Product Release Note
Oracle Banking Liquidity Management
12.4.0.0.0
[April] [2017]

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Version 12.4.0.0.0

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Product Release Note

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1. Release Notes

1.1 Background

Oracle Banking Liquidity Management enables banks and financial institutions to provide a set of services to its corporate customers, which allows the corporate to optimize interest on their checking/current accounts (Increase credit Interest, decrease debit interest) and pool funds from different accounts. Thus enabling a corporate customer to manage the daily liquidity in their business in a consolidated fashion to derive maximum benefits at minimal cost. It encompasses Account Management, Balance Build, Cross Border Cash Management and Infrastructure management (Structure management).Its mission-critical and robust architecture and use of leading-edge industry standard products ensure almost limitless scalability.

1.2 Purpose

The purpose of this Release Note is to highlight the various features in Oracle Banking Liquidity Management 12.4.0.0.0

1.3 Abbreviations

Abbreviation	Description
BVT	Back Value Dated Transaction
LM	Liquidity Management
GLM	Global Liquidity Management
EOD	End of Day
BOD	Beginning of Day
SMS	Security Management System
IC	Interest and Charges
MBCC	Multi Bank Cash Concentration
DDA	Demand Deposit Account
LM	Liquidity Management
LOV	List of Values

1.4 Release Highlights

The scope of the current release Oracle Banking Liquidity Management 12.4.0.0.0 is to develop the following sub modules

- SMS
- LM Maintenance
- Structure Maintenance
- Simulation
- Sweep
- MBCC
- Pool
- BVT for Sweep & Pool
- Dashboard
- Reports
- Interest Computations
- DDA Handoff

1.5 Sub Module wise features

1.5.1 Security Management System (SMS)

Oracle Banking Liquidity Management is an independent product processor and has built-in Security Management System. This system allows managing users, roles, session management & authentication based on Oracle standard security guidelines.

1.5.2 Liquidity Managment Maintenance

Liquidity Management enables setting up all the required system maintenances independently.

- System level maintenance to define parameters like list of countries, currencies and time zone etc.
- Other maintenances such as bank set-up, branch set-up, currency set-up, cross border instruction set-up etc. are provided that will govern preferences related to allow or disallow cross currency structures, cross border structures, multi bank structures and customer group associations.
- Facility provided through separate screens to create structures, add accounts to it, add previously existing structures to it, assign instructions to pair of accounts and assign frequencies to the marked instructions.
- A separate screen to manage the structure will be provided to handle functions like amendment, closure, suspension.

1.5.3 Structure Maintenance

Structure Maintenance allows Banks and customers to create structures for adding multiple accounts and allow sweeps/notional pooling between the accounts under the structure. This structure can be created by the bank user or by the customer through channels. Structures are

created within a framework as initially agreed between the customer and the bank. To support creation and maintenance of structures, following features are provided in the system,

- Facility provided through separate screens to create structures, add accounts to it, add previously existing structures to it, assign instructions to pair of accounts and assign frequencies to the marked instructions.
- A separate screen to manage the structure provided to handle functions like amendment, closure, suspension.
- Mapping Instructions to accounts: User can assign multiple instructions and multiple frequency of instruction to an individual account if needed
- Instruction priority in which instructions have to be executed can also be added through same structure maintenance screen.
- Reverse frequency to an account can also be added via structure maintenance screen. An instruction has an instruction priority, frequency of instruction and instruction parameter associated to that account.

1.5.4 Simulation

System provided the facility for Banks/Customers to simulate the structure, perform the sweep and check the results using the sample data for a specific period of time. The simulated structure should be saved for real time use.

Simulator for Existing/Prospectus Customer to verify the following features

- Post sweeping balances can be checked with historical sample data.
- Account level changes can be made and simulated to test the different scenarios and observe the changes in the account balances.
- A new structure can be created based on user's requirement which can be simulated with the user input data.
- A user can convert the simulated structure into actual working structure.

1.5.5 Sweep

Oracle Banking Liquidity Management support sweeping service. Sweeping services is a cash pooling service for the concentration of bank account balances belonging to a company or a group of companies. On an agreed, regular basis the balance of the sweep account is automatically swept to the concentration account. In the case of a negative balance, funds are automatically topped from the concentration account to the sweep account.

Multi Layered

It is be possible to define multiple concentration levels – up to 10 levels with accounts spread across banks, countries and currencies with a flexibility to add or delete accounts in to the structure with an effective value date.

Cross-Currency sweep

GLM supports cross currency sweeps where in the sweep is allowed between a pair of accounts which are having different currencies.

Sweep Frequency

Both sweeps and reverse sweeps can be configured with frequencies like Specific time of the day, weekly, monthly, quarterly, semi-annually, annually, at all business month ends, specific day of a month.

Sweep Direction

System supports both 1-way sweep and 2-Way sweep. In a 1-way sweep the Credit balances are always swept out of the minor account while in a 2-way in addition to sweep out, sweep in is also supported when the balances in the minor accounts are overdrawn.

Prioritized Sweeps

System provides prioritized sweeps to child accounts if master/parent account does not have sufficient funds to cover all the child accounts having overdrafts. It is possible to give priorities to child account based on which sweeps are processed from parent to child.

Cash Concentration Methods

Cash concentration is the process of transferring of funds from diverse accounts into a central account to improve the efficiency of cash management. The consolidation of cash into a single account allows a company to maintain smaller cash balances overall, and to identify excess cash available for short term investments.

Oracle Banking Liquidity Management supports multiple Cash concentration methods. The cash concentration method can be configured at the structure level and also at the account pair level.

Once the concentration methods are set up, the system will keep them executing at the defined frequencies automatically.

Additionally Manual Sweep can also be triggered for a structure.

System supports the following cash concentration methods

Zero balancing - Zero Balancing is a cash pooling service for the concentration of funds within a company, or a group of companies, into one account - the top account.

In this process the entire balances from subaccounts are moved to the master account.

Fixed Sweep - Fixed amount is transferred from the subaccount to the main account irrespective of the credit balance in the sub account. If the credit balance in the sub account is below the fixed amount then no transfers are affected.

Target balance \ Minimum balance

(a) Constant Target Balance \ Minimum balance - Ensuring a specific amount in sub accounts/minor accounts by offsetting amounts above and below a predetermined target

(Moving balances from sub accounts to main account and vice versa). The balances in the subaccount will be constant and **cannot be zero**.

Specifies a balance that will always remain on participating accounts at the end of the day

(b) Fixed Target Balance – Ensuring a Fixed target balance in the sub accounts when moving funds from sub accounts to main account (In this case when the sub accounts has a debit balance the 2 way sweep from main account to the sub account will be equal to the debit amount on sub account which will bring the sub account to zero balance)

Threshold – Moving of funds only when an account moves in excess of a set limit. In this case the child account keeps accumulating funds till the threshold is reached and sweeps out all the balances from the child account unlike constant target and fixed target balance. System supports one way sweep direction and two way sweep direction.

Collar - Sweep child account balance only when an account moves in excess of a threshold limit, leaving behind a preset amount (collar amount). System supports one one way sweep direction and two way sweep direction.

Percentage: System sweeps a certain percentage of the balance available in the child account. If Child balance is zero or negative, sweep is not executed from child to parent. If Child balance is greater than zero, a certain percentage of balance will be swept from child account to parent account.

Range based balancing: Moving of balances when the available balance is in a certain range. Minimum and a maximum range will be defined based on which sweeps are initiated from /to child account to make the child account attain a fixed balance.

Investment Sweeps: System supports investment sweeps wherein funds are invested either in Money Market Instruments or term deposits.

Other Sweep Parameters

Minimum Sweep amount - Specifying a currency wise minimum amount for Sweep. If the sweep amount calculated by the system is less than the minimum amount, then sweep from the subaccount to the main account will not take place.

Maximum Sweep amount - Specifying a currency wise maximum amount for Sweep. If the sweep amount calculated by the system is greater than the maximum amount, only the maximum amount is transferred from the subaccount to the main account.

Deficit Sweep - Balance transfers from the main account to the subaccount when the sub account is in Debit balance

Minimum Deficit Sweep amount - Specifying a currency wise minimum amount for Deficit Sweep. If the deficit sweep amount arrived by the system is less than the minimum deficit sweep amount, then sweep from the main account to the sub account will not take place.

Maximum Deficit Sweep amount - Specifying a currency wise maximum amount for deficit Sweep. If the sweep amount arrived by the system is greater than the maximum deficit sweep amount, only the maximum deficit sweep amount is transferred from the subaccount to the main account.

Sweep multiple – Specifying the currency wise sweep multiple. The amount from subaccounts will be swept at a pegged multiple.

Cover Overdrafts – Sweeps are executed only to cover overdrafts in parent or child accounts

1.5.6 Multi Bank Cash Concentration (MBCC)

Multi Bank Cash Concentration (MBCC) provided for automated movement of funds across global multiple third party bank accounts across currencies, accounts, banks and geographic regions. Multi Bank Cash Concentration is acheived through SWIFT using MT940, MT941, MT942, MT101, MT103 and MT920.These MT Messages parse and validated to derive necessary information as needed.

Following features supported in MBCC

- Flexibility to add or delete accounts in the MBCC structure and also to add or delete accounts in to the MBCC structure.
- Flexible movement of funds at end of day, intraday, weekly (particular day of a week) or Monthly (particular day of a month).
- Flexible sweep types such as Zero / Target / Threshold / Collar balancing / Percentage.
  .

1.5.7 Pool

When multiple currencies are involved in sweeping, the transaction costs of converting all currencies to a single currency every day would exceed the benefit. In such a scenario corporate opt for Notional pooling. Under a notional pooling arrangement, balances remain on participant accounts. However, the bank charges or credits interest on the net balance of the pooled accounts, as opposed to each account individually, therefore mitigating the cost of overdrafts on participant accounts by offsetting credit balances on others.

Notional pooling is a mechanism for calculating interest on the combined credit and debit balances of accounts that a corporate parent chooses to cluster together, without actually transferring any funds. It is ideal for companies with decentralized organizations that want to allow some autonomy to their subsidiaries, including their control over bank accounts.
Pool participant accounts are aggregated for interest compensation purposes. Funds are not physically moved, but are instead notionally combined. There is no commingling of funds, and the integrity of the individual account position is maintained.

Structure Maintenance Screen is used to maintain Pool Structures in LM system. This screen enable banker to add accounts and form a pool structure. There will not be any restriction on number of accounts to be added or number of hierarchical levels as system support multi level pooling in LM.

Notional pooling can take any of the following structure.

- Single currency, single country
- Single currency, cross border

- Multi-currency, single country
- Multi-currency, cross border

1.5.8 Back Value Dated Transactions

System support 'Back Value Dated'(BVT) transactions in the child accounts, for any back value dated transactions posted/ reversal affected system will rework the interest calculations and interest reallocations from that day (BVT date) taking in to consideration

- The account structure (as on that day and any changes thereafter)
- The applicable Interest rates (as on that day and any changes thereafter) and
- Account balances
- Currency exchange rate as on that day (Cross Currency Sweep)
- Sweep concentration method

1.5.9 Dashboard

Oracle Banking Liquidation Management support the following features in the Dashboard based on the user role.

- Easy access to alerts and exceptions based on the role.
- Easy view of the customers data.
- Summary of the transactions for bank managers to view logically categorized
- applications for easy analysis and processing
- Dashboards (Banker dashboard / corporate dashboard) can be viewed based on the 'User Role' mapped.

Each 'User Role' would not require all of the above, hence the system enables grouping of these Dashboards based on the 'User Role'.

Banker Dashboard

In the Banker Dashboard, the application allows you to do the following:

- View a system wide summary of the LM transactions as well as system alerts and exceptions based on the role.
- View the data of all the customers you have access to.

Various widgets available for bankers are discussed under the following headings.

Alerts: This widget displays the system alerts generated by all the maintenance screens to the banker. This real time notification to the banker can reduce the turnaround time on roadblocks.

Currency Wise Liability: This widget displays the currency wise liability balances across regions in five main currencies (USD, EUR, GBP, JPY and SGD). This is shown as a bar graph. You can view the balances by hovering over the graph. This gives a ready reference on regional currency positions for FX planning.

Top Five Customers Effective Balances: This widget lists the top five customers based on the total available balance. The balances are segregated for sweep structures and pool structures and the cumulative balances are shown for both.
This helps to identify the top liquidity customers in a period of time and strategize the sale and customer retention accordingly.

Top Five Customers - Sweep Volume in Numbers: This widget displays the most active sweep customers for the day. It can help in estimating revenue from each customer when charges are sweep based.

Top Five Cross Border Sweeps: This widget displays the top five cross border sweeps for the day in terms of sweep amount. You can drill down and view the details of the sweep.

Pending Task: This widget lists all the pending authorization tasks. You can drill down the list to view the authorization screen. This helps to prioritize and ascertain the authorizations.

Exception List: This widget lists out all the exceptions encountered for the day and pending for clearance.

RM Dashboard

RM dashboard provides summary view of LM transactions and relevant system alerts and various dashboards/widgets for corporate are indicated in the below headings.

Account Map: In this widget, you can view the currency wise balances of a corporate across all structures in a particular location. You can hover over the dots in a region to see the balances.

Currency Balances - Past 30 days: This widget displays the corporate currency wise total positions on a particular day for the past 30 days. The currency balance refers to the EOD balances
This will help to ascertain the global currency positions of the corporate and the changes in currency positions.

Scheduled Sweeps – Today: This widget displays the list of sweeps scheduled for the day. The scheduled sweeps will be displayed as per the logged in user's time zone.

1.5.10 Reports

Oracle Banking Liquidation Management supports daily reports and range reports (periodic).Daily reports are generated every day. These can also be generated for a particular day. Range reports are generated for a specific period.

Various types of reports supported by system are indicated below.

Sweep Structure Report: Provides details of all the Sweep/Pool/Hybrid/Compensation structures maintained with details of the participant accounts , It should also provide details of any modification done to the structure both value dated and Back value dated – Daily report and Range report.

Sweep Reject Report: A report which provides details of Sweeps rejected along with reason for rejection –Daily report.

Sweep Summary Report: This report provides the summary of sweeps done on a specified date. It states the sweep amount, the accounts involved, reference number and the value date – range report.

Interest Accrual Report: A report which provides the interest accrued on the account still date – Daily/range report.

1.5.11 Interest Computations

OBLM supports interest calculations on all the accounts participating in either sweep or pool

Sweeping: Interest accrual and liquidation will happen at the Header level LM needs to hand off accrual entries to the DDA on a daily basis only for the header For the Residual balances on the child accounts DDA will do interest accrual & Liquidation.

Pooling:
Interest accrual and liquidation will happen at the Header level LM needs to hand off accrual entries to the DDA on a daily basis only for the header where the balances are accumulated notionally (This be on a system account in LM) IC will be switched off for the child accounts in DDA.The reallocations will be handled from the LM system starting from the Header.

Interest calculation methods for Pool

Interest Model: In Interest Calculation Model, Interest would be calculated only at Pool Header Account. Interest on individual Child Accounts would not be calculated before pooling. Child Accounts will get interest through Redistribution after pool calculations are done.

Advantage Model: In Advantage Calculation Model, Interest would be calculated at every individual child account and at the pool level even. The Advantage is calculated by taking difference of Interest calculated at pool level and sum of all child accounts interests. Child Accounts will get advantage through Redistribution after pool calculations are done.

Interest Enhancement Model: In Interest Optimization Method, interest is calculated on individual accounts and a pool benefit interest is also provided due to pool participation. Thus on a particular account, final interest rate is calculated as sum of individual and pool interest rates. Depending on currency demand in the money market, additional interests can be provided on the participating accounts. This will also add up while determining the individual interest rates. Also contributing amount can be divided into slabs and interest can be calculated accordingly.

Interest Optimization Model: Balances of child accounts for participating in pool.

OBLM supports the following Interest re-distribution methods.

Central Distribution Model: In this method, the interest\ advantage interest arrived is credited to one central account which can be one of the participant accounts or any other account system will allow payment of this interest/charge to a particular/nominated account which can be done in two ways:

- Set off Method- Cr/Dr interest is paid to nominated accounts
- Non Set Off Method - Net interest is paid to nominated account

Set off method: Here Credit interest is calculated on aggregated daily credit balances and Debit interest is calculated on aggregated daily debit balances. The Debit and credit interests are posted separately to the nominated accounts.

Non-Set off method: Here the net interest position is calculated on the net balance of the pool and paid or charged to the master account.

Even Distribution Model: In this method, the interest\ advantage arrived is evenly distributed amongst the participant accounts.

Even Direct Distribution Model: In this method the Interest reward is evenly spread across all accounts with positive balances.

Percentage Distribution Model: In this method, pre-defined percentage of the interest\ advantage arrived is distributed amongst the participant accounts.

Fair Share Model: In this method, If the net pool position is positive, the interest/advantage interest arrived is distributed amongst the positive contributors in the ratio of their contribution (**Both in Interest and Advantage models**).If the net pool position is negative the interest amount is distributed amongst the negative contributors in the ratio of their contribution (**Interest model**).If the net pool position is negative, the advantage interest amount is distributed amongst the negative contributors in the ratio of their contribution.

Reverse Fair Share Model: In this method, if the new pool position is positive, the interest/ advantage interest arrived is distributed amongst the negative contributors in the ratio of their contribution (**Both in Interest and advantage models**). If the net pool position is negative, the interest amount is distributed amongst the positive contributors in the ratio of their contribution (**Interest model**). If the net pool position is negative, the advantage interest amount is distributed amongst the positive contributors in the ratio of their contribution (**Advantage model**).

Absolute Pro -Rata Model: In this method, absolute balances of all accounts would be considered and interest would be shared proportionately to all accounts.

Interest Reallocation

Interest reallocation is applicable only to central distribution model of interest allocation. The Interest/ advantage interest credited to the central account which would be a treasury account is re-distributed amongst the participant accounts using any of the above discussed allocation models. In allocation models the debit was to the Bank GL, in re-allocation model the debit will be to the central treasury.

1.5.12 DDA Handoff

Oracle Banking Liquidity Management is a standalone system with accounts and balances being mirrored from DDA\s. The actual accounts and balances are on DDA. System pull the account turnover data from DDA and build the balance for the account or DDA will push the actual value dated balances to GLM tables based on which GLM will update the account balances and carry out its function of sweeping and pooling.

GLM supports two modes of balance update, Online and Offline.

Online Mode

In the online mode, the balances for the accounts in the branch will be fetched through a Webservice from the DDA. The balance build always happens before the sweep/pool execution hence the sweeps/pool will always be performed on the latest balances on the account.

Offline Mode

In offline mode, the balances for the accounts in the branch will be fetched from the backend tables of GLM. These balances are updated through a periodic file upload from DDA. DDA will keep periodically pushing the balance files to GLM and the periodicity is governed by the DDA. GLM will refer to its backend tables before the start of sweep/pool. In offline method GLM will build balances on actual value dated balances of the participant accounts (based on the last file-upload from DDA).

2. Components of the Software

2.1 Documents accompanying the software

The various documents accompanying the software are as follows:

- Release Note
- Installer Kit
- User Manuals and Installation manuals can be accessed from **http://docs.oracle.com/cd/E84624_01/index.htm**

2.2 Software Components

Software Components of Oracle Banking Liquidity Management 12.4.0.0.0 that form part of this release are as follows:

- Application Server
    - Java Sources
    - UI Components (ADF)
    - Reporting Components(Data models(xdmz))
- Database Server
    - Stored Procedures (Packages, Functions, Procedures, Triggers, Views)
- Installation utilities
    - UI and Script based installation for Application Server and Database Server
    - Installation documents for
        - Application Deployment
        - Database setup
        - Reports set-up
        - User Creation Utility
- Online Help Files

3. Annexure – A: Environment Details

Tech Stack

Component	Deployment option	Machine	Operating System	Software	Version
Oracle Banking Liquidity Management	Centralized	Application Server	Oracle Enterprise Linux Server 7.1	Oracle Fusion Middleware 12c Infrastructure *(Includes Oracle Web Logic Server + ADF)*	12.2.1.2.0
				Oracle JDK	JDK 1.8 Update 112
				Oracle Toplink	12.2.1.2.0
		Database Server	Oracle Enterprise Linux Server 7.1	Oracle Database 12c Enterprise Edition Release (64 Bit Production)	12.1.0.2.0
		Reporting Server	Oracle Enterprise Linux Server 7.1	Oracle WebLogic	12.2.1.2.0
				Oracle JDK	JDK 1.8 Update 112
				Oracle Business Intelligence (Oracle BI Publisher)	12.2.1.2.0
		Client Machines	#Supported Browsers	Internet Explorer	Microsoft Internet Explorer Release(11.x)
				Mozilla Firefox	Mozilla Firefox Release(45+)
				Google Chrome	Google Chrome Release(55+)

Note: # Browser support is no longer based on Operating Systems but strictly tied to the browser themselves, no matter which Operating Systems they are installed on. Current release is certified on client workstations with Windows 7.

4. Annexure – B: Third Party Software Details

Licensor Name	Licensed Technology	Version
Apache	Ant	1.9.7