\product\11.2.0\client_1')
- Path (append the path variable with ORACLE_HOME\BIN (Eg: 'D:\app\ishroy\product\11.2.0\client_1\BIN)'

You can validate the Oracle Java home path by clicking 'Validate' button.

37. Click 'Next'. The following screen is displayed.



38. This screen displays the status of ELCM JAR file creation. The following JAR files are created for ELCM POJO.

- ELCMDAO.jar
- ELCMDTO.jar
- ELCMProcess.jar
- ELCMUtility.jar

Example

If the destination directory is 'PUT\DEST\Pojo\20120503_1230', then the JAR files will be created as shown below:

39. Click ‘Load Objects’ button to load the JAR files to the database.

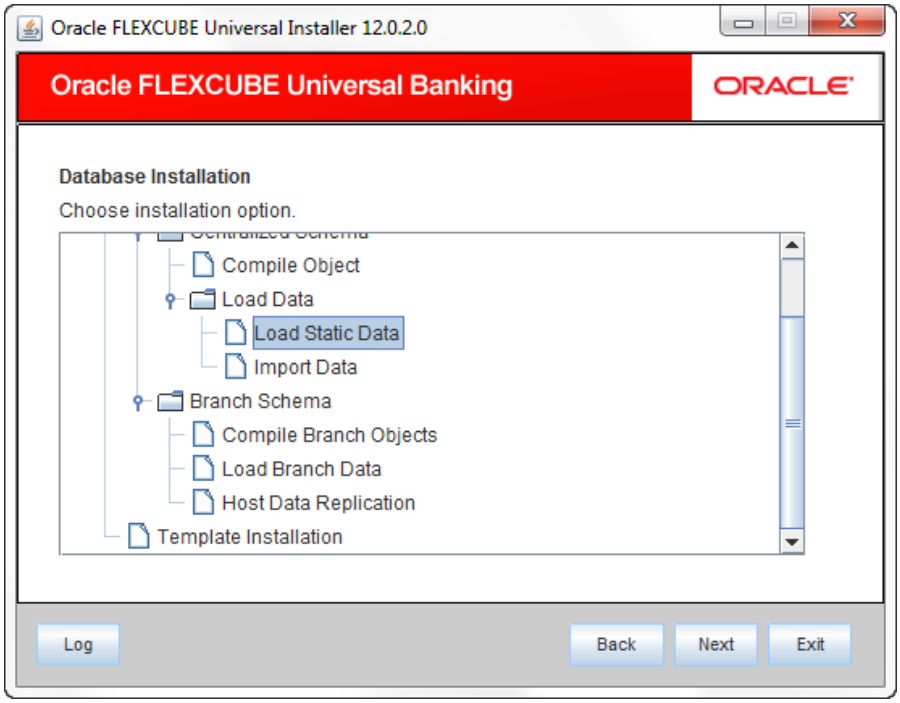
2.4 Loading Data

Once the objects are loaded, you need to insert data into the tables.

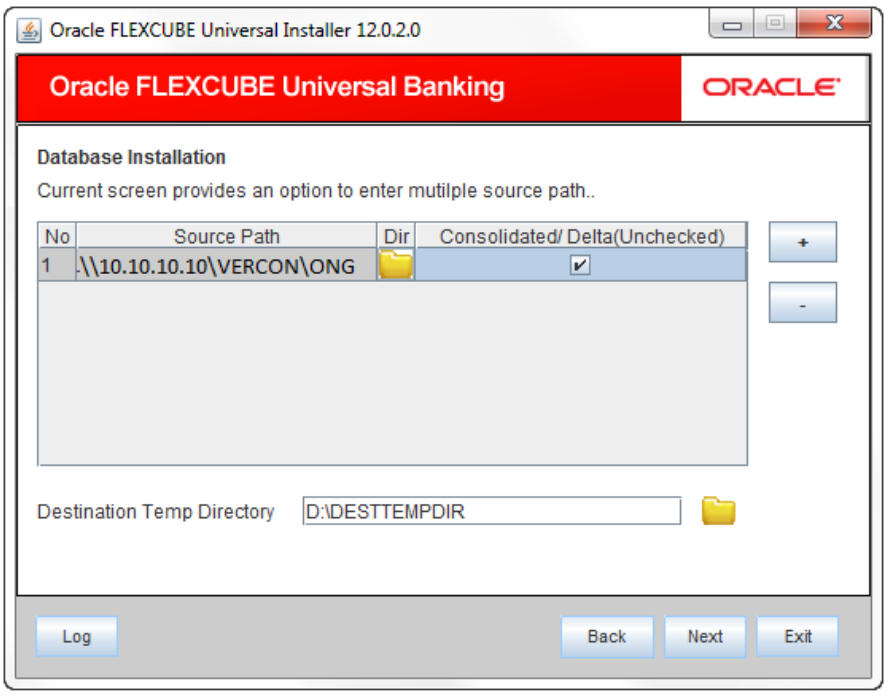
This section explains the steps to load static data into the database and the basic setup to be done.

Follow the steps given below:

1. Launch Oracle FLEXCUBE Universal Banking Solutions Installer.



2. Select ‘Load Static Data’ and click ‘Next’. The following screen is displayed.



3. Specify the following details:

Source Path

Specify the source directory location. The source directory should have the 'MAIN' folder and the contents. Use the directory icon to browse the source directory.

Destination Temp Directory

Specify the destination directory. Use the directory icon to browse the destination directory.

Consolidated

Check this box if you are going for a consolidated installation.

In case you need to compile a single patch into the database, you can leave this box unchecked and specify the source of the patch in the field 'Source Directory'.

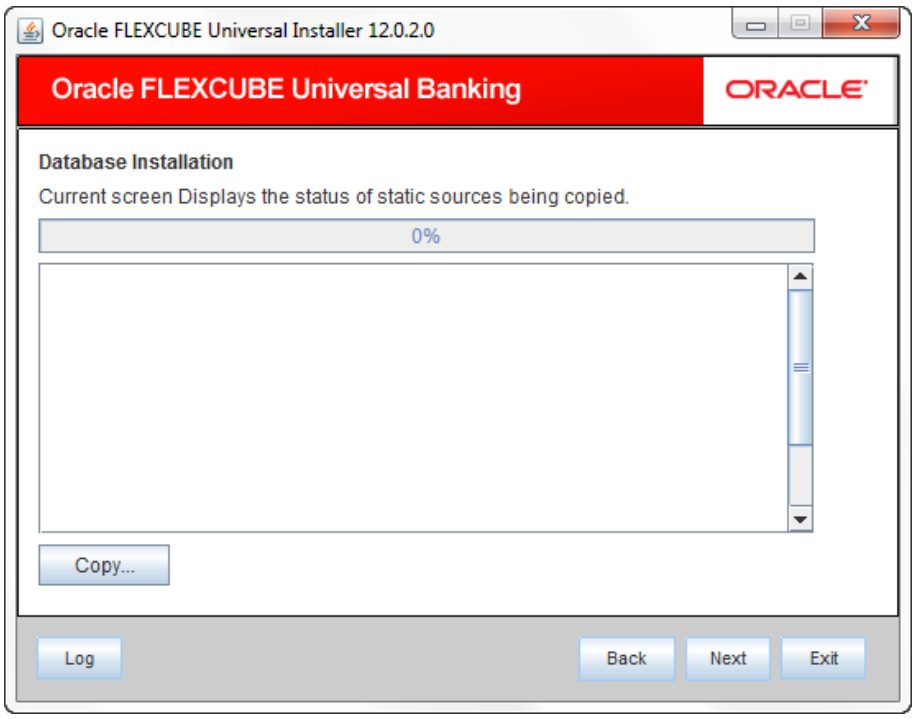
'+' Button

In case of Cluster and Patch installations, you can install the files from multiple source directories by clicking this button.

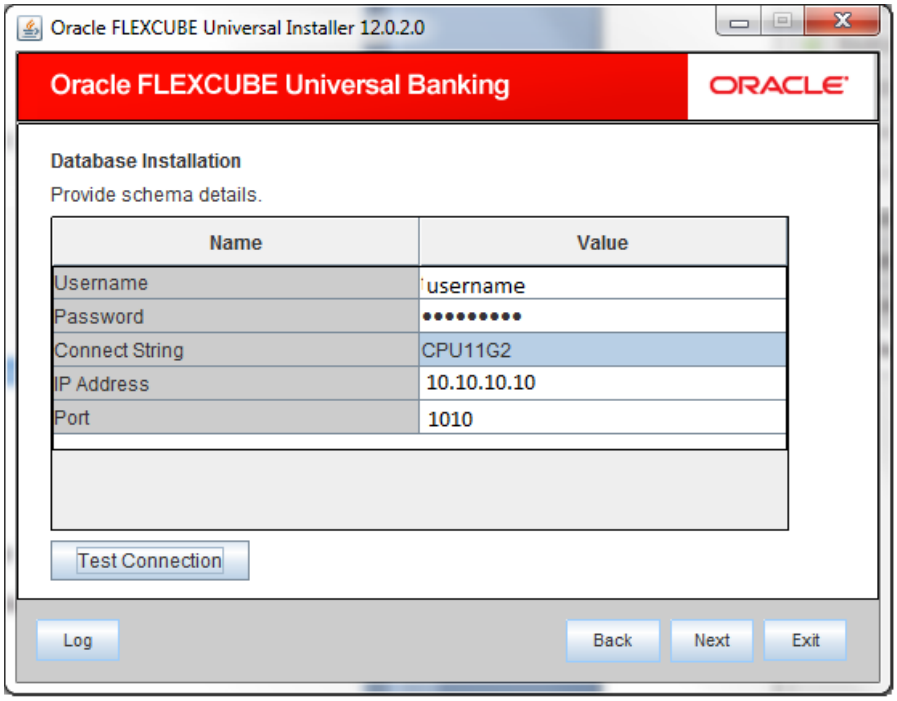
'-' Button

You can remove the files from multiple source directories by clicking this button.

4. Click 'Next' to start objects copy.



5. Click ‘Copy’ button. The Installer will copy the source files from the source directory to the destination directory. The files are taken from this location for compilation.
6. Once the copy process is completed, the Installer navigates you to the following screen.



7. Specify the following schema details:

User Name

Specify the user name to access the schema.

Password

Enter the schema password.

Connect String

Specify a valid connect string that contains the details for database connectivity.

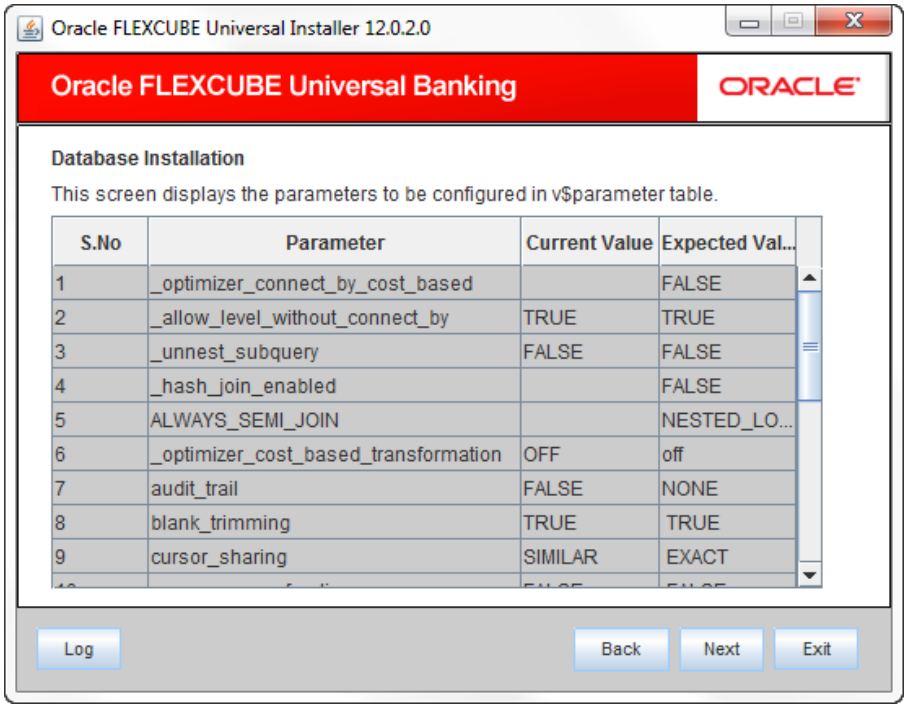
IP Address

Specify the IP address of the system where the database schema is installed.

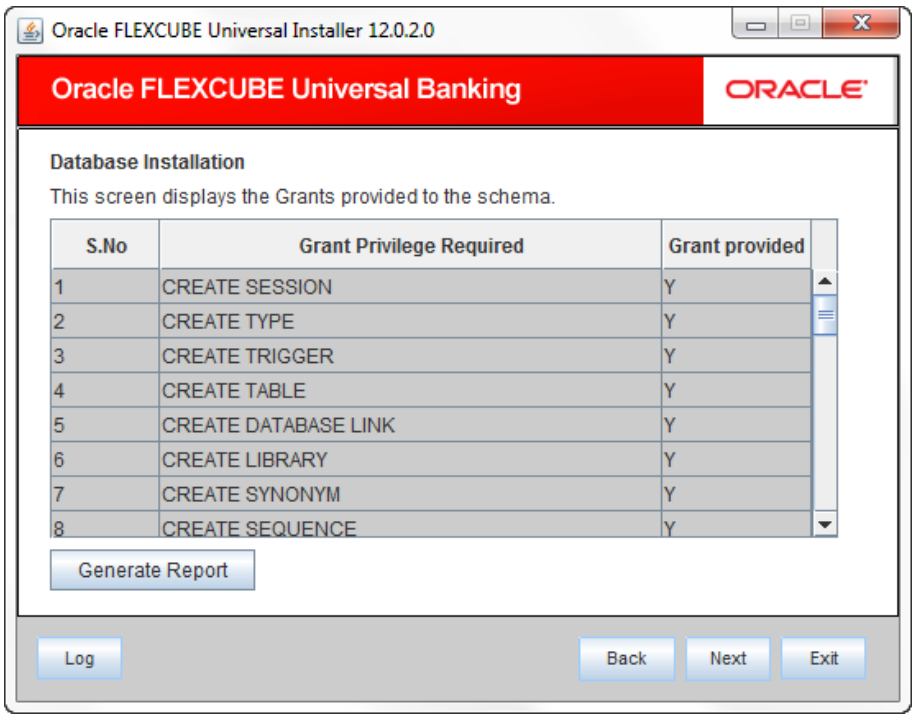
Port

Specify the port number.

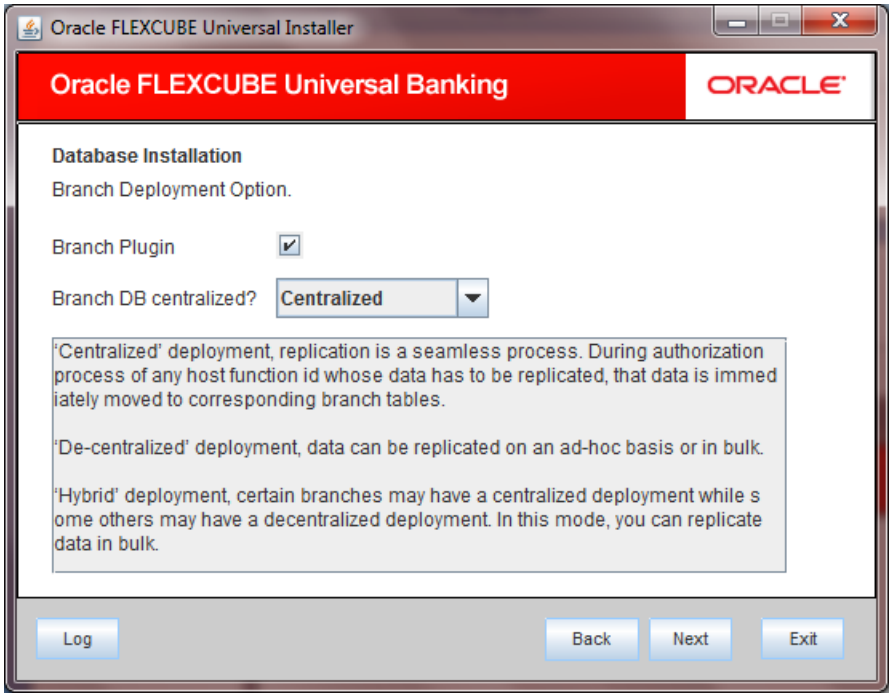
8. Once you have entered the details, you can test the database schema connection using ‘Test Connection’ button.
9. After testing the connection, click ‘Next’. The following screen is displayed.



10. This screen displays the parameter details of the database. This is for information purpose.
11. Click ‘Next’. The following screen is displayed.



12. This screen displays the grants provided to the schema. If object compilation is required and the privilege is not given, then you can find that out from this screen. This is for information purpose.
13. Click ‘Generate Report’ to generate the report related to the grants provided to the schema.
14. Click ‘Next’. The following screen is displayed.



15. Specify the following details:

Branch Plug-in

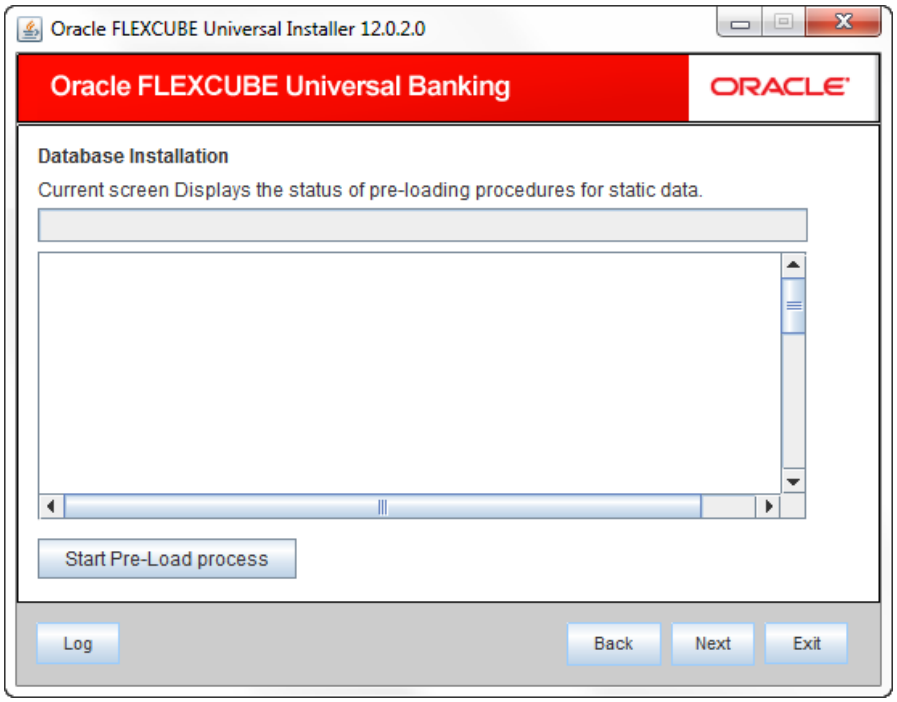
Check this box to include branch plug-in. If you check this box, you need to specify the deployment mode in the field ‘Branch DB Centralized’. If you do not need branch plug-in, leave this field unchecked.

Branch DB Centralized?

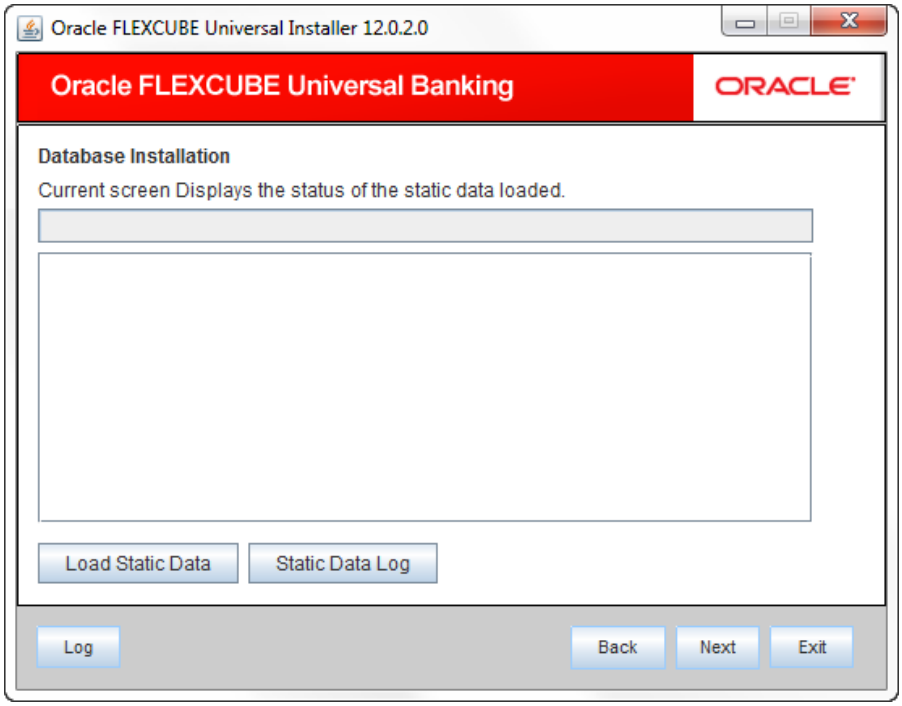
Specify the deployment mode. You can choose one of the following modes:

- Centralized
- Decentralized
- Hybrid

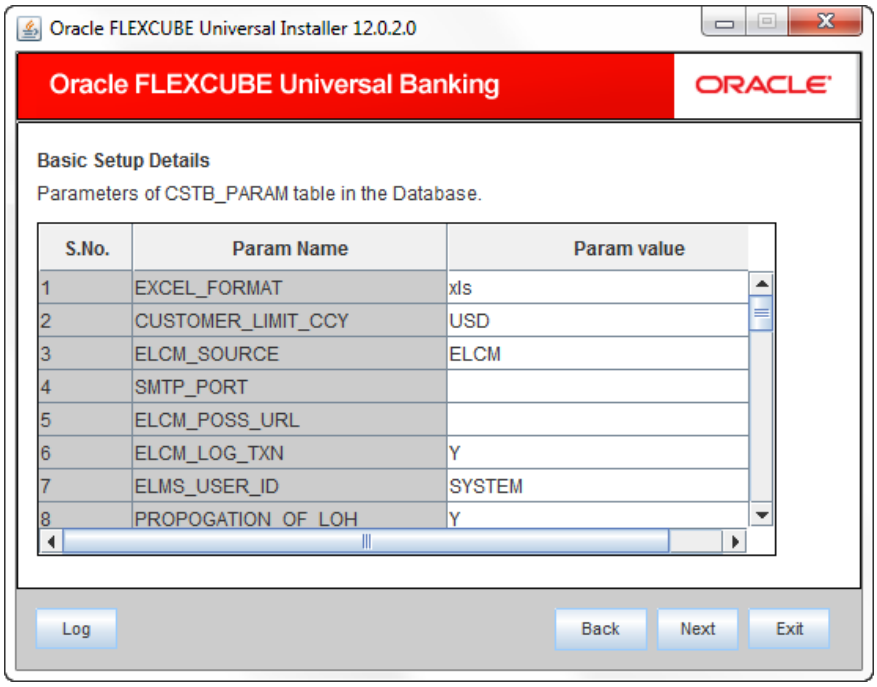
Once you have specified the above details, click ‘Next’.



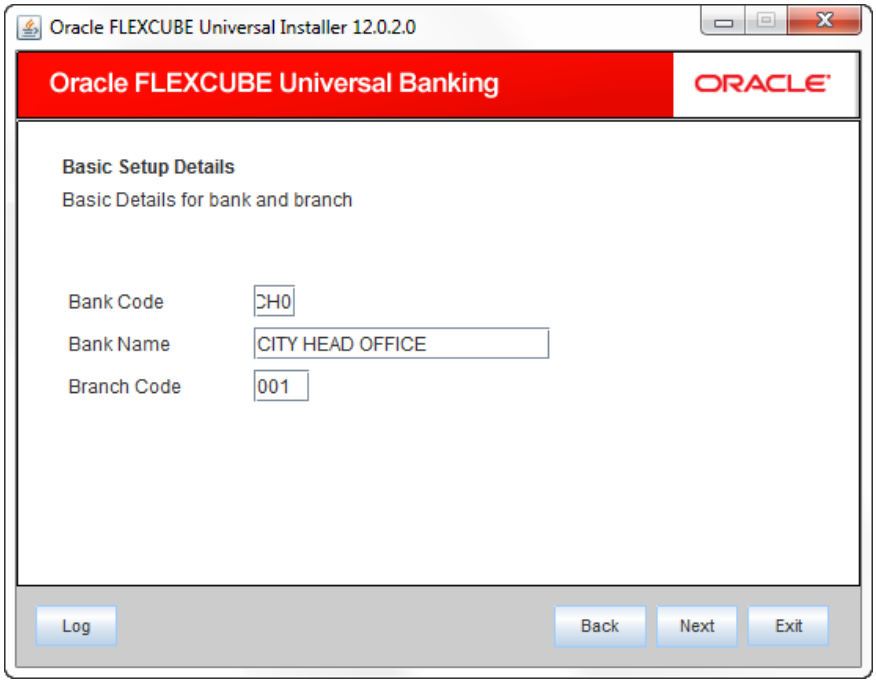
16. Click ‘Start Pre-Load Process’ button. The installer executes the procedures required before beginning static data compilation. All the triggers will be disabled during this process.
17. Once the process is completed, you will see the following screen.



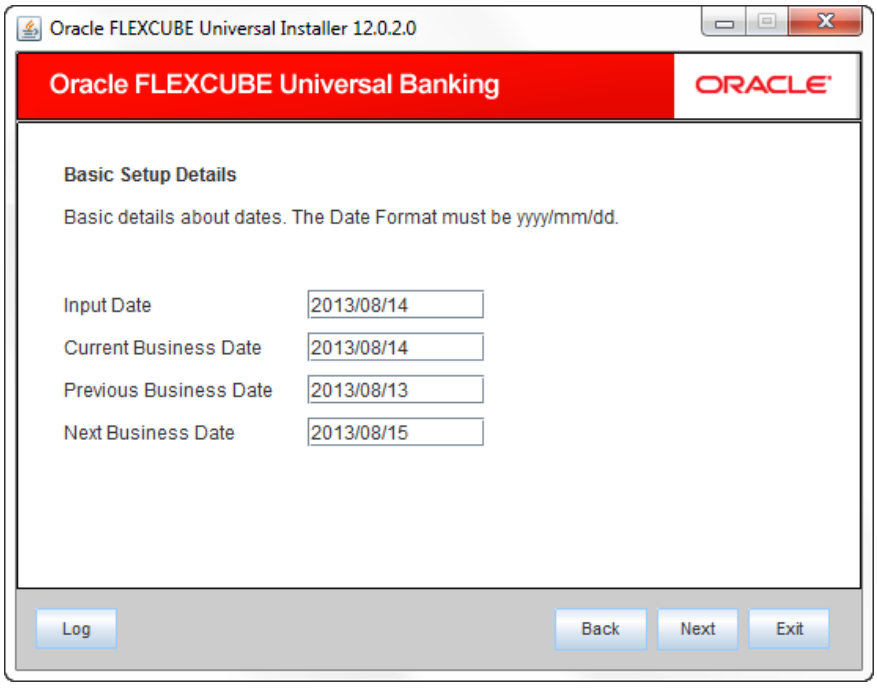
18. You can view the static data log by clicking ‘Static Data Log’ button.
19. Click ‘Next’. The following screen is displayed.



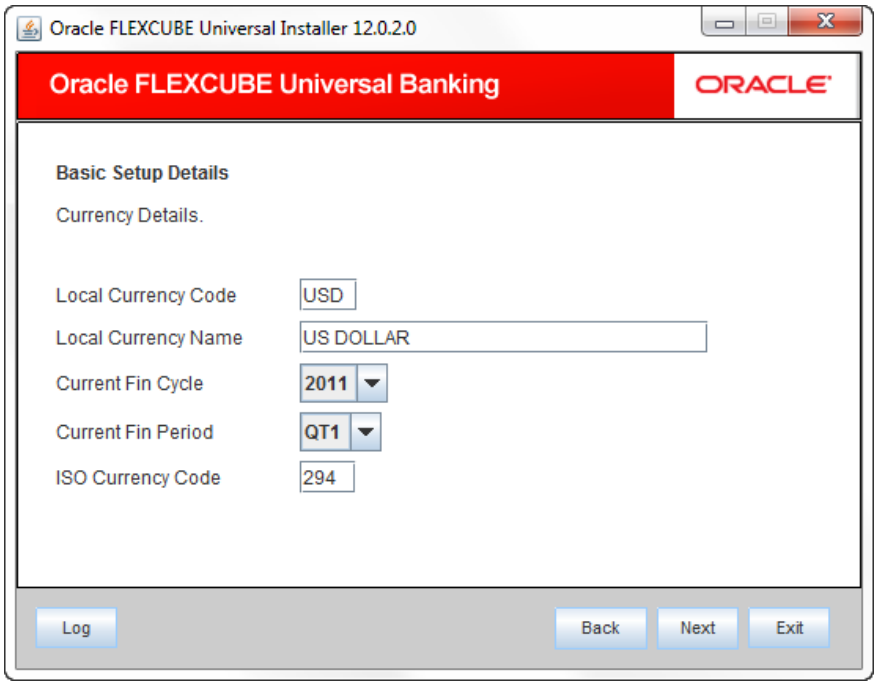
20. Here, you can do the basic maintenances for the table ‘CSTB_PARAM’.
21. Click ‘Next’. The following screen is displayed.



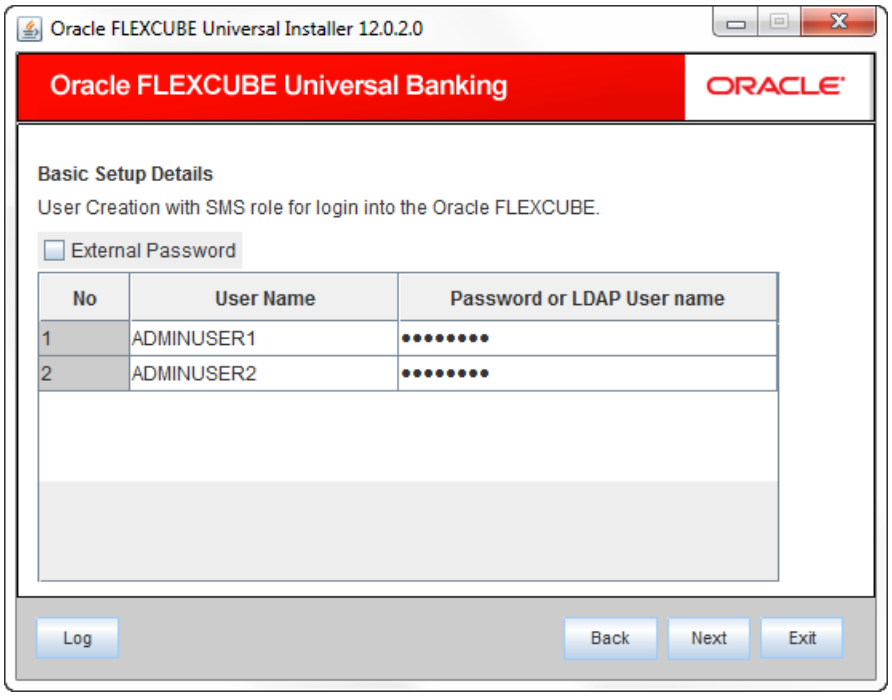
22. Here you can do the basic maintenances for the tables ‘STTM_BANK’ and ‘STTM_BRANCH’.
23. Click ‘Next’. The following screen is displayed.



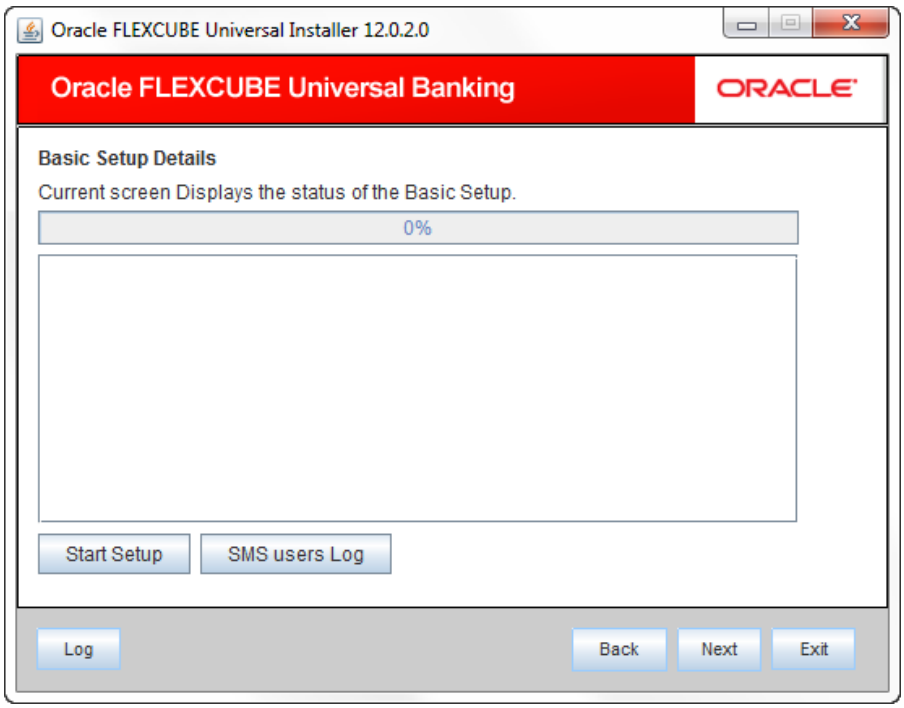
24. Here, you can do the basic maintenances for the table ‘STTM_DATES’.
25. Click ‘Next’. The following screen is displayed.



26. Here, you can do the basic maintenances for the table ‘CYTM_CCY_DEFN’.
27. Click ‘Next’. The following screen is displayed.



28. Here you can do the basic maintenances for the table ‘SMTB_USER’ and ‘SMTB_USER_ROLE’.
29. Click ‘Next’. The following screen is displayed.



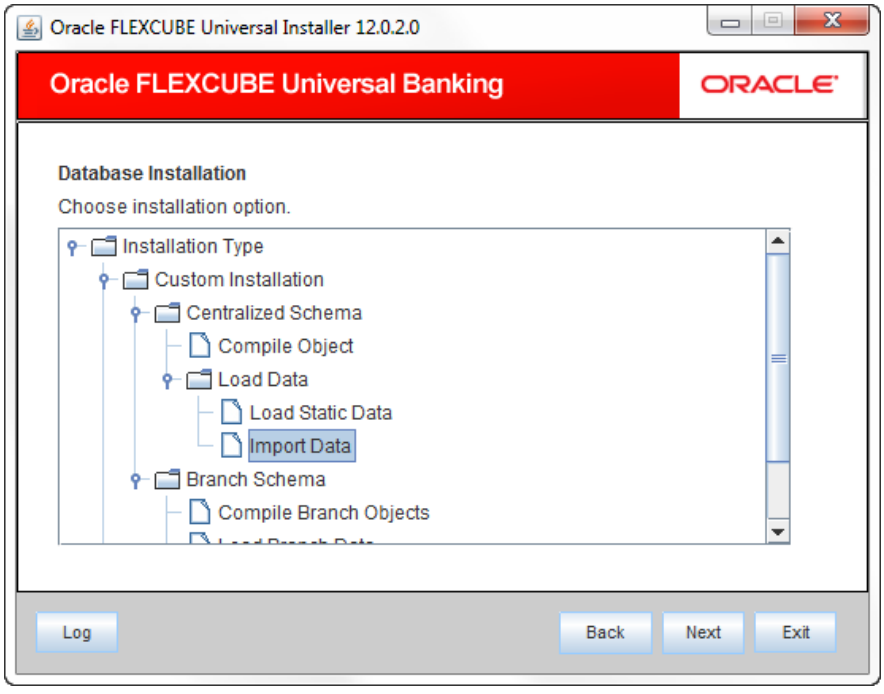
30. Click ‘Start Setup’ button to compile the entries.

31. This completes the static maintenance and basic setup process.

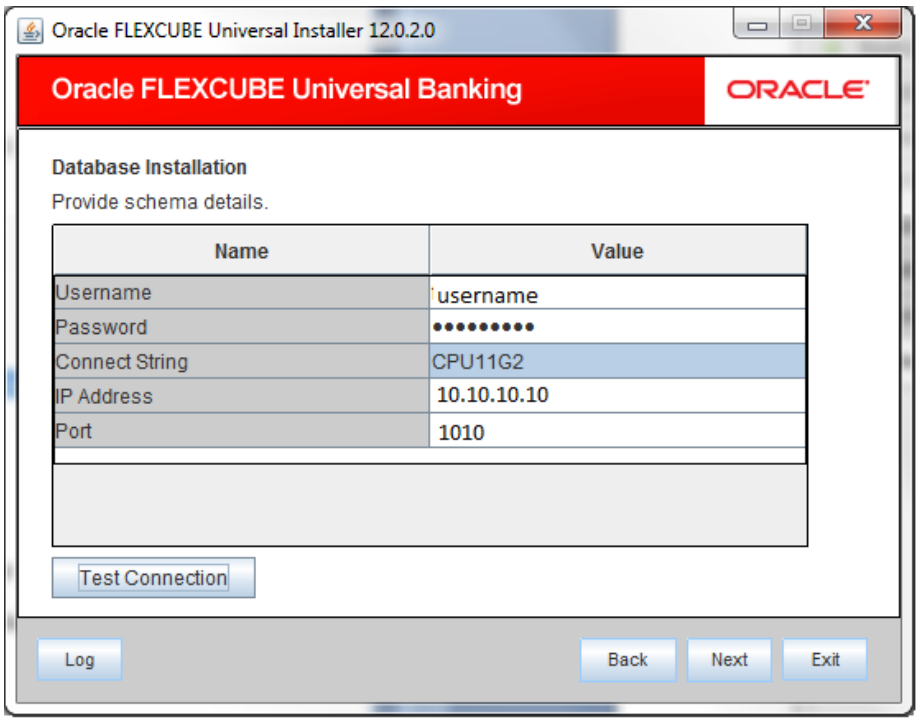
2.4.1 Import Database Installation

Data import is an alternative method to load the static data into the database. This section describes the process of Import DB installation.

1. Launch Oracle FLEXCUBE Universal Banking Solutions Installer.



2. Select ‘Import Data’ and click ‘Next’. The following screen is displayed.



3. Specify the following schema details:

User Name

Specify the user name to access the schema.

Password

Enter the schema password.

Connect String

Specify a valid connect string that contains the details for database connectivity.

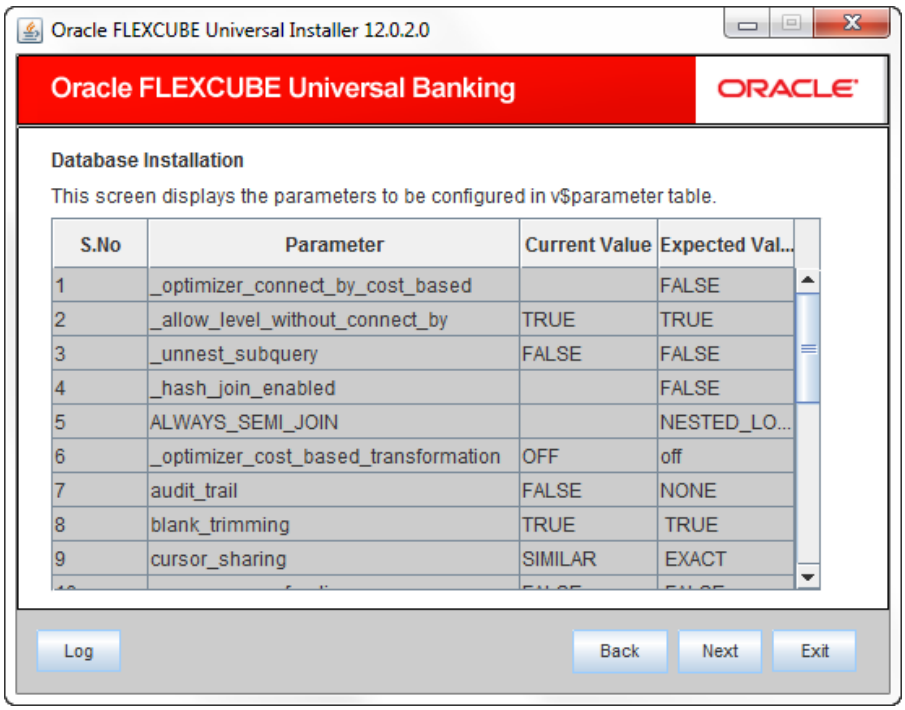
IP Address

Specify the IP address of the system where the database schema is installed.

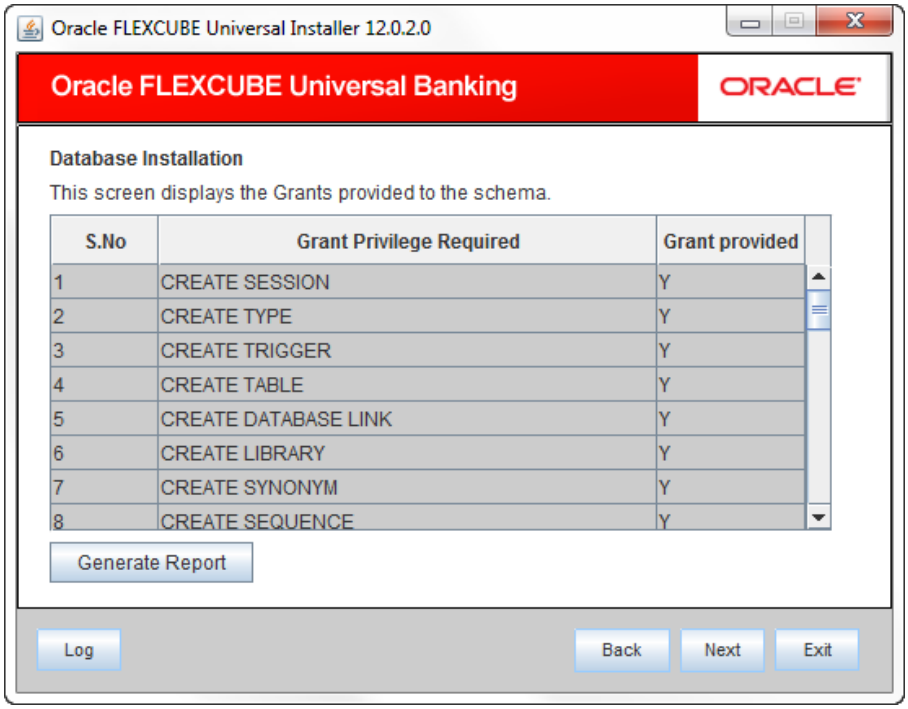
Port

Specify the port number.

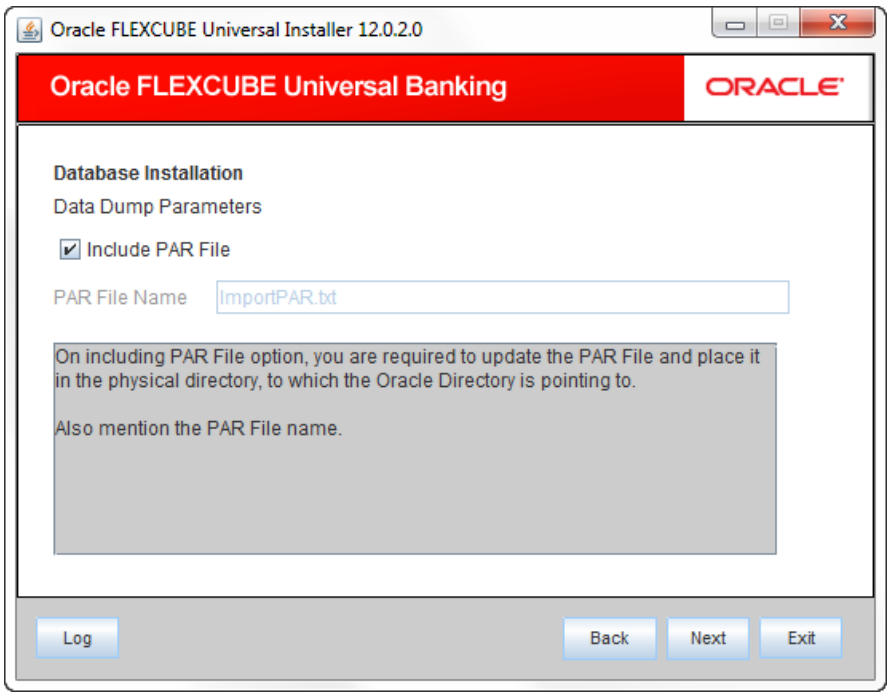
4. Once you have entered the details, you can test the database schema connection using ‘Test Connection’ button.
5. After testing the connection, click ‘Next’. The following screen is displayed.



6. This screen displays the parameter details of the database. This is for information purpose.
7. Click ‘Next’. The following screen is displayed.



8. This screen displays the grants provided to the schema. If object compilation is required and the privilege is not given, then you can find that out from this screen. This is for information purpose.
9. Click this to ‘Generate Report’ to generate the report.
10. Click ‘Next’. The following screen is displayed.



11. Specify the following details:

Include PAR File

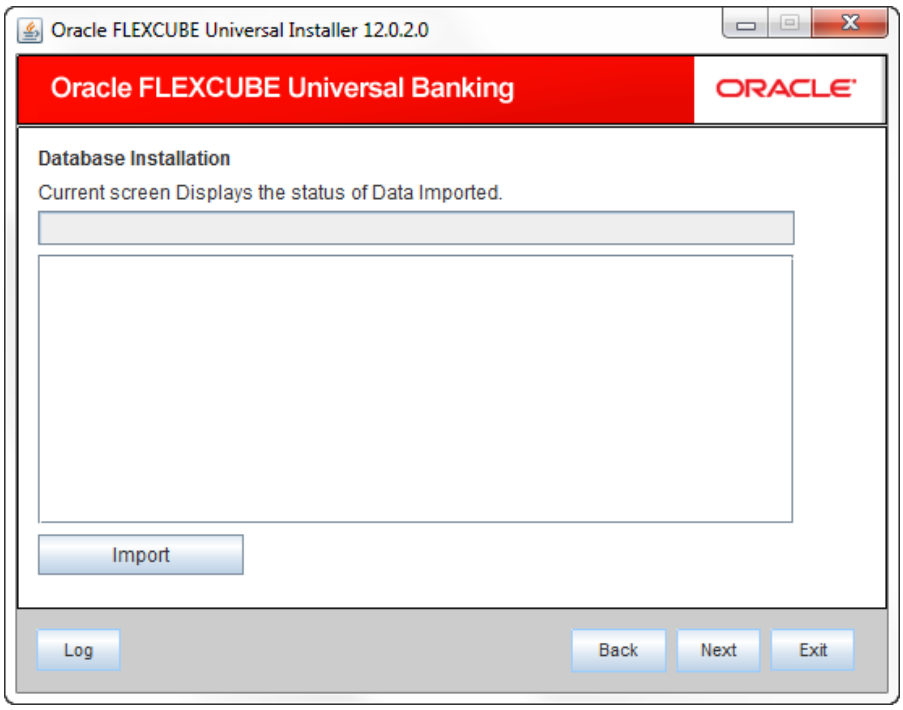
Check this box to include the PAR file. If you check this box, you need to specify the PAR file name.

PAR file stands for Parameter File. A PAR file is a text file that contains all valid parameters and their respective values. Maintaining the parameters in text format enables you to modify or reuse them easily.

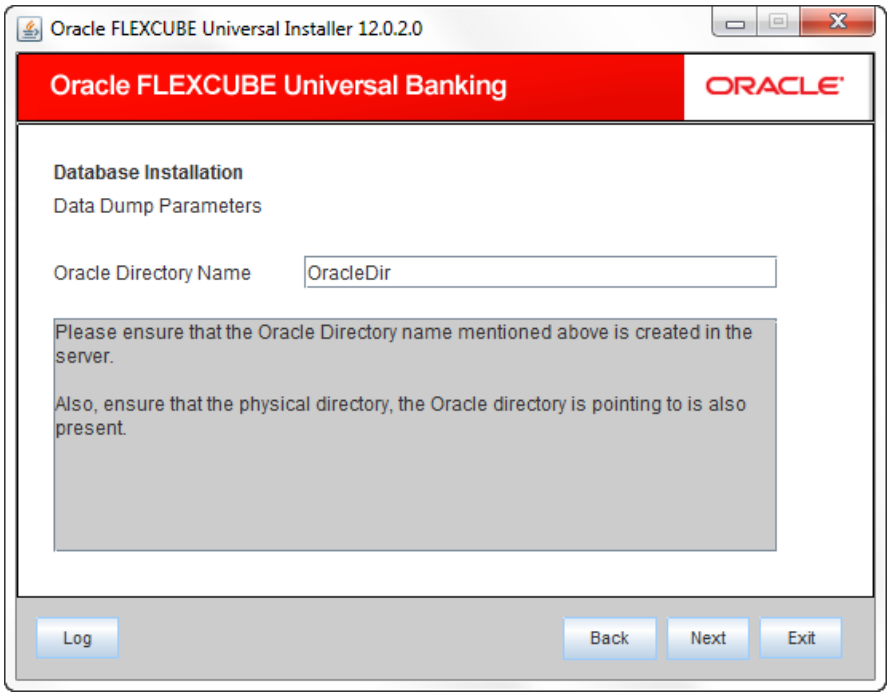
PAR File Name

If you have checked the box ‘Include PAR File’, you need to specify the PAR file name here.

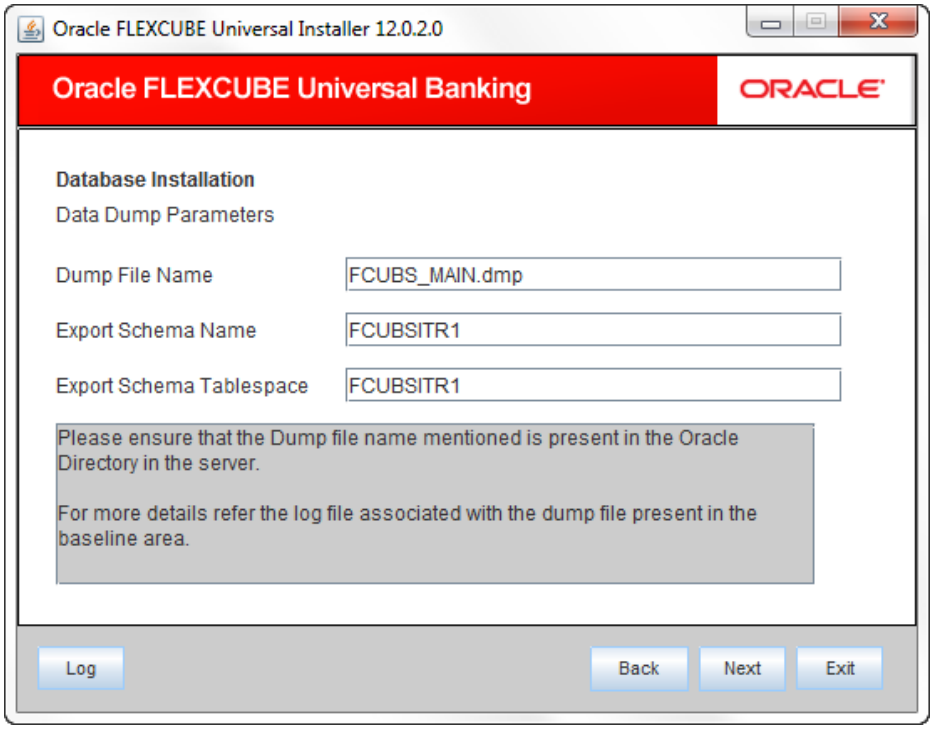
12. Once you have specified the above details, click ‘Next’ button.



13. Click ‘Import’ button to import the database with the PAR file parameters.
14. If you have not checked the box ‘Include PAR File’, on clicking ‘Next’, you will be navigated to the following screen.



15. Specify the Oracle directory name. This is the directory in the server machine where the import file is located.
16. Click ‘Next’. The following screen is displayed.



17. Specify the following details:

Dump File Name

Specify the import file name.

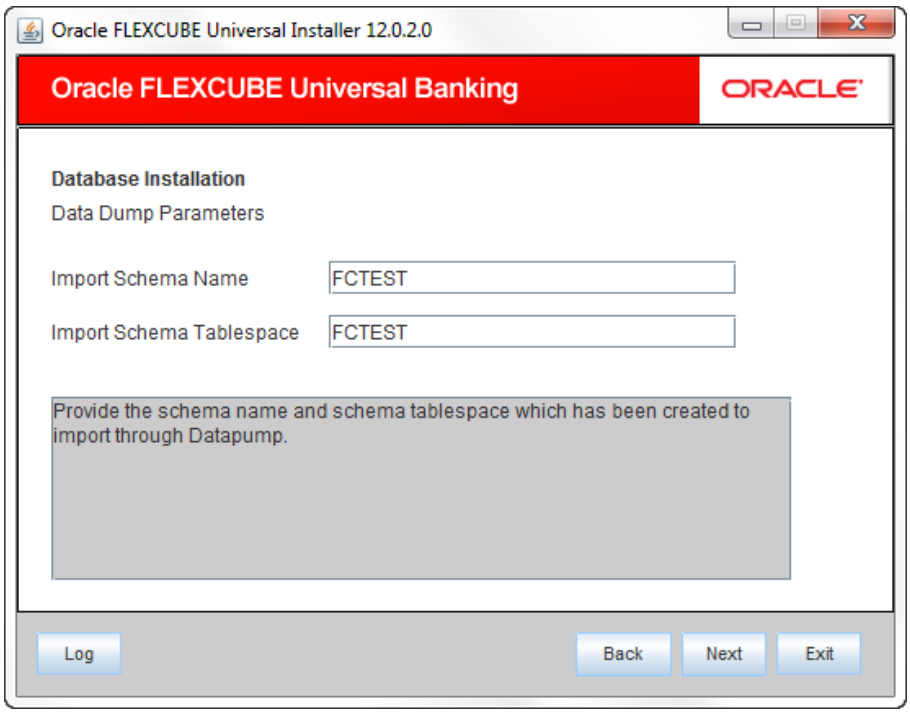
Export Schema Name

Specify the export schema name from which the import file is imported.

Export Schema Tablespace

Specify the export schema tablespace from which the import file is imported.

18. Once you have specified the above details, click ‘Next’. The following screen is displayed.



19. Specify the following details:

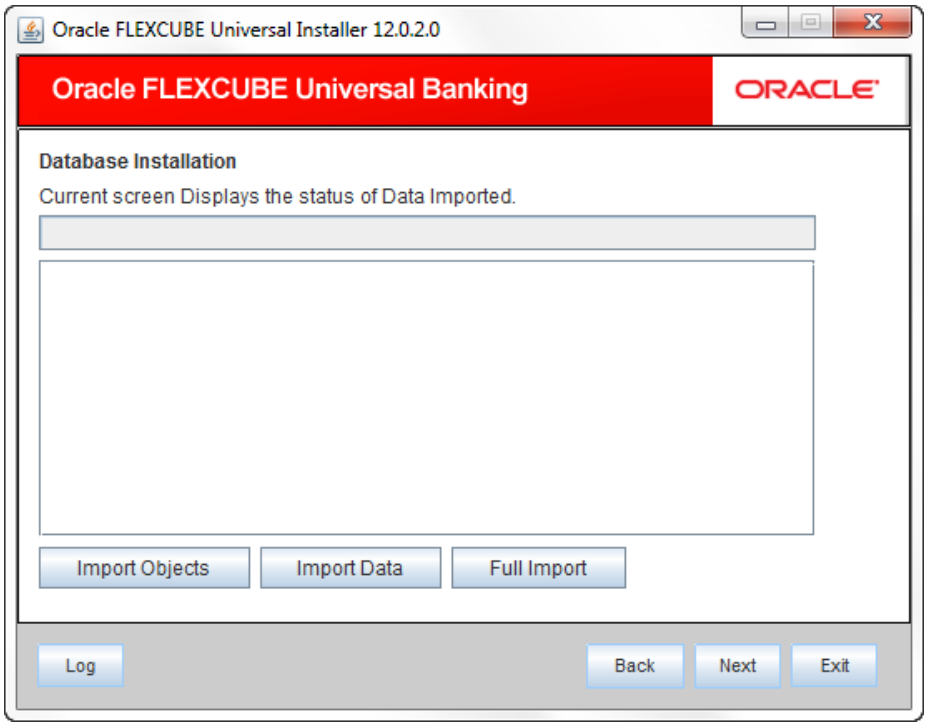
Import Schema Name

Specify the import schema name to which the import file is loaded.

Import Schema Tablespace

Specify the import schema tablespace to which the import file is loaded.

20. Once you have specified the above details, click ‘Next’ button. The following screen is displayed.

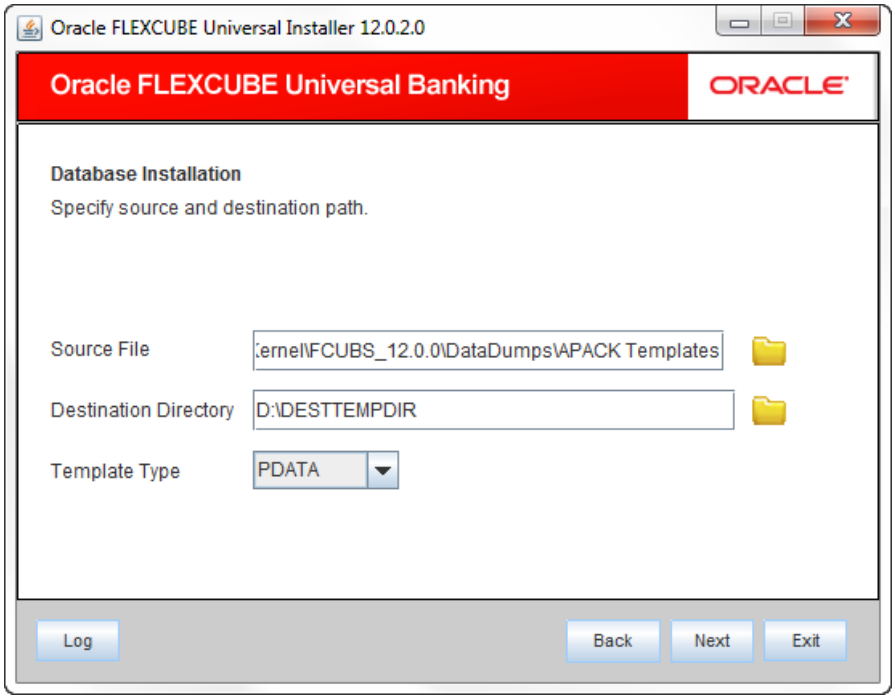


21. This triggers the import operation. You can optionally import the objects, data or full set by using ‘Import Objects’, ‘Import Data’ or ‘Full Import’ buttons respectively.

2.4.2 Template Database Installation

Template installation is an alternative method to setup the database. This section describes the process of template database installation.

1. Launch Oracle FLEXCUBE Universal Banking Solutions Installer.
2. Select ‘Template Installation’ and click ‘Next’. The following screen is displayed.



3. Specify the following details:

Source File

Specify the location of the source file. You can use the directory icon to browse to the appropriate file location.

Destination Directory

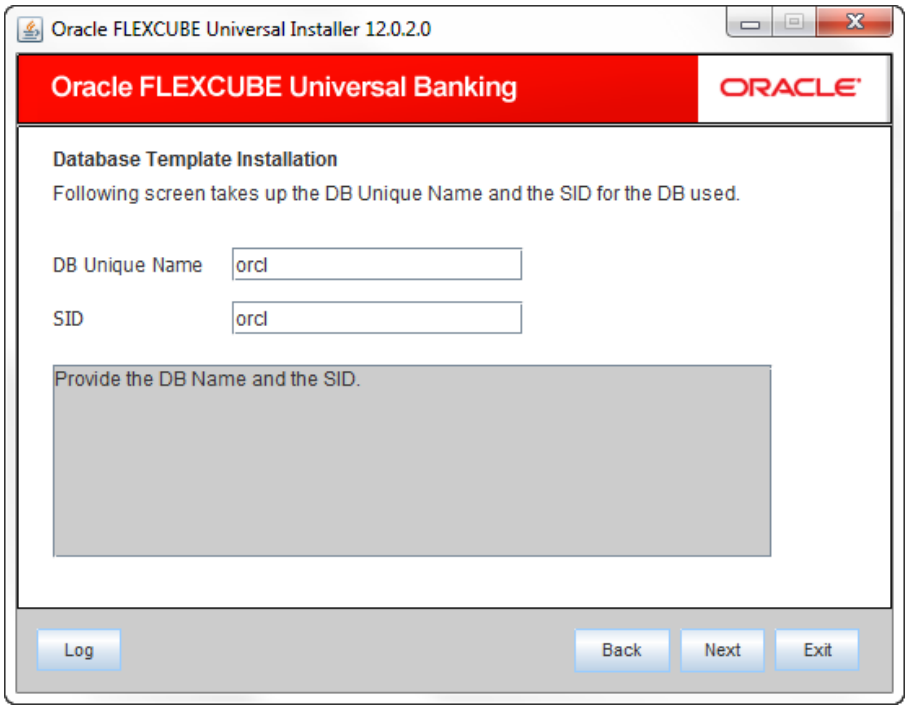
Specify the destination. You can use the directory icon to browse to the appropriate file location.

Template Type

Specify the template type. You can choose one of the following destination types.

- PDATA
- MDATA

4. Once you have specified the above details, click ‘Next’. The following screen is displayed.



5. Specify the following details:

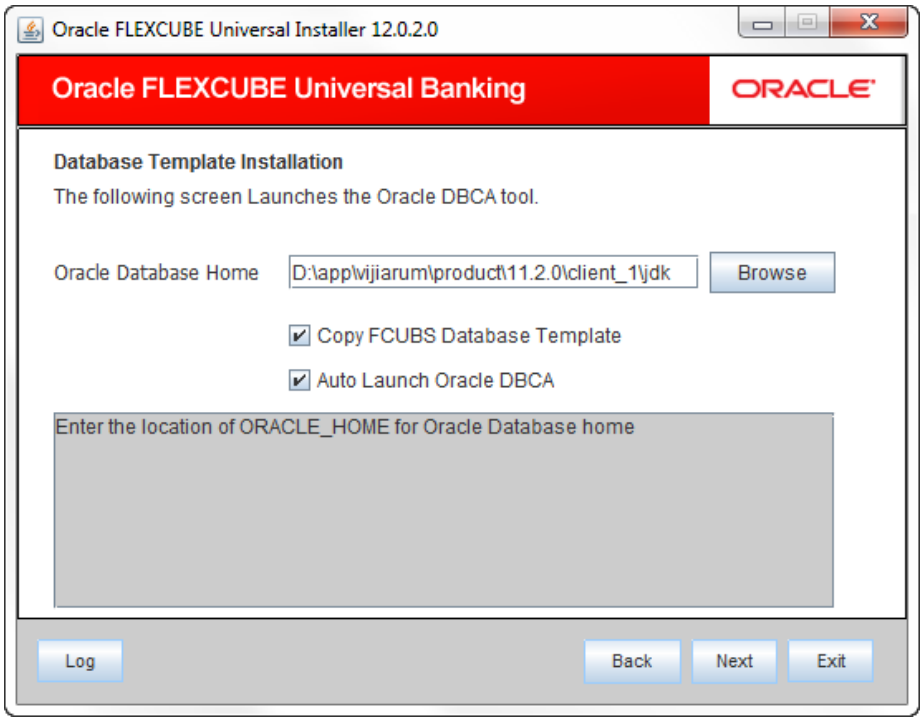
DB Unique name

Specify a unique name of the database.

SID

Specify the SID of the database.

6. Once you have specified the above details, click ‘Next’ button. The following screen is displayed.



7. Specify the following details:

Oracle Database Home

Specify the Oracle database home directory. You can use the 'Browse' button to browse and select the appropriate directory.

Copy FCUBS Database Template

Check this box to use the existing FCUBS template.

Auto Launch Oracle DBCA

Check this box to launch the Oracle DBCA tool. If you check this button and click next, the installer will start Oracle DBCA tool, from which you can proceed with the database installation.

Setting up Database
[October] [2013]
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