



CDC Consumers for LOS Search and Details Applications

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Date: Jan 24, 2019

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1. Introduction

This document discusses about CDC Consumers that are developed for LOS Search/Details Applications.

Search and Details applications need to access data coming from 28 different Oracle Tables spread across three different Schemas viz., WWSEBS01, WWSGLS01 and WWSMGC01.

These tables are directly loaded to MapR-DB via Attunity full loads to MapR full load steams Streams and the changes in these 28 tables after beginning of the full-loads will be published to CDC streams. Once Attunity Full-loads are completed then these will be ingested into MapR-DB source tables. From MapR-DB Source tables it will be then loaded in to de-normalized and aggregated tables. This entire process is called as MapR full-loads. After the successful MapR full-loads then full-load validation will be done.

Once after successful full-load validations the delta changes that were occurring since the Attunity full-loads on these tables will then be updated to MapR-DB Tables.

CDC Consumers will then pickup these delta changes and update MapR-DB Tables seamlessly. The rest of the document describes this.

Please see the documentation for Attunity Full-loads, MapR Full-loads and MapR Full load validation documentation for further information.

2. Oracle Tables

As mentioned in the introduction, CDC consumers need to process changes coming from 28 different Oracle Tables. The following table list out all the 28 Oracle table with their schema information.

Sno	Schema Name	Table Name
1	WWSMGC01	WWT03070_BNS_AWD_MST
2	WWSMGC01	WWT03160_BUS_ENTTY_MST
3	WWSMGC01	WWT03170_BUS_ENTTY_DTL
4	WWSMGC01	WWT03190_BUS_NATR_LKP
5	WWSMGC01	WWT03680_VOL_TYPE_MST
6	WWSMGC01	WWT09000_BLKCS_PRIVS_MST
7	WWSMGC01	WWT12010_AFF_MST
8	WWSMGC01	WWT12030_CNTRY_MST
9	WWSEBS01	WWT01010_BNS_CUST_MST
10	WWSMGC01	WWT03610_SCHED_BNS_AWD_DTL
11	WWSMGC01	WWT03612_SCHED_BNS_AWD_VOL_DTL
12	WWSMGC01	WWT03640_SYS_RULE_AFF_CTL



13	WWSMGC01	WWT03130_BNS_EXCHG_RT_DTL
14	WWSGLS01	WWT01080_IBO_INF_MST
15	WWSGLS01	WWT01100_IBO_NM_MST
16	WWSGLS01	WWT01160_IBO_SPON_MST
17	WWSMGC01	WWT03051_CURR_HIGH_AWD
18	WWSMGC01	WWT03088_CUST_SEG_PER_DTL
19	WWSMGC01	WWT03240_CUST_PER_CALC_DTL
20	WWSMGC01	WWT03250_CUST_PER_DTL
21	WWSMGC01	WWT03255_CUST_UPLN_TYPE_DTL
22	WWSMGC01	WWT03270_CUST_PER_QUAL_DTL
23	WWSMGC01	WWT03290_CUST_SPON_DTL
24	WWSMGC01	WWT03430_LEG_CNT_ANNUAL_DTL
25	WWSMGC01	WWT03476_VOL_PER_DTL
26	WWSMGC01	WWT03760_SPONG_STATS_DTL
27	WWSMGC01	WWT03900_TRX_MST
28	WWSMGC01	WWT09004_BLACKSPRIVS_DIST

3. MapR-Streams Topics

As discussed in the introduction, changes (INSERT/UPDATE/DELETE) that are happening in these 28 tables are published through Attunity to MapR-Streams Topics.

The following table lists all the CDC MapR Streams Topics. Note that these topics are all single partitioned at this point of time. Work is going on to make multi partition topics, however, no code changes are required for the consumers to process multi partition topics.

SN O	Schema Name	Table Name	Stream Name	Topic Name
1	WWSMGC01	WWT03070_BNS_AWD_MST	/amway/magic/bonus/services/los/streams/cdc-streams/cdc	WWSMGC01.WWT03070_BNS_AWD_MST
2	WWSMGC01	WWT03160_BUS_ENTTY_MST	/amway/magic/bonus/services/los/streams/cdc-streams/cdc	WWSMGC01.WWT03160_BUS_ENTTY_MST
3	WWSMGC01	WWT03170_BUS_ENTTY_DTL	/amway/magic/bonus/services/los/streams/cdc-streams/cdc	WWSMGC01.WWT03170_BUS_ENTTY_DTL
4	WWSMGC01	WWT03190_BUS_NATR_LKP	/amway/magic/bonus/services/los/streams/cdc-streams/cdc	WWSMGC01.WWT03190_BUS_NATR_LKP
5	WWSMGC01	WWT03680_VOL_TYPE_MST	/amway/magic/bonus/services/los/streams/cdc-streams/cdc	WWSMGC01.WWT03680_VOL_TYPE_MST
6	WWSMGC01	WWT09000_BLACKSPRIVS_MST	/amway/magic/bonus/services/los/streams/cdc-	WWSMGC01.WWT09000_BLACKSPRIVS_MST



			streams/cdc	
7	WWSMGC01	WWT12010_AFF_MST	/amway/magic/bonus/service s/los/streams/cdc- streams/cdc	WWSMGC01.WWT12010_AFF_MST
8	WWSMGC01	WWT12030_CNTRY_MST	/amway/magic/bonus/service s/los/streams/cdc- streams/cdc	WWSMGC01.WWT12030_CNTRY_MST
9	WWSEBS01	WWT01010_BNS_CUST_MST	/amway/magic/bonus/service s/los/streams/cdc- streams/cdc	WWSEBS01.WWT01010_BNS_CUST_MST
10	WWSMGC01	WWT03610_SCHED_BNS_AWD_DTL	/amway/magic/bonus/service s/los/streams/cdc- streams/cdc	WWSMGC01.WWT03610_SCHED_BNS_AWD_DTL
11	WWSMGC01	WWT03612_SCHED_BNS_AWD_VOL_DTL	/amway/magic/bonus/service s/los/streams/cdc- streams/cdc	WWSMGC01.WWT03612_SCHED_BNS_AWD_VOL_DTL
12	WWSMGC01	WWT03640_SYS_RULE_AFF_CTL	/amway/magic/bonus/service s/los/streams/cdc- streams/cdc	WWSMGC01.WWT03640_SYS_RULE_AFF_CTL
13	WWSMGC01	WWT03130_BNS_EXCHG_RT_DTL	/amway/magic/bonus/service s/los/streams/cdc- streams/cdc	WWSMGC01.WWT03130_BNS_EXCHG_RT_DTL
14	WWSGLS01	WWT01080_IBO_INF_MST	/amway/magic/bonus/service s/los/streams/cdc- streams/cdc	WWSGLS01.WWT01080_IBO_INF_MST
15	WWSGLS01	WWT01100_IBO_NM_MST	/amway/magic/bonus/service s/los/streams/cdc- streams/cdc	WWSGLS01.WWT01100_IBO_NM_MST
16	WWSGLS01	WWT01160_IBO_SPON_MST	/amway/magic/bonus/service s/los/streams/cdc- streams/cdc	WWSGLS01.WWT01160_IBO_SPON_MST
17	WWSMGC01	WWT03051_CURR_HIGH_AWD	/amway/magic/bonus/service s/los/streams/cdc- streams/cdc	WWSMGC01.WWT03051_CURR_HIGH_AWD
18	WWSMGC01	WWT03088_CUST_SEG_PER_DTL	/amway/magic/bonus/service s/los/streams/cdc- streams/cdc	WWSMGC01.WWT03088_CUST_SEG_PER_DTL
19	WWSMGC01	WWT03240_CUST_PER_CALC_DTL	/amway/magic/bonus/service s/los/streams/cdc- streams/cdc	WWSMGC01.WWT03240_CUST_PER_CALC_DTL
20	WWSMGC01	WWT03250_CUST_PER_DTL	/amway/magic/bonus/service s/los/streams/cdc- streams/cdc	WWSMGC01.WWT03250_CUST_PER_DTL
21	WWSMGC01	WWT03255_CUST_UPLN_TYPE_DTL	/amway/magic/bonus/service s/los/streams/cdc- streams/cdc	WWSMGC01.WWT03255_CUST_UPLN_TYPE_DTL
22	WWSMGC01	WWT03270_CUST_PER_QUAL_DTL	/amway/magic/bonus/service s/los/streams/cdc- streams/cdc	WWSMGC01.WWT03270_CUST_PER_QUAL_DTL
23	WWSMGC01	WWT03290_CUST_SPON_DTL	/amway/magic/bonus/service s/los/streams/cdc- streams/cdc	WWSMGC01.WWT03290_CUST_SPON_DTL



24	WWSMGC01	WWT03430_LEG_CNT_ANNUAL_DTL	/amway/magic/bonus/services/los/streams/cdc-streams/cdc	WWSMGC01.WWT03430_LEG_CNT_ANNUAL
25	WWSMGC01	WWT03476_VOL_PER_DTL	/amway/magic/bonus/services/los/streams/cdc-streams/cdc	WWSMGC01.WWT03476_VOL_PER_DTL
26	WWSMGC01	WWT03760_SPONG_STATS_DTL	/amway/magic/bonus/services/los/streams/cdc-streams/cdc	WWSMGC01.WWT03760_SPONG_STATS_DTL
27	WWSMGC01	WWT03900_TRX_MST	/amway/magic/bonus/services/los/streams/cdc-streams/cdc	WWSMGC01.WWT03900_TRX_MST
28	WWSMGC01	WWT09004_BLACKSPRIVS_DIST	/amway/magic/bonus/services/los/streams/cdc-streams/cdc	WWSMGC01.WWT09004_BLACKSPRIVS_DIST

4. MapR-DB Table and Types

MapR-DB tables can be broadly classified into the following categories with respect to CDC Consumers

1. Lookup Tables
2. Current Period LOS Table
3. Period LOS Table
4. Awards Table
5. Aggregated Table
6. Leg Count Annual Detail/Fiscal Year Data Table
7. Audit Tables
8. Retry Tables
9. Fail Tables

Please refer to Full Load documentation for the detailed explanation of the MapR-DB Table Types

5. Mapping between Oracle and MapR-DB Table Type

The following describes Mapping between Oracle Table and its corresponding MapR-DB Table Type.

Sno	Schema Name	Table Name	MapR-DB Table Type
1	WWSMGC01	WWT03070_BNS_AWD_MST	LOOKUP
2	WWSMGC01	WWT03160_BUS_ENTTY_MST	LOOKUP
3	WWSMGC01	WWT03170_BUS_ENTTY_DTL	LOOKUP
4	WWSMGC01	WWT03190_BUS_NATR_LKP	LOOKUP
5	WWSMGC01	WWT03680_VOL_TYPE_MST	LOOKUP
6	WWSMGC01	WWT09000_BLACKS_PRIVS_MST	LOOKUP
7	WWSMGC01	WWT12010_AFF_MST	LOOKUP



8	WWSMGC01	WWT12030_CNTRY_MST	LOOKUP
9	WWSEBS01	WWT01010_BNS_CUST_MST	LOOKUP
10	WWSMGC01	WWT03610_SCHED_BNS_AWD_DTL	LOOKUP
11	WWSMGC01	WWT03612_SCHED_BNS_AWD_VOL_DTL	LOOKUP
12	WWSMGC01	WWT03640_SYS_RULE_AFF_CTL	LOOKUP
13	WWSMGC01	WWT03130_BNS_EXCHG_RT_DTL	LOOKUP
14	WWSGLS01	WWT01080_IBO_INF_MST	Current-Denorm
15	WWSGLS01	WWT01100_IBO_NM_MST	Current-Denorm
16	WWSGLS01	WWT01160_IBO_SPON_MST	Current-Denorm
17	WWSMGC01	WWT03051_CURR_HIGH_AWD	Awards
18	WWSMGC01	WWT03088_CUST_SEG_PER_DTL	Period-Denorm
19	WWSMGC01	WWT03240_CUST_PER_CALC_DTL	Agg-table
20	WWSMGC01	WWT03250_CUST_PER_DTL	Period-Denorm
21	WWSMGC01	WWT03255_CUST_UPLN_TYPE_DTL	Agg-table Current,Period-Denorm
22	WWSMGC01	WWT03270_CUST_PER_QUAL_DTL	Agg-table
23	WWSMGC01	WWT03290_CUST_SPON_DTL	Period-Denorm
24	WWSMGC01	WWT03430_LEG_CNT_ANNUAL_DTL	Fy-Data table
25	WWSMGC01	WWT03476_VOL_PER_DTL	Agg-table
26	WWSMGC01	WWT03760_SPONG_STATS_DTL	Agg-table
27	WWSMGC01	WWT03900_TRX_MST	Agg-Table
28	WWSMGC01	WWT09004_BLKSPRIVS_DIST	Current-Denorm

6. CDC Consumers

CDC refers to Change Data Capture and it is a process to capture all the changes that are happening in Source(in this case it is Oracle Database) and publish them to Target(in this case it is MapR Streams Topics)

CDC Consumers are Kafka Consumers to consume messages present in MapR-Streams Topics(these messages are published through CDC PROCESS) and update various MapR-DB Document tables based on the business logic.

We first start Attunity full load tasks and CDC tasks on all the above 28 Oracle tables at same time to make sure all the changes on these 28 tables are ingested to MapR CDC Streams topics.

Once the Attunity full loads are complete then MapR-DB full loads will start to populate the MapR-DB Tables(1-6 table types will be populated) from MapR-Streams Topics.



Once the full-loads are completed then CDC Consumers will be started as defined in the consumer sequence order for all the 28 Oracle Tables to process the changes coming from these Oracle Tables.

These consumers process the INSERT/UPDATE/DELETE message types only. This means these consumers at this point can only process INSERT/UPDATE/DELETE changes made to 28 Oracle Tables. These CDC Consumers does not process the REFRESH messages, DDL messages at this point of time.

All Consumers are written using Spring Boot + Spring Kafka.

7. CDC Consumers Classification

CDC consumers are divided into the following categories based on the Oracle Tables and MapR-DB tables

1. Lookup Consumers

Lookup Consumers processes changes coming from 13 lookup tables present in Oracle DB across 2 different schemas (WWSEB01 and WWSMGC01). Changes to these Oracle lookup tables should be seamlessly updated to corresponding Lookup Tables present in MapR-DB.

2. Current Denorm Consumers

This type of Consumer updates Current Period LOS MapR-DB Table(los-current-period-data). This table is de-normalized table and built from 3 different Oracle Tables and they are

- WWSGLS01.WWT01080_IBO_INF_MST
- WWSGLS01.WWT01100_IBO_NM_MST
- WWSGLS01.WWT01160_IBO_SPON_MST

So, each table has a consumer to process changes from the above tables.

3. Period Denorm Consumers

This type of Consumer updates Period LOS MapR-DB Table(los-period-data). This table is de-normalized table and build from 3 different Oracle Tables and they are

- WWSMGC01.WWT03250_CUST_PER_DTL,
- WWSMGC01.WWT03088_CUST_SEG_PER_DTL,
- WWSMGC01.WWT03290_CUST_SPON_DTL

So, each table has a consumer to process changes from the above tables.

4. Award Consumer

This type of Consumer updates Period LOS MapR-DB Table(awards). This table is de-normalized table and build from 1 Oracle Table and it is

- WWSMGC01.WWT03051_CURR_HIGH_AWD,



So, there is only one consumer to process changes from the above tables

5. Aggregated Consumers

This type of Consumer updates Aggregated MapR-DB Table(aggregated-data). This table is de-normalized table and built from 3 different Oracle Table and they are

- WWSMGC01.WWT03240_CUST_PER_CALC_DTL,
- WWSMGC01.WWT03270_CUST_PER_QUAL_DTL
- WWSMGC01.WWT03476_VOL_PER_DTL
- WWSMGC01.WWT03760_SPONG_STATS_DTL
- WWSMGC01.WWT03900_TRX_MST

So, each table has a consumer to process changes from the above tables.

6. Leg Count Annual Detail/Fiscal Year Data Consumer

This type of Consumer updates Fiscal Year Data MapR-DB Table(fiscal-year-data). This table is built from 1 Oracle Table and it is

- WWSMGC01.WWT03430_LEG_CNT_ANNUAL_DTL,

So, there is only one consumer to process changes from the above tables

7. Current, Period and Aggregated Consumer

This type of Consumer updates Current Period LOS MapR-DB(los-current-period-data), Period LOS MapR-DB Table(los-period-data) and aggregated MapR-DB Table(aggregated-data).

- WWSMGC01.WWT03255_CUST_UPLN_TYPE_DTL

So, there is only one consumer to process changes from the above tables

8. Audit, Retry and Fail Tables

- **Log Tables:** There are 3 types of tables to record Audit, Retry and Failure information during life time of a consumer. Five(5) MapR-DB tables created to log Audit, Retry or Fail information for all the consumers.
- **Audit Tables :**
Audit Tables maintains all activates done by any consumer during its existence. This means all the messages, which are successfully processed, errored and failed will be logged into corresponding Audit Tables
- **Retry Tables :**
Retry Tables will have all the exceptions those are occurred in consumer while processing a messages. If there are any exceptions while processing messages by any consumer they will be written corresponding MapR-DB Retry Table.
- **Fail Tables :**
There is a retry consumer which will be constantly looking on regular basis for records in Retry Table, if there are any records in Retry table, it then try to process them, it will try to process for three times(if there are any failures), even after three attempts if retry



consumer could not process a record then that record will be moved to Fail Table to process this manually

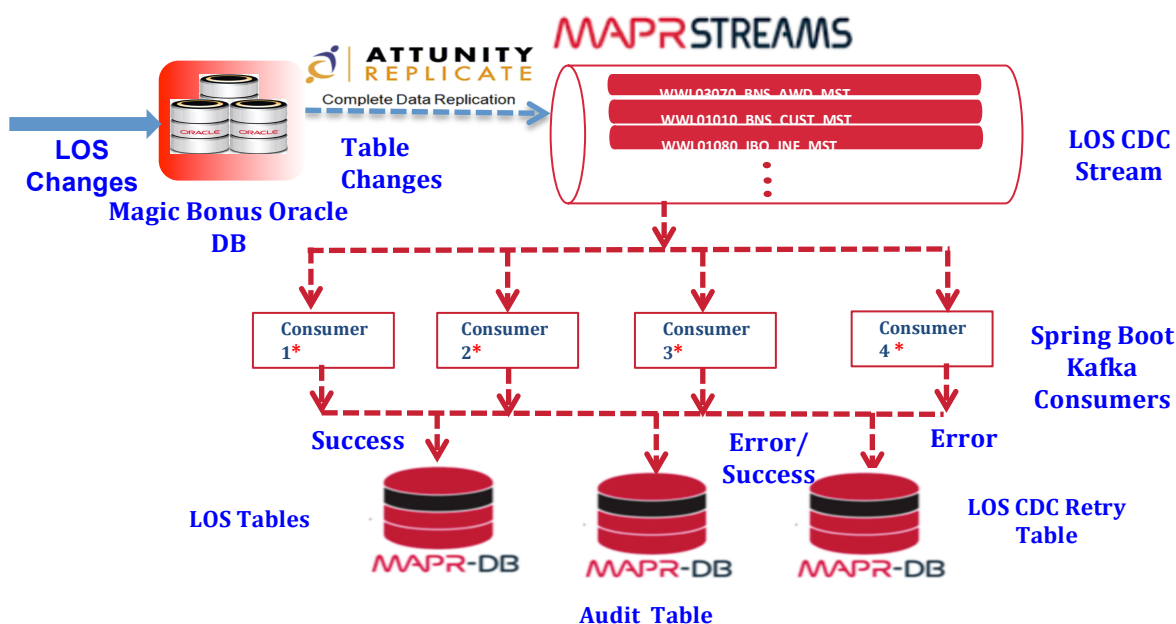
- The following Audit Tables are created to log Audit information various consumers
 - LOS_LOOKUP_AUDIT
This table will have all Audit records for the LOOKUP only consumers
 - LOS_DENORM_AUDIT
This table will have all Audit records for the DENORM only consumers
 - LOS_CURR_AWD_AUDIT
This table will have all Audit records for the CURR AWARD consumer
 - LOS_AGG_AUDIT
This table will have all Audit records for the AGGREGATED only consumers
 - LOS_FY_DATA_AUDIT
This table will have all Audit records for the FISCAL YEAR DATA consumer
- Similarly The following Retry Tables are created to log Error information for various consumers
 - LOS_LOOKUP_RETRY
This table will have all Errored out records for the LOOKUP only consumers
 - LOS_DENORM_RETRY
This table will have all Errored out records for the DENORM only consumers
 - LOS_CURR_AWD_RETRY
This table will have all Errored out records for the CURR AWARD consumer
 - LOS_AGG_RETRY
This table will have all Errored out records for the AGGREGATED only consumers
 - LOS_FY_DATA_RETRY
This table will have all Errored out records for the FISCAL YEAR DATA consumer
- Similarly The following Fail Tables are created to log Error information for various consumers
 - LOS_LOOKUP_FAIL
This table will have all Failed records for the LOOKUP only consumers
 - LOS_DENORM_FAIL
This table will have all Failed records for the DENORM only consumers
 - LOS_CURR_AWD_FAIL
This table will have all Failed records for the CURR AWARD consumer
 - LOS_AGG_FAIL
This table will have all Failed records for the AGGREGATED only consumers
 - LOS_FY_DATA_RETRY
This table will have all Failed records for the FISCAL YEAR DATA consumer



9. High Level Design

The following describes end-end design of CDC Consumers

- Changes (INSERT/UPDATE/DELETE) that are happening in 28 Oracle Tables will be ingested to 28 different MapR Stream Topics continuously
- One Spring Boot Kafka Consumer is subscribed per topic and this will process all the INSERT/UPDATE/DELETE messages
- CDC Consumer reads message from its subscribed topic and according to the business logic it updates MapR DB lookup/current and period LOS/aggregated/awards/fiscal year data tables
- If any of the updates failed then error record is written to LOS Retry Table with status as “retry” and also to Audit Table
- If it is successful then it then writes a “success” record in Audit Table



10. Consumers Descriptions

Consumer Name

a. Lookup Tables:

This documentation is same for all the 13 lookup tables. One Kafka Consumer is written for each and every lookup table. Each Consumer processes Insert, Update and Delete operations coming from CDC messages. The following is the format of a MapR-DB Lookup Table.

```
{ "_id": "10",  
  "data": {  
    ..... //This is where actual data is present  
  }  
}
```



SNO	Schema Name	Table Name	Table Type
1	WWSMGC01	WWT03070_BNS_AWD_MST	LOOKUP
2	WWSMGC01	WWT03160_BUS_ENTTY_MST	LOOKUP
3	WWSMGC01	WWT03170_BUS_ENTTY_DTL	LOOKUP
4	WWSMGC01	WWT03190_BUS_NATR_LKP	LOOKUP
5	WWSMGC01	WWT03680_VOL_TYPE_MST	LOOKUP
6	WWSMGC01	WWT09000_BLKCS_PRIVS_MST	LOOKUP
7	WWSMGC01	WWT12010_AFF_MST	LOOKUP
8	WWSMGC01	WWT12030_CNTRY_MST	LOOKUP
9	WWSEBS01	WWT01010_BNS_CUST_MST	LOOKUP
10	WWSMGC01	WWT03610_SCHED_BNS_AWD_DTL	LOOKUP
11	WWSMGC01	WWT03612_SCHED_BNS_AWD_VOL_DTL	LOOKUP
12	WWSMGC01	WWT03640_SYS_RULE_AFF_CTL	LOOKUP
13	WWSMGC01	WWT03130_BNS_EXCHG_RT_DTL	LOOKUP

b. Current Period LOS Table WWT01080_IBO_INF_MST:

Changes coming from 1080 table will be update to los-current-period-data MapR-DB table. The following table lists mapping between 1080 table columns and MapR-DB los-current-period-data table columns.

Current-LOS table	Oracle Columns	MapR-DB Table fields
WWT01080_IBO_INF_MST	AFF_ID	aff, detail.aff
	IBO_NO	abo, detail.abo
	AMWAY_CNTRY_CD	detail.aboAttributes.country
	APP_ENTRY_DT	detail.aboAttributes.entryDate
	RNW_XPR_DT	detail.aboAttributes.expireDate
	ORGNZ_CD	detail.aboAttributes.legalEntity
	AMWAY_BUS_INACT_CD	detail.businessNature
	DELT_REAS_CD	detail.deltReasCd
	Derived Field: Set to True if there are any frontlines otherwise False	detail.frontLines.hasFrontLines
	PRG_STAT_CD	detail.prgStatCd
	CLASS_CDCLASS_CD	detail.segmentCode
	SPON_AFF_ID	detail.sponsorAff
	SPON_IBO_NO	detail.sponsorAbo
	BUS_STAT_CD	detail.status

c. Current Period LOS Table WWT01100_IBO_NM_MST:

Changes coming from 1100 table will be update to los-current-period-data MapR-DB table. The following table lists mapping between 1100 table columns and MapR-DB los-current-period-data table columns.



Current-LOS table	Oracle Columns	MapR-DB Table fields
WWT01100_IBO_NM_MST	NM_TYPE_CD	detail.aboAttributes.aboNames
	PHYS_NM	detail.aboAttributes.aboNames

d. Current Period LOS Table WWT01160_IBO_SPON_MST:

Changes coming from 1160 table will be update to los-current-period-data MapR-DB table. The following table lists mapping between 1160 table columns and MapR-DB los-current-period-data table columns.

Current-LOS table	Oracle Columns	MapR-DB Table fields
WWT01160_IBO_SPON_MST	LOS_TYPE_CD	detail.uplineInfo.intlSponsorTypes
	SPON_AFF_ID	detail.uplineInfo.intlSponAff
	SPON_IBO_NO	detail.uplineInfo.intlSponAbo

e. Current Period LOS Table WWT09004_BLACKSPRIVS_DIST:

Changes coming from 9004 table will be update to los-current-period-data MapR-DB table. The following table lists mapping between 9004 table columns and MapR-DB los-current-period-data table columns.

Current-LOS table	Oracle Columns	MapR-DB Table fields
WWT09004_BLACKSPRIVS_DIST	EFF_DT	detail.privacyInfo.effDt
	EXPRY_DT	detail.privacyInfo.expDt

f. Period LOS Table WWT03250_CUST_PER_DTL:

Changes coming from 3250 table will be update to los-period-data MapR-DB table. The following table lists mapping between 3250 table columns and MapR-DB los-period-data table columns.

Current-LOS table	Oracle Columns	MapR-DB Table fields
WWT03250_CUST_PER_DTL	BNS_PER_NO	detail.period
	BUS_NATR_CD	detail.businessNature
	CUST_CLASS_CD	detail.segmentCode
	CUST_STAT_CD	detail.status
	CUST_NM	detail.aboAttributes.aboNames
	AMWAY_CNTRY_CD	detail.aboAttributes.country
	BNS_CUST_ID	detail.sourceData.bnsCustId
	BUS_ENTTY_NO	detail.sourceData.businessEntity



g. Period LOS Table WWT03088_CUST_SEG_PER_DTL:

Changes coming from 3088 table will be update to los-period-data MapR-DB table. The following table lists mapping between 3088 table columns and MapR-DB los-period-data table columns.

Current-LOS table	Oracle Columns	MapR-DB Table fields
WWT03088_CUST_SEG_PER_DTL	BNS_CUST_ID	detail.period
	BNS_PER_NO	detail.uplineInfo.intlSponAff
	SEG_CD	detail.segmentCode

h. Period LOS Table WWT03290_CUST_SPON_DTL:

Changes coming from 3290 table will be update to los-period-data MapR-DB table. The following table lists mapping between 3290 table columns and MapR-DB los-period-data table columns.

Current-LOS table	Oracle Columns	MapR-DB Table fields
WWT03290_CUST_SPON_DTL		

i. Awards Table WWT03051_CURR_HIGH_AWD:

Changes coming from 3051 table will be update to awards MapR-DB table. The following table lists mapping between 3051 table columns and MapR-DB awards table columns.

Current-LOS table	Oracle Columns	MapR-DB Table fields
WWT03051_CURR_HIGH_AWD	BNS_CUST_ID	bnsCustId
	EFF_BNS_PER_NO	qualPeriod
	BNS_AWD_TYP_CD	bnsAwdTypCd
	BNS_AWD_NO	awardRank

j. Aggregated Table WWT03240_CUST_PER_CALC_DTL:

Changes coming from 3240 table will be update to aggregated-data MapR-DB table. The following table lists mapping between 3240 table columns and MapR-DB aggregated-data table columns.



Current-LOS table	Oracle Columns	MapR-DB Table fields
WWT03240_CUST_PER_CALC_DTL	CALC_PCT if BNS_AWD_NO = 10	volumeDetails.bonusPercent
	CALC_PCT if BNS_AWD_NO = 200	volumeDetails.leadershipPercent

- k. Aggregated Table WWT03270_CUST_PER_QUAL_DTL:
Changes coming from 3270 table will be update to aggregated-data MapR-DB table. The following table lists mapping between 3270 table columns and MapR-DB aggregated-data table columns.

Current-LOS table	Oracle Columns	MapR-DB Table fields
WWT03270_CUST_PER_QUAL_DTL	QUAL_STAT_CD	
		qualCounts.fosterQualifiedLegsCount – if QUAL_STAT_CD = “NAL” qualCounts.inMktQualifiedLegsCount – if QUAL_STAT_CD = “FSL” qualCounts.intlQualifiedLegsCount – if QUAL_STAT_CD = “QMT”
	DWNLN_QUAL_QTY	

- l. Aggregated Table WWT03476_VOL_PER_DTL:
Changes coming from 3476 table will be update to aggregated-data MapR-DB table. The following table lists mapping between 3476 table columns and MapR-DB aggregated-data table columns.

Current-LOS table	Oracle Columns	MapR-DB Table fields
WWT03476_VOL_PER_DTL	BNS_CUST_ID	bnsCustId
	BNS_PER_NO	period
	BUS_ENTTY_NO	volumeDetails.affAboPvBv.volumeTypesPVBVDataList[].businessEntity
	BNS_VOL_QTY	volumeDetails.affAboPvBv.volumeTypesPVBVDataList[].bv
	PV_QTY	volumeDetails.affAboPvBv.volumeTypesPVBVDataList[].pv



	VOL_TYPE_CD	volumeDetails.affAboPvBv.volumeTypesPVBVDataList[].volumeTypeCode
	Derived value - Year to Date aggregated pv total	volumeDetails.affAboPvBv.volumeTypesPVBVDataList[].ytdPvTotal

m. Aggregated Table WWT03760_SPONG_STATS_DTL:

Changes coming from 3760 table will be update to aggregated-data MapR-DB table. The following table lists mapping between 3760 table columns and MapR-DB aggregated-data table columns.

Current-LOS table	Oracle Columns	MapR-DB Table fields
WWT03760_SPONG_STATS_DTL	BUS_NATR_CD	sponsoringStats.groupCount
	KEY_STATS_CNT	sponsoringStats.groupCount

n. Aggregated Table WWT03900_TRX_MST:

Changes coming from 3900 table will be update to aggregated-data MapR-DB table. The following table lists mapping between 3900 table columns and MapR-DB aggregated-data table columns.

Current-LOS table	Oracle Columns	MapR-DB Table fields
WWT03900_TRX_MST	PROC_STAT_CD = "cp" and TRX_SOURC_CD = "004"	hasReturns(true/false)
	PROC_STAT_CD = "cp" and TRX_SOURC_CD = "006"	hasRework(true/false)
	PROC_STAT_CD = "cp" and TRX_SOURC_CD = "013"	hasTopup(true/false)

o. Current-Period LOS and Aggregated Table WWT03255_CUST_UPLN_TYPE_DTL:

Changes coming from 3255 table will be update to aggregated-data, los-current-period-data and los-period-data MapR-DB tables. The following table lists mapping between 3255 table columns and MapR-DB aggregated-data table columns.

Current-LOS table	Oracle Columns	MapR-DB Table fields
WWT03255_CUST_UPLN_TYPE_DTL	PLATM_FLG	platmFlg
	EMD_FLG	emdFlg
	DIAMD_FLG	diamdFlg



	SPON_BNS_CUST_ID	detail.uplineInfo.platinumSponsor of los-current-period-data table or los-period-data based on incoming bonus period
	UPLN_TYPE_CD,SPON_BNS_CUST_ID	pedSponInfo is Map<UPLN_TYPE_CD,SPON_BNS_CUST_ID>

p. Leg Count Annual Detail or Fiscal Year Data Table

WWT03430_LEG_CNT_ANNUAL_DTL:

Changes coming from 3430 table will be update to aggregated-data MapR-DB table. The following table lists mapping between 3430 table columns and MapR-DB fiscal-year-data table columns.

Current-LOS table	Oracle Columns	MapR-DB Table fields
WWT03430_LEG_CNT_ANNUAL_DTL	BNS_CUST_ID	bnsCustId
	BNS_PER_NO	fiscalYear – year portion of BNS_PER_NO
	LEG_TYPE_CD	legTypeCd
	QUAL_LEG_QTY	qualCounts

11. Consumer Groups

The following table lists all the consumer groups for various consumers. For example, consumers for 11 lookup tables other than 3640 and 1010 consumers should be run under consumer group los-cdc-lookups-prd. Last qualifier in the consumer group name specifies the environment(prd-Production, per – Performance, qa – Quality, dev –Development).

SNO	Consumer Name	Consumer Group Name
1	Lookup Consumers for 11 Tables	los-cdc-lookups-prd/per/qa/dev
2	WWSMGC01.WWT03640_SYS_RULE_AFF_CTL	los-cdc-3640-prd/per/qa/dev
3	WWSEBS01.WWT01010_BNS_CUST_MST	los-cdc-ebs1010-prd/per/qa/dev
4	WWSGLS01.WWT01080_IBO_INF_MST	los-cdc-1080-prd/per/qa/dev
5	WWSMGC01.WWT03051_CURR_HIGH_AWD	los-cdc-3051-prd/per/qa/dev
6	WWSMGC01.WWT03240_CUST_PER_CALC_DTL	los-cdc-3240-prd/per/qa/dev
7	WWSMGC01.WWT03250_CUST_PER_DTL	los-cdc-3250-prd/per/qa/dev
8	WWSMGC01.WWT03270_CUST_PER_QUAL_DTL	los-cdc-3270-prd/per/qa/dev
9	WWSMGC01.WWT03430_LEG_CNT_ANNUAL_DTL	los-cdc-3430-prd/per/qa/dev
9	WWSMGC01.WWT03476_VOL_PER_DTL	los-cdc-3476-prd/per/qa/dev
10	WWSMGC01.WWT03900_TRX_MST	los-cdc-3900-prd/per/qa/dev



11	WWSGLS01.WWT01160_IBO_SPON_MST	los-cdc-1160-prd/per/qa/dev
12	WWSMGC01.WWT03290_CUST_SPON_DTL	los-cdc-3290-prd/per/qa/dev
13	WWSMGC01.WWT09004_BLACKSPRIVS_DIST	los-cdc-9004-prd/per/qa/dev
14	WWSGLS01.WWT01100_IBO_NM_MST	los-cdc-1100-prd/per/qa/dev
15	WWSMGC01.WWT03088_CUST_SEG_PER_DTL	los-cdc-3088-prd/per/qa/dev
16	WWSMGC01.WWT03760_SPONG_STATS_DTL	los-cdc-3760-prd/per/qa/dev
17	WWSMGC01.WWT03255_CUST_UPLN_TYPE_DTL	los-cdc-3255-prd/per/qa/dev

12. Consumer's Starting Sequence

Consumer Starting Sequence dictates when a consumer should be started just after successful full-load validations. This is required, as changes coming from certain tables should be processed in a sequence. For example, messages in WWT01010_BNS_CUST_MST should be processed first before processing messages present in other tables, which needs to be updated to de-normalized, aggregated tables. This is only required after the full-loads and required in consumer failure conditions.

SNO	Consumer Name	Consumer Group Name	Consumer Starting Sequence
1	Lookup Consumers for 11 Tables	los-cdc-lookups-prd/per/qa/dev	1
2	WWT03640_SYS_RULE_AFF_CTL	los-cdc-3640-prd/per/qa/dev	1
3	WWSEBS01.WWT01010_BNS_CUST_MST	los-cdc-ebs1010-prd/per/qa/dev	1
4	WWSGLS01.WWT01080_IBO_INF_MST	los-cdc-1080-prd/per/qa/dev	2
5	WWSMGC01.WWT03051_CURR_HIGH_AWD	los-cdc-3051-prd/per/qa/dev	2
6	WWSMGC01.WWT03240_CUST_PER_CALC_DTL	los-cdc-3240-prd/per/qa/dev	2
7	WWSMGC01.WWT03250_CUST_PER_DTL	los-cdc-3250-prd/per/qa/dev	2
8	WWSMGC01.WWT03270_CUST_PER_QUAL_DTL	los-cdc-3270-prd/per/qa/dev	2
9	WWSMGC01.WWT03430_LEG_CNT_ANNUAL_DTL	los-cdc-3430-prd/per/qa/dev	2
9	WWSMGC01.WWT03476_VOL_PER_DTL	los-cdc-3476-prd/per/qa/dev	2
10	WWSMGC01.WWT03900_TRX_MST	los-cdc-3900-prd/per/qa/dev	3
11	WWSGLS01.WWT01160_IBO_SPON_MST	los-cdc-1160-prd/per/qa/dev	3



12	WWSMGC01.WWT03290_CUST_SPO N_DTL	los-cdc-3290-prd/per/qa/dev	3
13	WWSMGC01.WWT09004_BLACKSPRIV S_DIST	los-cdc-9004-prd/per/qa/dev	4
14	WWSGLS01.WWT01100_IBO_NM_M ST	los-cdc-1100-prd/per/qa/dev	4
15	WWSMGC01.WWT03088_CUST_SEG_ PER_DTL	los-cdc-3088-prd/per/qa/dev	5
16	WWSMGC01.WWT03760_SPONG_ST ATS_DTL	los-cdc-3760-prd/per/qa/dev	5
17	WWSMGC01.WWT03255_CUST_UPL N_TYPE_DTL	los-cdc-3255-prd/per/qa/dev	6

13. Consumer Deployment

a. To deploy any consumer(s) independently on cluster node or edge node:

```
java -jar <name of the jar> --amway.cdc.topics=<topic1,topic2...topicn>
--group.id=<consumer-group-name>
```

Example:

```
java -jar los-cdc-consumer-1.0-SNAPSHOT.jar --
amway.cdc.topics/amway/magic/bonus/services/los/streams/cdc-streams/cdc
\:WWSMGC01.WWT03070_BNS_AWD_MST/amway/magic/bonus/services/los/streams/
cdc-streams/cdc
\:WWSMGC01.WWT03160_BUS_ENTTY_MST/amway/magic/bonus/services/los/stream
s/cdc-streams/cdc
\:WWSMGC01.WWT03170_BUS_ENTTY_DTL/amway/magic/bonus/services/los/stream
s/cdc-streams/cdc \:WWSMGC01.WWT03190_BUS_NATR_LKP --group.id=los-cdc-
lookups-dev
```

b. The Docker solution:

These consumers can be deployed using Docker Container in Docker Swarm Cluster for efficient handling of the consumer deployments. Please check the Docker Deployment documentation for the same

