





INTERNSHIP REPORT

On

**ISS (Integration Self Service)**

Of



**Cognizant**

**Submitted to:** Dr. Swapnaja Patwardhan

**Assistance Professor (IMCC)**

**Submitted by:** Sanket Kasar

**Seat no:** 11194 (IMCC)

**Cognizant Technology Solutions India Private Ltd.**  
**Plot No. 26, 27,**  
**Infotech Park,**  
**MIDC Hinjewadi,Pune**

**TO WHOM IT MAY CONCERN**

**Sub: Employment Information as per our records**

**Employee Name** : **Mr. Sanket Jagannath Kasar**  
**Employee Id** : **712657**  
**Designation** : **Programmer Analyst**  
**Date of Joining** : **26 June 2018**  
**Employment status** : **Active**  
**Role Description** :

Mr. Sanket Jagannath Kasar had joined as an Entry level Programmer trainee and serving the organization from past 2.6 years .

Sanket has been associated with the project and is involved in the initial transition along with the set up of the project. He is engaged in providing IT services like analysis and design, Software Development, User training and Technical consulting in the area of data warehouse. Sanket has grown and played different roles in the project to meet the Client requirements and has been working on different modules and applications in the project as a Programmer Analyst. He has also fixed the various bugs and have added value to the project by performing automations in many areas. He has also played a role in ensuring standards in the customer deliverables and to improve the Customer satisfaction by taking part in driving various organizational activities.

Sanket has been improving himself with the state of art skill set on AWS, Informatica, Oracle, Unix and related technologies, and always meets the intense and ever-increasing demand for latest technologies in the IT industry.

His roles in the project have been summarized below and detailed out in the coming sections:

- Knowledge Transition on applications categorized as Business Critical by the Clients.
- Working at L2 and L3, fixing technical issues by the Business users as well as IT operations.
- Servicing applications related standard service request from Business users. Ensuring 24\*7 application availability through a structured monitoring framework.
- Improving applications stability through problem management.
- Change management for Functional improvements.
- Driving Client governance calls on operational performance, risk and challenges.
- Crisis management to minimize the adverse impact of service interruptions and other incident on Client Business operations.
- End-to-End responsible for the service and takes full operational responsibility for the applications on an outcome – based model.
- Transition management from the delivery to support organization during project rollouts.
- Application rollouts activities such as preparation of User Training Manuals, Online Help Documentation etc. and conducting User Training.
- Responsible for managing Information Security controls through a consistent, reliable and documented processes of data management.
- Providing Services in a technically feasible and appropriately scalable manner which will accommodate bringing Applications in and taking Applications out of scope of the services.

**TECHNICAL SKILLS**

- Primary AWS, Informatica 10.2, Oracle, Redshift, Linux
- Secondary Skill Set Scheduling tools (e.g. Autosys, Airflow), Python
- Databases SQL, Oracle, Redshift
- Documentation Tools Microsoft Office Tools

**PROJECT OVERVIEW**

- Project 1

- **Role** Programmer
- **Technology** Informatica, Oracle, Linux
- **Others** CRM-Salesforce, Plutora, Excel, AutoSys

The objective of Programmer is to provide the E2E service with the means to run all the sales, customer, employee and master product data loads for the two-tiered distribution environment (business to business and business to customer) in their respective local markets. The important aspect of this role is to solve the technical data issues raised by business/customer in data warehouse's and generate the accurate reports on daily basis.

- He has been part of the project from the Pilot Phase of the Transition.
- He has been responsible for the L2/L3 on application issues, and on servicing standard issues from users.
- He is responsible for maintaining the weekly/daily status reports & in conducting the client governance calls on reviewing the team performance.
- He is responsible for maintaining the Knowledge Database by documenting frequent issues and workarounds for resolution at first line, and in creating Knowledge Articles.
- He is responsible for resource management and is in charge of the Knowledge transition and Mentoring of new team members.
- He is responsible for driving key operational services such as Problem Management and Change Management for improving the application stability and functionality.
- He has worked on key enhancements on security improvements for the application.
- He has Co-ordinated the Project deployment and regression test planning activities and had a successful on time implementation of enhancement projects.
- He has Co-ordinated on the post deployment audit processes as well.

- **Project** 2
- **Role** Programmer Analyst
- **Technology** AWS (Redshift, S3, Athena, Glue, IAM, CloudWatch etc.), Informatica, Oracle, Linux
- **Others** Airflow, Wherescape RED

The main objective is to get all the data from any type of source database and make it available to the market/customer in readable format in the Redshift database and for standard enterprise reporting.

- He was involved in the transition of one of the critical applications (ISS, DIL)
- He owns the End to End coordination with users/clients on Corrective and Adaptive Change Request.
- He has also involved in the application migration activities to DIA, NBE which is an ongoing Development project.
- He has taken up the team lead roles & responsibilities For ISS.
- He is been responsible L2/L3 on application issues, and on servicing standard issues from Users.
- He is also responsible for application related report generation, interface monitoring and maintaining the process flows.

Thanking you,  
Yours Faithfully,  
For Cognizant Technology Solutions India Private Ltd.,



**Pravin Mathiyalagan Kumar**  
**Sr. Manager - HR**



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## **Acknowledgement**

I am delighted to take this opportunity to acknowledge all those who Helped me in designing, developing and successfully executing of my Project "**ISS(Integration Self Service)**."

I would like to extend my thanks and gratitude to my project guide **Dr. Swapnaja Patwardhan** (Assistant Professor, IMCC) – Internal Guide and **Mr. Suyash Joshi** (External Guide) for their valuable guidance and timely assistance throughout the development of this project.

I would also like to extend my thanks and gratitude to **Dr. Santosh Deshpande** (Director, IMCC), **Dr. Ravindra Vaidya** (HOD, IMCC), **Dr. Manasi Bhate** (Head – Training and Placement, IMCC) for their constant help and support.

Last but not least, I would like to thank all the teaching and non teaching faculties for their cooperation.

- ***Sanket Kasar***

<b>INDEX</b>	
<b>Introduction</b>	1.1 Company Profile
	1.2 Existing System and Need for System
	1.3 Scope of Work
	1.4 Operating Environment – Hardware and Software
<b>Proposed System</b>	2.1 Detail Description of Technology Used
	2.2 Proposed System
	2.3 Objectives of System
	2.4 User Requirements
<b>Analysis &amp; Design</b>	3.1 Process Diagram
	3.2 Generic Use case Diagram
	3.3 Entity-Relationship Model Diagram
	3.4 Guided Development Process Flow Diagram
	3.5 User Interface to Redshift DB Data Flow Diagram
	3.6 Data Flow Diagram
	3.7 Interface Screens
	3.8 Data Dictionary
	3.9 Table Specifications
	3.10 Test Procedures and Implementation
<b>User Manual</b>	4.1 User Manual
	4.2 Operations Manual / Menu Explanation
	4.3 Program Specifications / Flow Charts
<b>Drawbacks and Limitations</b>	
<b>Proposed Enhancements</b>	
<b>Conclusion</b>	
<b>Bibliography</b>	
<b>ANNEXURES</b>	<b>ANNEXURE 1 : USER INTERFACE SCREENS</b>
	<b>ANNEXURE 2 : OUTPUT REPORTS WITH DATA</b>

# **CHAPTER 1**

## **INTRODUCTION**



## **1.1 Company Profile:-**

Merck is an American multinational pharmaceutical company and one of the largest pharmaceutical companies in the world. Merck is incorporated in New Jersey and was founded in 1891 by **Theodore Weicker**. The Company offers health solutions through its prescription medicines, vaccines, biologic therapies, and animal health products. It operates through four segments: Pharmaceutical, Animal Health, Healthcare Services, and Alliances. The Company's Pharmaceutical feature includes human health pharmaceutical and vaccine products marketed directly by the Company or joint ventures. Human health pharmaceutical products consist of therapeutic and preventive agents, generally sold by prescription, to treat human disorders. The Company sells its human health pharmaceutical products primarily to drug wholesalers and retailers, hospitals, government agencies, and managed healthcare providers, such as health maintenance organizations, pharmacy benefit managers, and other institutions. Vaccine products consist of

preventive pediatric, adolescent, and adult vaccines, primarily administered at physician offices.

***Merck's Major Products Includes:-***

- Januvia, Zetia, Remicade, Keytruda, Isentress etc.

***Merck's Legacy Products:-***

- Vaccines, Thiazide anti-hypertensives, First statin, Antibacterials, Vioxx, Mectizan, Fosamax, etc.

For more than 125 years, Merck (known as MSD outside of the U.S. and Canada) has been inventing for life, bringing forward medicines and vaccines for many of the world's most challenging diseases to pursue our mission to save and improve lives.

## **1.2 Existing System and Need for System:-**

In the Previous old integration models, users faced significant issues when making any changes in existing logic. Whenever any Market users (end users) want to change any data types, any logic changes in data cleansing, or any changes, it was difficult to adapt those changes into existing data warehouse models as those may impact the whole system. It will take the entire week to go from all stages like DEV, SIT, and PRODUCTION.

## **1.3 Scope of Work:-**

We perform the actions as per the User's needs. To ease the process of editing and updating and to provide data security are also the objectives of the proposed system. It also aims at increasing the speed, accuracy, and efficiency of processing the data and generating all the reports accurately and promptly. It reduces the paperwork and

helps in maintaining supremacy. It helps in making the data available very quickly. The primary purpose of developing this application is to make it work. The users feel it easier to work on it and provide accurate and speedy data.

## **1.4 Operating Environment – Hardware and Software:-**



### **Softwares**

- Matillion User Interface(UI)
- Salesforce(CRM) Tool
- BI Reports (Cognos reporting)
- AWS - Amazon Web Services
- Matillion Admin Cloud Tool
- Informatica Powercenter ETL Tool
- Oracle
- Redshift



## **Hardware**

- All the above software's are cloud-based, so there are no hardware requirements as such.

# **CHAPTER 2**

## **PROPOSED SYSTEM**

## **2.1 Proposed system:-**

In the Previous old integration models, there were significant issues users faced. When making any changes in the existing logic, like any Market users (end users), want to change any data types, any logic changes in data cleansing, or any changes, it was difficult to adapt those changes into existing data warehouse models. Also, it takes the entire week to go from all stages like DEV, SIT, and PRODUCTION.

- So we have introduced this Integration Self Service model for users. This application mainly implies markets will be able to design, develop, test and deploy their services on their own.
- We've introduced a User-friendly integration service model in which users can interact with actual production data.
- UI Portal is on-boarded with Country-specific access from which Market Users can interact with an application and load their data into Redshift Cluster.

- CRM Portal (Salesforce) was introduced, which also has synced with the Data warehouse.
- This data is used further by all the downstream, on which the Cognos BI reports are generated for the data analyzing purposes.

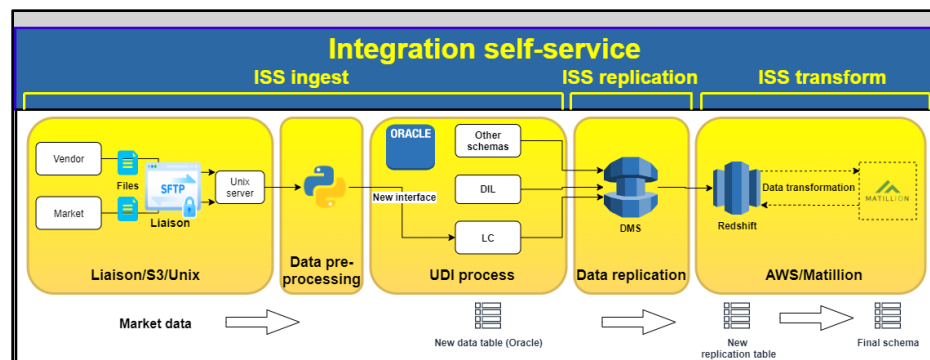
So, in conclusion, User can load their data into the system, see their data on the CRM portal for all their daily usage, query the data on their own as per their requirement, and use the Reports for analyzing purposes.

## **2.2 Objectives of System:-**

- To provide a platform-supported service model to the markets for full-scale integration development of data sources.
- The main difference between BYOD and these integrations is that these integrations are industrialized, i.e., the integrations will be automated and scheduled according to the scheduling requirements of the User.



- The system's main objective is to manage the data and make the data available to the users whenever in need, managing and maintaining the data, records, and confidentiality.
- The Separation of design and metadata from low-level development, release, and environment management.
- Another essential objective is to provide the necessary roles to the User so that they have access to perform the modification or any other operation.



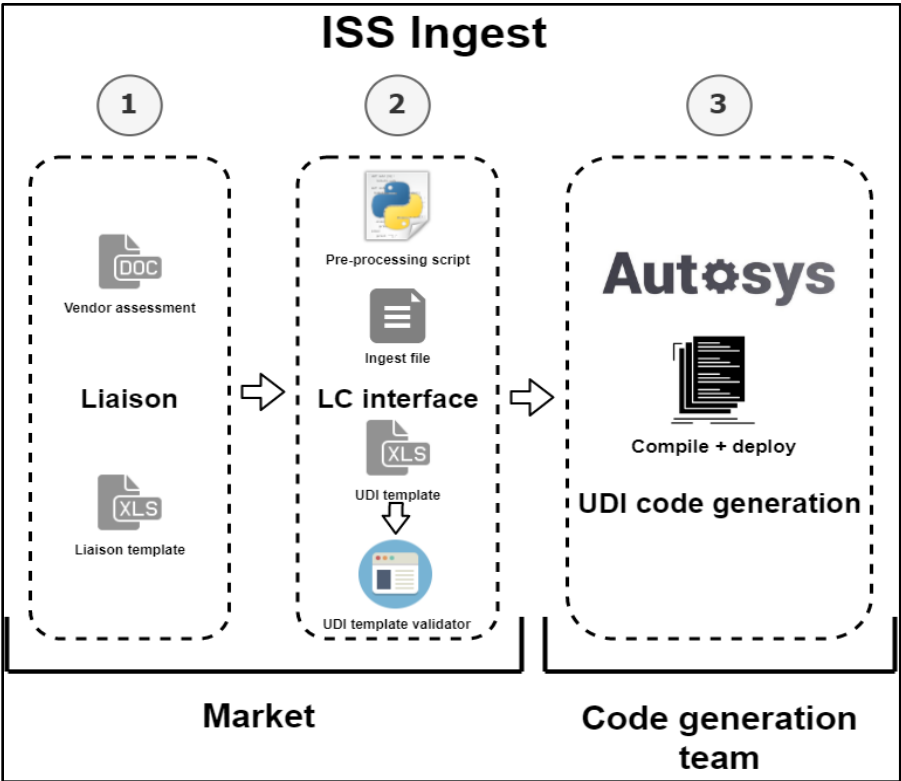
### **2.3 User Requirements:-**

- The main requirement of the users (Market) is that the data should be available as and when needed for Data Visualization & Data Analysis.
- So basically, market/user have inbuilt BI (Business Intelligence) reports created on top of the Redshift DB.
- So our task is to get the data from multiple sources/vendors/stakeholders from the market itself. After gathering all this data from various sources, we need to transform it per user/market requirement and make the data presentable in the Redshift DB.
- User also needs their platform to perform specific queries/operations on the Redshift DB. In such cases, we create different views on top of Redshift tables and provide the required access to the users/market.

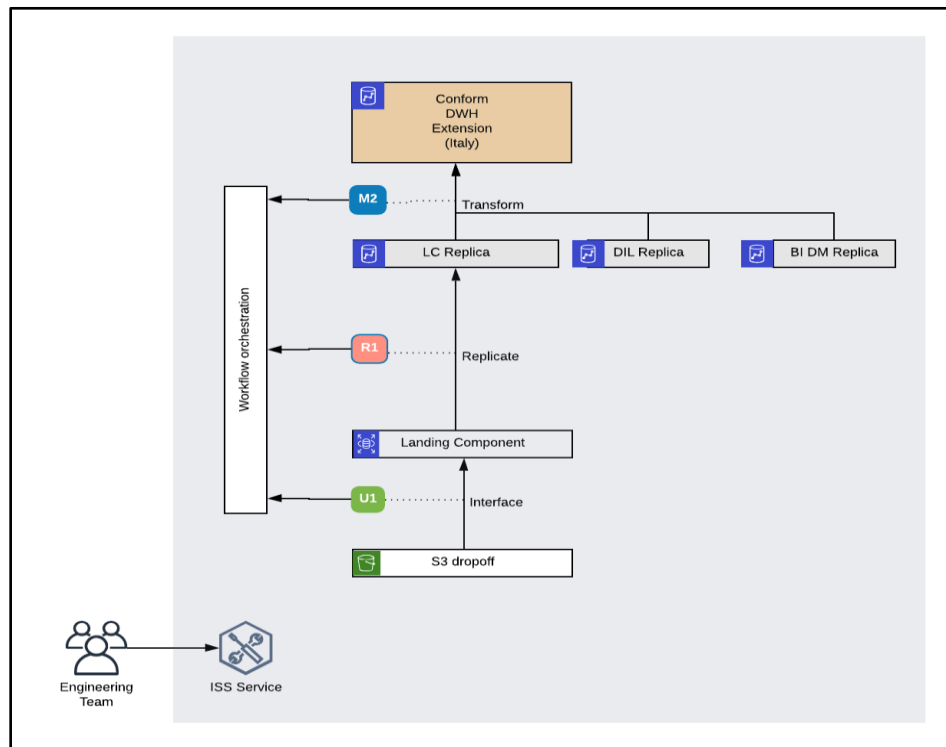
# **CHAPTER 3**

## **ANALYSIS & DESIGN**

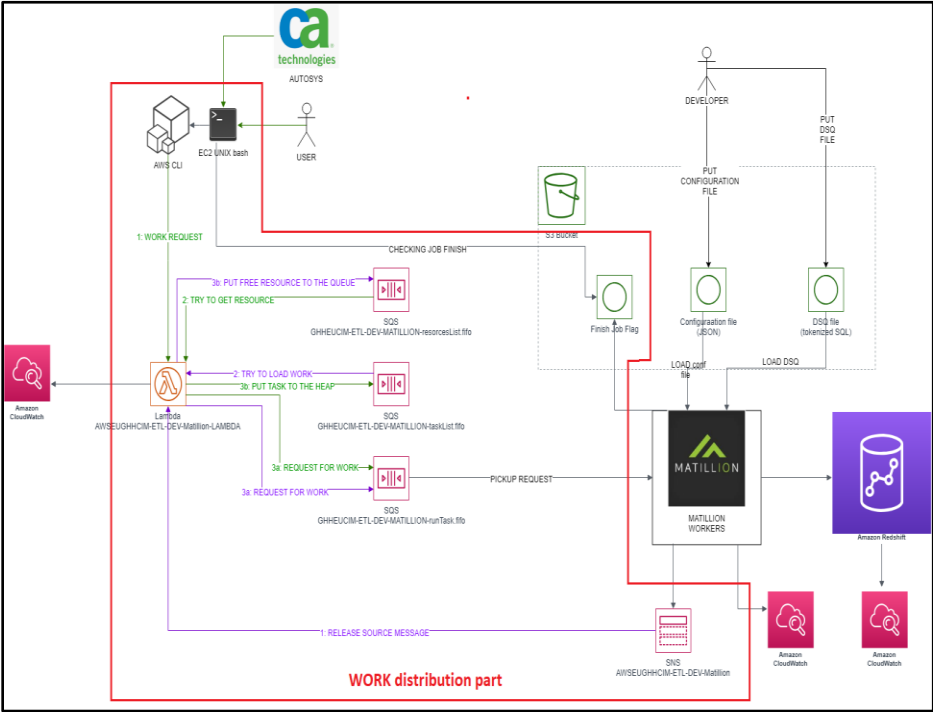
3.1 Process Diagram:-



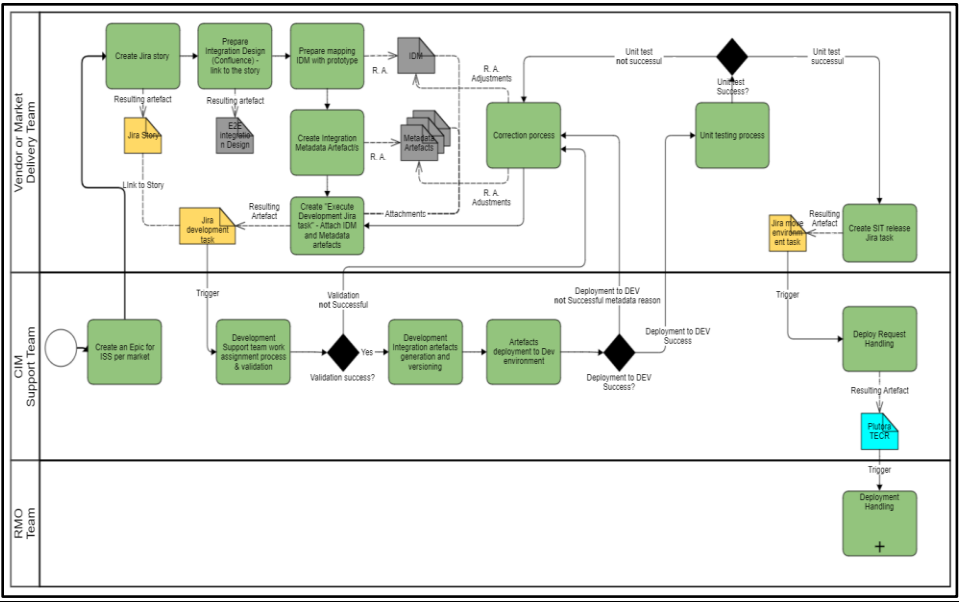
### 3.2 Generic Use case Diagram:-



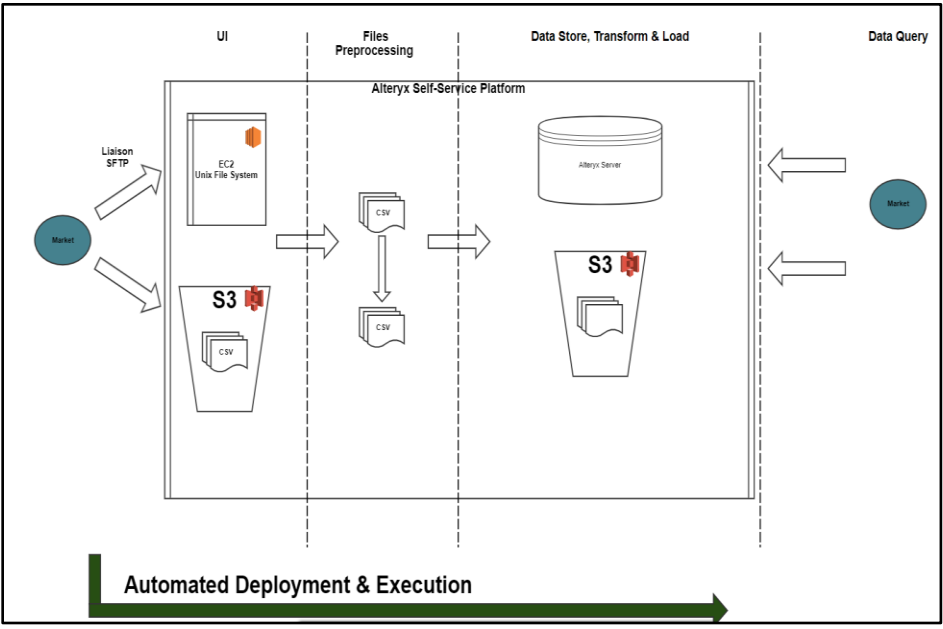
3.3 Entity-Relationship Model Diagram:-



### 3.4 Guided Development Process Flow Diagram

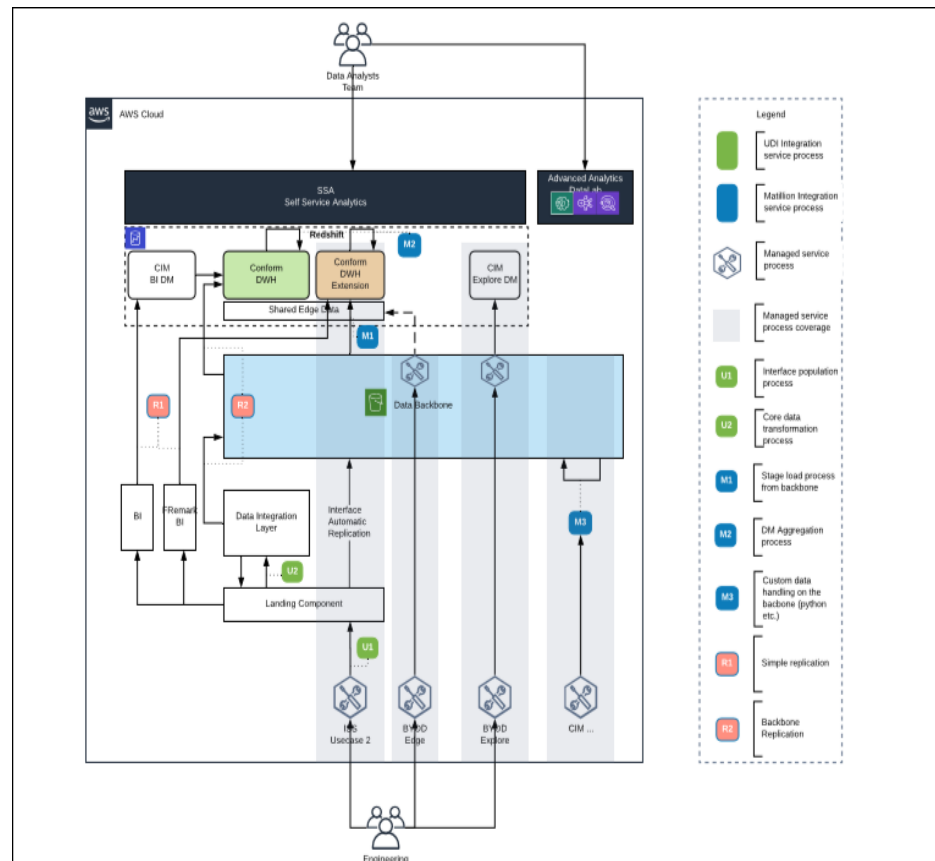


### 3.5 User Interface to Redshift DB Data Flow Diagram






### 3.6 Dataflow Diagram



### 3.7 Interface Screens:

#### Matillion Admin Console

 **MSD**

Matillion execution service support tools

DEPLOYEXECUTELOGSDATA REPLICATION

Execute DMS task identified by:

Interface & country code

Interface code:

Enter the interface code in structure XXX e.g. 064..

Country code:

Enter country code e.g. DE..

#### Matillion UI Task run flow

Project

AdminHelp

AWSEUGHHCIM-ETL-EXEC-SER...

Task History

default

Components

No Job Open

Shared Jobs

Environments

L	Task ...	Version	Job	Environment	Queued	Started	Ended	Durat...		
1...	Queue	ees-v1	cim-worker-003	U_GHHERCOM_PROD_DNA_DWH-RSCMDWH	2020-11-01 14...	2020-11-01 14...	2020-11-01 14...	1m 10s	ao	ao
1...	Queue	ees-v1	cim-worker-008	U_GHHERCOM_PROD_DNA_DWH-RSCMDWH	2020-11-01 14...	2020-11-01 14...	2020-11-01 14...	2m 17s	ao	ao
1...	Queue	ees-v1	cim-worker-013	U_GHHERCOM_PROD_DNA_DWH-RSCMDWH	2020-11-01 14...	2020-11-01 14...	2020-11-01 14...	1m 39s	ao	ao
1...	Queue	ees-v1	cim-worker-014	U_GHHERCOM_PROD_DNA_DWH-RSCMDWH	2020-11-01 14...	2020-11-01 14...	2020-11-01 14...	1m 48s	ao	ao
1...	Queue	ees-v1	cim-worker-011	U_GHHERCOM_PROD_DNA_DWH-RSCMDWH	2020-11-01 14...	2020-11-01 14...	2020-11-01 14...	1m 40s	ao	ao
1...	Queue	ees-v1	cim-worker-001	U_GHHERCOM_PROD_DNA_DWH-RSCMDWH	2020-11-01 14...	2020-11-01 14...	2020-11-01 14...	1m 16s	ao	ao
1...	Queue	ees-v1	cim-worker-004	U_GHHERCOM_PROD_DNA_DWH-RSCMDWH	2020-11-01 13...	2020-11-01 13...	2020-11-01 13...	1m 27s	ao	ao
1...	Queue	ees-v1	cim-worker-006	U_GHHERCOM_PROD_DNA_DWH-RSCMDWH	2020-11-01 13...	2020-11-01 13...	2020-11-01 13...	1m 04s	ao	ao
1...	Queue	ees-v1	cim-worker-012	CIM_ETL-EU-RSCMDWH	2020-11-01 13...	2020-11-01 13...	2020-11-01 13...	16.3s	ao	ao
1...	Queue	ees-v1	cim-worker-002	CIM_ETL-EU-RSCMDWH	2020-11-01 13...	2020-11-01 13...	2020-11-01 13...	43.7s	ao	ao
1...	Queue	ees-v1	cim-worker-005	CIM_ETL-EU-RSCMDWH	2020-11-01 13...	2020-11-01 13...	2020-11-01 13...	35.6s	ao	ao
1...	Queue	ees-v1	cim-worker-009	CIM_ETL-EU-RSCMDWH	2020-11-01 13...	2020-11-01 13...	2020-11-01 13...	15.4s	ao	ao
1...	Queue	ees-v1	cim-worker-015	CIM_ETL-EU-RSCMDWH	2020-11-01 13...	2020-11-01 13...	2020-11-01 13...	3m 32s	ao	ao

Page 1 of 15,134

Displaying 1 - 25 of 378,342

PropertiesExportHelp

There is currently no component selected.

TasksSearchConsoleCommand LogNotices (2)

Task	Envir...	Vers...	Job	Que...	Com...
Queue	CIM...	ees-v1	cim...	14.46...	
Queue	CIM...	ees-v1	cim...	14.46...	
Queue	CIM...	ees-v1	cim...	14.46...	
Queue	CIM...	ees-v1	cim...	14.46...	
Queue	CIM...	ees-v1	cim...	14.46...	

← → ↻ Not secure | 54.40.136.174/AWSEUGHHCM-PROD/AWSEUGHHCM-ETL-EXEC-SERVICE/default

Project ▾ Admin ▾ Help ▾

AWSEUGHHCM-ETL-EXEC-SER...

Task History ▾ Task - cm-worker-003

Environment: U\_GHEROIM\_PROD Version: ees-v1 Queued: 14:17:19 Duration: 1m 10s View Jobs

Job	Component	Du...	Queued	Started	Completed	R...	Message
cm-worker-003		0.0s	14:17:19	14:17:19	14:18:30		
cm-worker-003	Start 0	0.0s	14:17:19	14:17:19	14:17:19		
cm-worker-003	Retry 0	0.7s	14:17:19	14:17:19	14:17:21		11 iterations generated.
cm-worker-003	Log begin processing	0.3s	14:17:21	14:17:21	14:17:22		
cm-worker-003	Read Matillion variable	0.3s	14:17:22	14:17:22	14:17:23		
cm-worker-003	Log Matillion variables settings	0.4s	14:17:23	14:17:23	14:17:24		
cm-worker-003	Load conf file from S3	0.1s	14:17:24	14:17:24	14:17:28		Load configuration file from S3 Loading S3 file ...
cm-worker-003	Log conf file load	0.3s	14:17:28	14:17:28	14:17:29		
cm-worker-003	Load DSQ file	0.7s	14:17:29	14:17:29	14:17:35		
cm-worker-003	Log DSQ load	0.4s	14:17:35	14:17:35	14:17:36		
cm-worker-003	Execute DSQ script	0.3s	14:17:36	14:17:36	14:18:19	0	
cm-worker-003	Log DSQ execution	0.3s	14:18:19	14:18:19	14:18:20		
cm-worker-003	SNS message retry	0.7s	14:18:20	14:18:20	14:18:24		11 iterations generated.
cm-worker-003	Log resource was released	0.2s	14:18:24	14:18:24	14:18:25		
cm-worker-003	Log job status to S3	0.2s	14:18:25	14:18:25	14:18:28		
cm-worker-003	Copy of Log resource was released	0.2s	14:18:28	14:18:28	14:18:29		
cm-worker-003	Log end processing	0.2s	14:18:29	14:18:29	14:18:30		
cm-worker-003	End Success 0	0.0s	14:18:30	14:18:30	14:18:30		

Components

No Job Open

Shared Jobs

Environments

## Autosys Scheduling Tool

← → ↻ Not secure | lctcvp1110.merck.com:8080/wcc/ui/Launcher.html

CA Workload Automation AE

Dashboard | Monitoring | Quick View

View K0009\_P\_DMS\_DLL1\_COMET2SPUB-CA on WAAEPRD

Search ▾ Search ▾ Search Results ▾ Job Details ▾ Job View ▾ Download Job ▾ Status Conditions ▾ Job Run

Last Updated: Nov 1, 2020 8:22:48 AM

Server: WAAEPRD Name: K0009\_P\_DMS\_DLL1\_COMET2SPUB-CA

Search Results

Name	Box Name	Start Time	End Time	Status	Run	Priority	Exit Code
K0009_P_DMS_DLL1_COMET2SPUB-CA		Nov 1, 2020 8:22:48 AM	Nov 1, 2020 8:22:48 AM	Success	10001700	0	

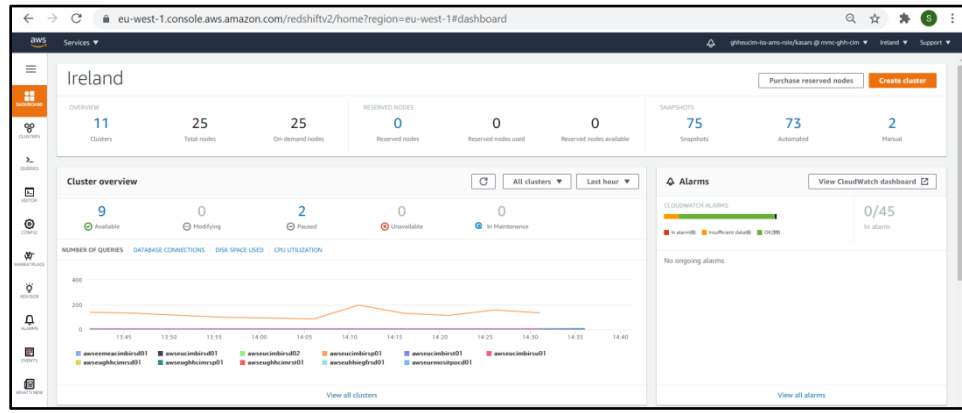
Job Details

Expand All | Collapse All

Attribute Name	Attribute Value
Primary	K0009_P_DMS_DLL1_COMET2SPUB-CA
Name	K0009_P_DMS_DLL1_COMET2SPUB-CA
Owner	K0009_P_DMS_DLL1_COMET2SPUB-CA
Group	K0009_P_DMS_DLL1_COMET2SPUB-CA
Box	K0009_P_DMS_DLL1_COMET2SPUB-CA
Script	K0009_P_DMS_DLL1_COMET2SPUB-CA
Failure	K0009_P_DMS_DLL1_COMET2SPUB-CA
Schedule	15
Use default time conditions	True
Time zone	EST
Days	all
Run days	all
Time	00:00
Times of day	00:00
Notification	0
Send alert on failure	True
Send alert on termination	True
Notification Services	Send notification on selected events and any job status
Message	K0009_P_DMS_DLL1_COMET2SPUB-CA job successful
Default Email address	ems_wa_support@merck.com
Run Time	Nov 1, 2020 8:22:48 AM
Status Time	Nov 1, 2020 8:22:48 AM
Next Start Time	Nov 2, 2020 8:22:48 AM

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## AWS Cluster



## Call Script through AutoSys

```
[cimetl@awseu1etlp ~]$ cd /cimetl/data001/CIM/Workflows/DMS_DILL_COMET2RSPUB/CA/Scripts/
[cimetl@awseu1etlp Scripts]$ ls -l -rt
total 96
-rwxrwxr-x+ 1 cimetl cimetl 6140 Aug 14 17:26 DMS_DILL_COMET2RSPUB-CA_unix_cust_ex_UX_WF_CREATE_GAL_VIEWS_DMS.sh_BKP09112020
-rwxrwxr-x+ 1 cimetl cimetl 6048 Aug 14 17:26 DMS_DILL_COMET2RSPUB-CA_unix_cust_ex_UX_WF_CREATE_JSON_DMS.sh
-rwxrwxr-x+ 1 cimetl cimetl 6061 Aug 14 17:26 DMS_DILL_COMET2RSPUB-CA_unix_cust_ex_UX_WF_DMS_SETUP_UNIX_EX_DMS.sh
-rwxrwxr-x+ 1 cimetl cimetl 6051 Aug 14 17:26 DMS_DILL_COMET2RSPUB-CA_unix_cust_ex_UX_WF_MOD_DMS_UNIX_EX_DMS.sh
-rwxrwxr-x+ 1 cimetl cimetl 6052 Aug 14 17:26 DMS_DILL_COMET2RSPUB-CA_unix_cust_ex_UX_WF_RUN_DMS_UNIX_EX_DMS.sh
-rwxrwxr-x+ 1 cimetl cimetl 6038 Aug 14 17:26 DMS_DILL_COMET2RSPUB-CA_unix_cust_ex_UX_WF_VACUUM_RUN_DMS_UNIX.sh_BKP09112020
-rwxrwxr-x+ 1 cimetl cimetl 6139 Sep 11 16:57 DMS_DILL_COMET2RSPUB-CA_unix_cust_ex_UX_WF_CREATE_GAL_VIEWS_DMS.sh
-rwxrwxr-x+ 1 cimetl cimetl 6046 Sep 11 16:57 DMS_DILL_COMET2RSPUB-CA_unix_cust_ex_UX_WF_VACUUM_RUN_DMS_UNIX.sh
[cimetl@awseu1etlp Scripts]$ cat DMS_DILL_COMET2RSPUB-CA_unix_cust_ex_UX_WF_VACUUM_RUN_DMS_UNIX.sh
#!/usr/bin/bash
#####
## Name      : DMS_DILL_COMET2RSPUB-CA_unix_cust_ex_UX_WF_VACUUM_RUN_DMS_UNIX.sh
## Purpose   : Script for custom Unix script execution
## Machine   : awseu1etld
## Location  : ${CIM_HOME}/CIM/Workflows/DMS_DILL_COMET2RSPUB/CA/Scripts
##
#####
## Generated: N/G
#####
#####
#Run global profile
#####
. /usr/local/bin/awseu1etlp.profile
#####
#Run global profile for all Unix scripts
#####
. ${CIM_HOME}/CIM/Workflows/Common/Profiles/unix.profile
#####
#Run cimetl pe profiles
#####
. ${CIM_HOME}/CIM/Workflows/Common/Profiles/connections.profile
. ${CIM_HOME}/CIM/Workflows/Common/Profiles/functions.profile
#####
```

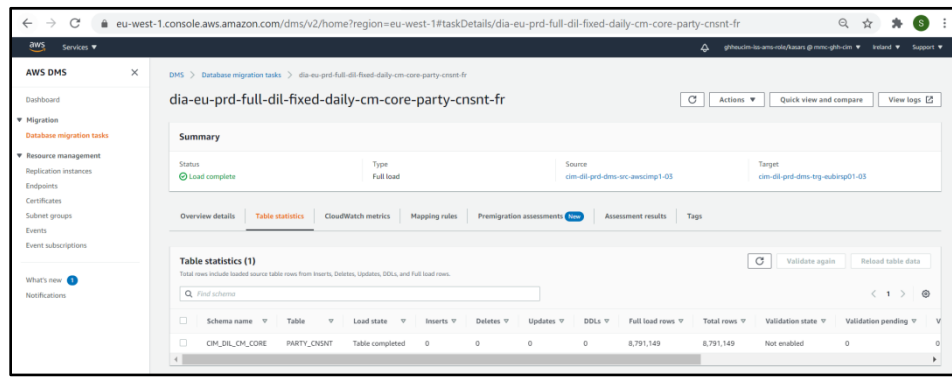
## DMS Oracle to Redshift replication Mapping Rule

### ▼ Mapping rules (JSON)

```
{
  "rules": [
    {
      "rule-id": 1,
      "rule-name": "1",
      "rule-type": "transformation",
      "rule-action": "rename",
      "rule-target": "schema",
      "object-locator": {
        "schema-name": "CIM_LC_PRST_DNA"
      },
      "value": "stg_lc_replica"
    },
    {
      "rule-id": 2,
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      "rule-type": "selection",
      "rule-action": "include",
      "object-locator": {
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```

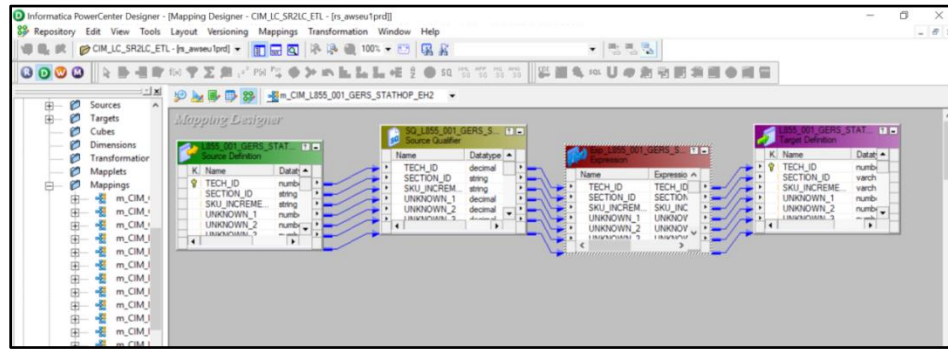
## DMS Oracle to Redshift Replication Task



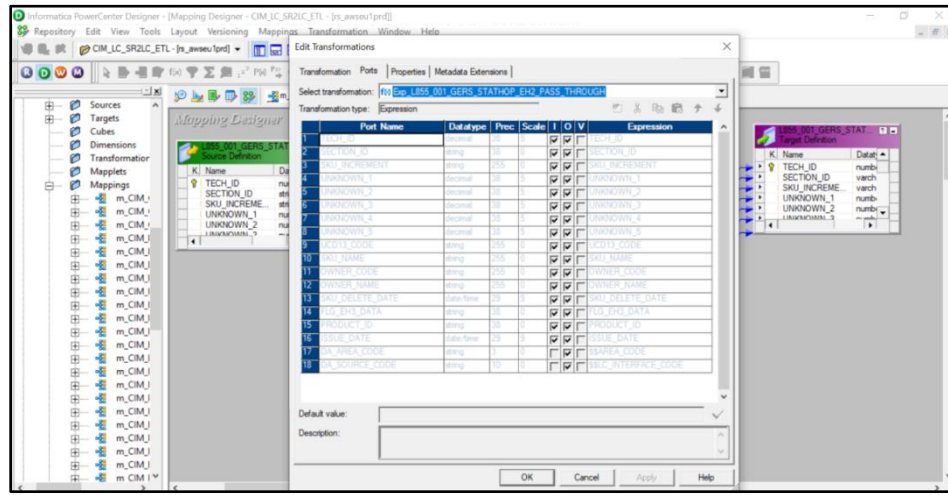
The screenshot displays the AWS DMS console interface. The left sidebar shows navigation options: Dashboard, Migration, Database migration tasks, Resource management, and What's new. The main content area shows the details of a specific replication task. The task name is 'dia-eu-prd-full-dil-fixed-daily-cm-core-party-cnsnt-fr'. The status is 'Load complete'. The source is 'cm-dl-prd-dms-ec-awscomp1-03' and the target is 'cm-dl-prd-dms-try-eubiqp01-03'. Below the summary, there are tabs for Overview details, Table statistics, CloudWatch metrics, Mapping rules, Premigration assessments, Assessment results, and Tags. The 'Table statistics' tab is selected, showing a table with columns: Schema name, Table, Load state, Inserts, Deletes, Updates, DDLs, Full load rows, Total rows, Validation state, and Validation pending. The table lists one entry: 'CIM\_LC\_PRST\_DNA' with a 'Table completed' load state and 8,791,149 total rows.

Schema name	Table	Load state	Inserts	Deletes	Updates	DDLs	Full load rows	Total rows	Validation state	Validation pending
CIM_LC_PRST_DNA	PARTY_CNSNT	Table completed	0	0	0	0	8,791,149	8,791,149	Not enabled	0

## Informatica Mapping



## Informatica Mapping Transformation Logic



### 3.8 Data Dictionary



Data\_Dictionary.xlsx

### 3.9 Tables Specifications:

#### Oracle Data:

Oracle SQL Developer - CIM\_ETL

Query Editor

SELECT \*

FROM

cim\_dil\_cm\_cnm\_party\_cnmnt

WHERE

dmn\_geo\_cd = 'FR'

ORDER BY

sys\_last\_updt\_dt\_tm\_desc;

Query Result

PARTY_CONSENT_ID	PARTY_ID	CNM_CHNL_ID	CNM_CHNL_VALUE_TXT	CHNT_IND	CHNL_CHNT_IND	CHNT_EFFECTV_DT	CHNT_ORGIN	CHNT_TST	CHNT_DISCLAIMER_TXT	CHNT_PARM_VAL	CHNT_ADRM_STLS	CHNT
1	22239124	11270194	14530	Y	(null)	01-00P-20	04.55.27.0000000000	AM VVA	(null)	(null)	(null)	(null)
2	22239125	11270194	10540	Y	(null)	01-00P-20	04.55.27.0000000000	AM VVA	(null)	(null)	(null)	(null)
3	22322150	11294052	14530	Y	(null)	01-00P-20	04.55.27.0000000000	AM VVA	(null)	(null)	(null)	(null)
4	22322149	11294052	10550	Y	(null)	01-00P-20	04.55.27.0000000000	AM VVA	(null)	(null)	(null)	(null)
5	22340087	11281147	14540	Y	(null)	01-00P-20	04.55.27.0000000000	AM VVA	(null)	(null)	(null)	(null)
6	22340088	11281147	14530	Y	(null)	01-00P-20	04.55.27.0000000000	AM VVA	(null)	(null)	(null)	(null)
7	22340089	11281147	10540	Y	(null)	01-00P-20	04.55.27.0000000000	AM VVA	(null)	(null)	(null)	(null)
8	22340090	11281147	10550	Y	(null)	01-00P-20	04.55.27.0000000000	AM VVA	(null)	(null)	(null)	(null)
9	22417359	11387794	10540	Y	(null)	01-00P-20	04.55.27.0000000000	AM VVA	(null)	(null)	(null)	(null)
10	22417360	11387794	10550	Y	(null)	01-00P-20	04.55.27.0000000000	AM VVA	(null)	(null)	(null)	(null)
11	22417361	11387794	14530	Y	(null)	01-00P-20	04.55.27.0000000000	AM VVA	(null)	(null)	(null)	(null)
12	22417362	11387794	10540	Y	(null)	01-00P-20	04.55.27.0000000000	AM VVA	(null)	(null)	(null)	(null)
13	22417363	11387794	10550	Y	(null)	01-00P-20	04.55.27.0000000000	AM VVA	(null)	(null)	(null)	(null)
14	22717959	11422247	14540	Y	(null)	01-00P-20	04.55.27.0000000000	AM VVA	(null)	(null)	(null)	(null)
15	22717960	11422247	14530	Y	(null)	01-00P-20	04.55.27.0000000000	AM VVA	(null)	(null)	(null)	(null)
16	22717961	11422247	10550	Y	(null)	01-00P-20	04.55.27.0000000000	AM VVA	(null)	(null)	(null)	(null)
17	22739457	11454907	14540	Y	(null)	01-00P-20	04.55.27.0000000000	AM VVA	(null)	(null)	(null)	(null)
18	22739458	11454907	14530	Y	(null)	01-00P-20	04.55.27.0000000000	AM VVA	(null)	(null)	(null)	(null)

#### Redshift Data:

SQL Workbench/J: ISS\_PROD - Default.wksp

Statement 1

SELECT \*

FROM

cim\_dil\_pub\_vw\_party\_cnmnt

WHERE

dmn\_geo\_cd = 'FR'

ORDER BY

sys\_last\_updt\_dt\_tm\_desc

5 limit 10;

Result 1 Messages

party_consent_id	party_id	cmn_chnl_id	cmn_chnl_value_txt	cmnt_ind	grvl_cnmnt_ind	cmnt_effctv_dt	cmnt_orgin	consent_txt	cmnt_disclaimer_txt	cmnt_psa
34372012	11247201	1021cautheman@velines.fr		N		2020-04-07 15:21:39VVA				
34333583	11888553	1023catherine.guedin@seinte.gouv.fr		N		2020-04-07 15:21:40JMR				
34393964	11562286	1021ahd.pethak@univ-tlse3.fr		N		2020-04-07 15:21:31JMR				
34281144	11326424	1021pharmacie.charpentier@gmail.com		N		2020-04-07 15:22:53VVA				
34275432	11255379	1021manuel.bollet@aviation-civile.gouv.fr		N		2020-04-07 15:20:24VVA				
34247773	11505603	1023schenichene@ch-chalonsenchampagne.fr		N		2020-04-07 15:23:08JMR				
34257001	12054660	1021ok105@caranial.com		N		2020-04-07 15:23:02VVA				
34506440	11874844	1023bestmemorykiller@yahoo.fr		N		2020-04-07 15:21:33JMR				
34315644	11886850	1023s.gaga@maternite.chu-nancy.fr		N		2020-04-07 15:23:09JMR				
34266073	12184226	1021berdy@epam-quimper.fr		N		2020-04-07 15:21:37VVA				

### **3.10 Test Procedures and Implementation**

#### **Development Testing Process:**

As the project is driven by Agile methodologies having sprints comprised of four weeks, mentioned types of testing will be done by respective teams, as and when user stories are developed within a sprint.

Unit Testing will be done by the Development Team on the development environment after the completion of Coding. Sprint testing will be done by SV&T team during the sprints in Test environment after completion of the Unit testing for each story. System Integration Testing(Release Testing) will be done by the SV&T team on completion of sprint testing and at the end of release in the Test environment. After successful System integration testing the product will be deployed to DEMO Environment and there is no User Acceptance Testing planned.



### **Testing Sequence and Approach:**

Start of Unit Testing depends on completion of coding activity by the Development team.

Start of Sprint Testing depends on successful completion of Unit Testing by the Development team. All defects identified during Unit testing should be resolved, Code should be migrated successfully on the Test environment.

Start of System Integration Testing depends on successful completion of Sprint Testing. All defects identified during in Sprint testing should be resolved.

## Unit Testing Process

Unit testing is performed to help getting a fast feedback about the state of the code whether it fits the requirements on the most granular level of a single unit which might be a function or class or module etc. Unit tests are written by a developer who is implementing the behavior of the code in a iterative way and should be consider having the same importance as the code which implements the behavior. Unit tests are reviewed in scope of the code review process which is described below in this document the same way as the functional code. The process is supported by automatic execution of the tests each time a developer is trying to commit a change into the repository and when a new build is performed by CI.

Tests are located in a special folder within the project e.g. `__tests__` substructure is formed the same way as a structure of functional code so there is one-to-one matching to allow easier searching. The test

file names should be affixed with .test.ts (e.g. handler.ts should have corresponding test file with name handler.test.ts).

### **Code / Design Reviews**

Code review is performed on a peer-to-peer basis within the development team using the pull request functionality of BitBucket, for both application code and automated tests.

Once a developer is satisfied with their code, they issue a pull request to merge their changes in the feature branch into the develop branch. In order for a merge to be approved, at least one developer (other than the author) must review and approve the pull request. The reviewer may add comments and change the status of the pull request to "need work", then the original author will receive notifications that the pull request need further modifications before it can be approved.

To make sure that the standard coding style is adopted during the development, the team used tslint to check the quality of the code.

Tslint is a tool identifying and reporting on patterns found in TypeScript code, ensuring the potential bugs and problems can be found by analysing the code style and flow.

The review and approval actions are captured within the tool. A summary report of the changes committed, with author, timestamp and review approval(s) will be exported and attached to the Development Summary Report.

## **Pass/Fail Criteria**

### ➤ *Pass Criteria*

- All steps have been completed and documented correctly.
- All supporting documentation (output, etc.) is available, labeled, annotated, cross-referenced, and reviewed for technical correctness.
- Each test step was successful and the overall test met its objective.  
All defects reported against a test step are resolved.
- All defects are resolved by one of the following methods:
- The problem is corrected and retesting was successful.
- If the problem was not resolved, the issue is postponed and the test is identified as "passed with defects".
- Actual Results are completed as required for validation.

### ➤ *Fail Criteria*

- Any test step was unsuccessful and the actual result did not match the expected.
- Any open and valid defect exists against a test case in ALM/JIRA

🚦 TEST CASES:

N U M B E R	TEST CASE NAM E	T E S T C A S E D E S C R I P T I O N	TEST CASE TEST STEPS	TEST EXPECTED RESULTS	TEST CASE NOTES
----------------------------	--------------------------	---	-------------------------	-----------------------------	--------------------

1	CTP_ SIT_ MVP4 .1_DE MAN D_IN CREA SE_1. 1_TC _1 CTP_ SIT_ MVP4 .1_DE MAN D_IN CREA SE_1. 1_TC _2	M V P 4. 1 P r o c e ss S te p 1. 1: D e m a n d I n cr e a s e (f o r w ar d lo	TEST CASE 1: LOG INTO REDSHIFT SIT SELECT THE EXTERNAL TABLE: DEMANDINC REASE_DEM ANDINCREA SECOUNTRY FILTER THE COLUMN LABELED: YEAR TO BE TO THE VALUE '2021' FILTER THE COLUMN LABELED: PRODUCT FAMILY = DIA FILTER THE COLUMN LABELED: DEMAND TYPE TO 'DEMAND INCREASE' FILTER COLUMN LABELED: 95% EXCEPTION = TRUE (YES)	ABLE TO LOG INTO REDSHIFT SIT ENVIRONME NT SUCCESSFUL LY ABLE TO SELECT THE DATABASE TABLE OK ABLE TO QUERY THE TABLE AND FILTER THE COLUMN OK ABLE TO VALIDATE THAT WHEN THE COLUMN LABELED "NEXT YEAR % DIFFERENCE " HAS A VALUE THAT IS GREATER THAN THE VALUE LOCATED IN THE COLUMN LABELED: "95% EXCEPTION	REDSHIFT SIT REDSHIFT EXTERNAL TABLE: DEMANDINC REASE_DEM ANDINCREA SECOUNTRY
---	--	---	--	--	---

o	IF	THE	RULE	NEXT
ki	COLUMN		YEAR"	
n	LABELED:		DIVIDED BY	
g	"NEXT YEAR		100, THEN	
)	%		THE	
vi	DIFFERENCE		COLUMNS:	
a	(PERC DIFF)"		PRODUCT,	
F	HAS A		SHIP TO,	
o	VALUE THAT		MONTHLY	
re	IS GREATER		CYCLE WILL	
c	THAN > THE		BE	
a	VALUE		APPENDED	
st	LOCATED IN			
C	THE			
h	COLUMN			
a	LABELED:			
n	"95%			
g	EXCEPTION			
e	RULE	NEXT		
(	YEAR"			
F	DIVIDED BY			
ul	100) THEN			
l	APPEND THE			
c	COLUMNS:			
al	PRODUCT,			
e	SHIP TO,			
n	MONTHLY			
d	CYCLE ---			
ar	TEST CASE 2:			
y	LOG INTO			
e	REDSHIFT			
ar	SIT SELECT			
)	THE			
T	EXTERNAL			
e	TABLE:			
st	DEMANDINC			



in	REASE_DEM
g	ANDINCREA
S	SECOUNTRY
c	FILTER THE
e	COLUMN
n	LABELED:
ar	YEAR TO BE
io	TO THE
s:	VALUE '2021'
V	FILTER THE
al	COLUMN
id	LABELED:
at	PRODUCT
e	FAMILY =
J	DIA FILTER
a	THE
n	COLUMN
u	LABELED:
vi	DEMAND
a	TYPE TO
(	'DEMAND
D	INCREASE'
I	FILTER
A	COLUMN
)	LABELED:
P	PGI 5%
G	EXCEPTION
I	= TRUE IF
9	THE
5	COLUMN
%	LABELED:
	"NEXT YEAR
w	%
it	DIFFERENCE
h	" HAS A
c	VALUE THAT

ol	IS GREATER
u	THAN > THE
m	VALUE
n	LOCATED IN
s	THE
P	COLUMN
R	LABELED:
O	"5%
D	EXCEPTION
U	RULE UNIT
C	CHANGE)
T	THEN
,	APPEND THE
S	COLUMNS:
H	PRODUCT,
I	SHIP TO,
P	MONTHLY
T	CYCLE
O	
,	
M	
O	
N	
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L	
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Y	
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		vi a ( D I A ) P G I 5 %			
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		w it h c o l u m n s P R O D U C T , S H I P T O			
--	--	---	--	--	--

		, M O N T H L Y C Y C L E			
2	CTP_ SIT_ MVP4 .1_DE MAN D_IN CREA SE_2. 1	M V P 4. 1 P r o c e s s t e p: 2. 1 E x	=HYPERLINK ("https://share.merck.com/display/DAEnablement/Final+Structure+of+Demand+Increase+and+Decrease";"NOT TESTING PER DIAGRAM OUTLINE IN: Final Structure of Demand Increase and Decrease")	=HYPERLINK ("https://share.merck.com/display/DAEnablement/Final+Structure+of+Demand+Increase+and+Decrease";"NOT TESTING PER DIAGRAM OUTLINE IN: Final Structure of Demand Increase and Decrease")	=HYPERLINK ("https://share.merck.com/display/DAEnablement/Final+Structure+of+Demand+Increase+and+Decrease";"NOT TESTING PER DIAGRAM OUTLINE IN: Final Structure of Demand Increase and Decrease")

		c e p t i o n g e n e r a t e d - D e m a n d a t r i s k (s t o c k o u t )			
3	CTP_ SIT_ MVP4 .1_DE MAN D_IN	M V P 4. 1 P	LOG INTO REDSHIFT SIT SELECT THE EXTERNAL TABLE:	ABLE TO LOG INTO REDSHIFT SIT ENVIRONME NT	REDSHIFT SIT REDSHIFT EXTERNAL TABLE: DEMANDINC

CREASE_2.2	request	DEMANDING REASE_UNMETDEMANDRISK FILTER THE COLUMN LABELED: PRODUCT FAMILY = DIA FILTER THE COLUMN LABELED: DEMAND TYPE TO 'DEMAND INCREASE' QUERY THE COLUMN LABELED: 'CTP AVAILABLE RISK QTY' (RISKQTY) AND VALIDATE THAT NO RECORDS EXIST THAT ARE 0 OR LESS THAN 0	SUCCESSFULLY ABLE TO SELECT THE DATABASE TABLE OK ABLE TO QUERY THE TABLE AND FILTER THE COLUMN OK NO RECORDS SHALL EXISTS WHERE THE COLUMN LABELED: 'CTP AVAILABLE RISK QTY' (RISKQTY) THAT ARE 0 OR LESS THAN 0	REASE_UNMETDEMANDRISK
------------	---------	---	---	-----------------------

		l e d			
4	CTP_ SIT_ MVP4 .1_DE MAN D_IN CREA SE_2. 2.1	M V P 4. 1 P r o c e ss S te p 2. 2. 1 D e m a n d I n cr e a s e	LOG INTO REDSHIFT SIT SELECT THE EXTERNAL TABLE: DEMANDINC REASE_UNM ETDEMANDR ISK FILTER THE COLUMN LABELED: PRODUCT FAMILY = DIA FILTER THE COLUMN LABELED: DEMAND TYPE TO 'DEMAND INCREASE' VALIDATE IN THE TABLE THAT IF THE DEMAND AT RISK (DAR) DATE > (TODAY'S	ABLE TO LOG INTO REDSHIFT SIT ENVIRONME NT SUCCESSFUL LY ABLE TO SELECT THE DATABASE TABLE OK ABLE TO QUERY THE TABLE AND FILTER THE COLUMN OK VALIDATED THAT THE COLUMN "IN FENCE" IS POPULATING CORRECTLY BASED ON THE DEMAND AT RISK DATE	REDSHIFT SIT REDSHIFT EXTERNAL TABLE: DEMANDINC REASE_UNM ETDEMANDR ISK

W it hi n T i m e F e n c e	DATE + TIME FENCE), THEN THE FIELD LABELED: "IN FENCE" SHALL BE SET TO THE VALUE OF TRUE VALIDATE IN THE TABLE THAT IF DEMAND AT RISK (DAR) DATE < (TODAY'S DATE + TIME FENCE), THEN SET THE FIELD LABELED: "IN FENCE" TO FALSE VALIDATE IN THE TABLE THAT IF DEMAND AT RISK (DAR) DATE = (TODAY'S DATE + TIME FENCE), THEN SET THE FIELD LABELED:
---	---



			"IN FENCE" TO FALSE		
5	CTP_ SIT_ MVP4 .1_DE MAN D_IN CREA SE_2. 2.2	M V P 4. 1 P r o c e ss S te p 2. 2. 2 D e m a n d I n cr	LOG INTO REDSHIFT SIT SELECT THE EXTERNAL TABLE: DEMANDINC REASE_UNM ETDEMANDR ISK FILTER THE COLUMN LABELED: PRODUCT FAMILY = DIA FILTER THE COLUMN LABELED: DEMAND TYPE TO 'DEMAND INCREASE' VALIDATE IN THE TABLE THAT IF THE	ABLE TO LOG INTO REDSHIFT SIT ENVIRONME NT SUCCESSFUL LY ABLE TO SELECT THE DATABASE TABLE OK ABLE TO QUERY THE TABLE AND FILTER THE COLUMN OK VALIDATED THAT THE COLUMN "IN FENCE" IS POPULATING CORRECTLY BASED ON THE DEMAND AT RISK DATE	REDSHIFT SIT REDSHIFT EXTERNAL TABLE: DEMANDINC REASE_UNM ETDEMANDR ISK

e	DEMAND AT
a	RISK (DAR)
s	DATE >
e	(TODAY'S
O	DATE + TIME
ut	FENCE),
si	THEN THE
d	FIELD
e	LABELED:
T	"IN FENCE"
F	SHALL BE
—	SET TO THE
c	VALUE OF
h	TRUE
e	VALIDATE IN
c	THE TABLE
k	THAT IF
e	DEMAND AT
x	RISK (DAR)
c	DATE <
e	(TODAY'S
pt	DATE + TIME
io	FENCE),
n	THEN SET
f	THE FIELD
o	LABELED:
r	"IN FENCE"
p	TO FALSE
a	VALIDATE IN
c	THE TABLE
k	THAT IF
a	DEMAND AT
g	RISK (DAR)
e	DATE =
o	(TODAY'S
r	DATE + TIME

		b ul k is s u e	FENCE), THEN SET THE FIELD LABELED: "IN FENCE" TO FALSE		
6	CTP_ SIT_ MVP4 .1_DE MAN D_IN CREA SE_2. 3	M V P 4. l P r o c e ss S te p 2. 3 S u p pl y A v - S h	LOG INTO REDSHIFT SIT SELECT THE EXTERNAL TABLE: DEMANDINC REASE_SHAR EDPACK DEMANDINC REASE_SIMU LATEDINVE NTORY FILTER THE COLUMN LABELED: PRODUCT FAMILY = JANUVIA FILTER THE COLUMN LABELED: DEMAND TYPE TO 'DEMAND INCREASE'	ABLE TO LOG INTO REDSHIFT SIT ENVIRONME NT SUCCESSFUL LY ABLE TO SELECT THE DATABASE TABLE OK ABLE TO QUERY THE TABLE AND FILTER THE COLUMN OK VALIDATED THAT THE COLUMN NAMED 'COUNTRY CODE' IS ONLY POPULATED FOR THE COLUMN	REDSHIFT SIT REDSHIFT EXTERNAL TABLE: DEMANDINC REASE_SHAR EDPACK DEMANDINC REASE_SIMU LATEDINVE NTORY

ar e d p a c k ( S a m e S K U )	FILTER THE COLUMN LABELED: 'SC STAGE CODE' TO THE VALUE 'FG' VALIDATE THAT IN THE COLUMN LABELED: COUNTRY CODE - THAT THE FAMILY GROUP (FG) IS ONLY RELATED TO JANUVIA VALIDATE THAT THE SKUS FOR JANUVIA HAVE A MATERIAL COUNTRY MAPPED VALIDATE THAT THE TABLE HAS COLUMN LABELED: SUPPLY VALIDATE THAT THE COLUMN LABELED:	LABELED FAMILY GROUP (FG) WHERE THE VALUES ARE RELATED ONLY TO JANUVIA
---	--	---

			'SUPPLY' POPULATES FOR 12 MONTHS OF VALUES VALIDATE THAT THE TABLE HAS A COLUMN LABELED: 'BALANCE' VALIDATE THAT THE COLUMN LABELED: 'BALANCE' POPULATES FOR 12 MONTHS OF VALUES'		
7	CTP_ SIT_ MVP4 .1_DE MAN D_IN CREA SE_2. 3.1	M V P 4. 1 P r o c e ss S te p 2. 3.	LOG INTO REDSHIFT SIT SELECT THE EXTERNAL TABLE: DEMANDINC REASE_HIST ORICALSHIP MENT FILTER THE COLUMN LABELED: PRODUCT FAMILY = DIA FILTER	ABLE TO LOG INTO REDSHIFT SIT ENVIRONME NT SUCCESSFUL LY ABLE TO SELECT THE DATABASE TABLE OK ABLE TO QUERY THE TABLE AND FILTER THE COLUMN OK	REDSHIFT SIT REDSHIFT EXTERNAL TABLE: DEMANDINC REASE_HIST ORICALSHIP MENT

		1 C h e c k hi st o ri c al s hi p m e nt ( d e m a n d f ul fi ll m e nt )	THE COLUMN Labeled: DEMAND TYPE TO 'DEMAND INCREASE' FILTER THE COLUMN Labeled: 'PLANNING VERSION' WITH THE VALUE SET EQUAL TO: 'ACTUALS' VALIDATE THAT IN THE TABLE THAT THE 'YEARLY LEVEL' IS AGGREGATE D FILTER THE MATERIAL RECORDS WITH A 'PLANNING VERSION' SET EQUAL TO 'ACTUALS' VALIDATE THAT 'PGI EACH' IS	VALIDATED THAT IN THE TABLE THAT THE 'YEARLY LEVEL' IS AGGREGATE D VALIDATED THAT 'PGI EACH' IS APPENDED VALIDATED THAT A MARKET CODE EXISTS FOR EACH YEAR	
--	--	---	---	---	--

			APPENDED VALIDATE THAT A MARKET CODE EXISTS FOR EACH YEAR		
--	--	--	---	--	--

	8	CTP_ SIT_ MVP4 .1_DE MAN D_IN CREA SE_2. 4	M V P 4. 1 P r o c e ss S te p 2. 4 C h e c k p a c k a g i n g l i n e & L T (	LOG INTO REDSHIFT SIT SELECT THE EXTERNAL TABLE: DEMANDINC REASE_FEAS IBILITYREW ORK FILTER THE COLUMN LABELED: PRODUCT FAMILY = DIA FILTER THE COLUMN LABELED: DEMAND TYPE TO 'DEMAND INCREASE'	ABLE TO LOG INTO REDSHIFT SIT ENVIRONME NT SUCCESSFUL LY ABLE TO SELECT THE DATABASE TABLE OK ABLE TO QUERY THE TABLE AND FILTER THE COLUMN OK	REDSHIFT SIT REDSHIFT EXTERNAL TABLE: DEMANDINC REASE_FEAS IBILITYREW ORK
--	---	--	--	--	---	---



		4 d a y s f o r J a n u a r y			
9	CTP_ SIT_ MVP4 .1_DE MAN D_IN CREA SE_2,	M V P 4. 1 P r o	=HYPERLINK ("https://share. merck.com/dis play/DAEnable ment/Final+Str ucture+of+De mand+Increase +and+Decrease	=HYPERLINK ("https://share. merck.com/dis play/DAEnable ment/Final+Str ucture+of+De mand+Increase +and+Decrease	=HYPERLINK ("https://share. merck.com/dis play/DAEnable ment/Final+Str ucture+of+De mand+Increase +and+Decrease

	4.1	<p>c e ss S te p 2. 4. 1 A dj u st P a c k a gi ng ( A d d O v er ti m e)</p>	<p>;"NOT TESTING PER DIAGRAM OUTLINE IN: Final Structure of Demand Increase and Decrease")</p>	<p>;"NOT TESTING PER DIAGRAM OUTLINE IN: Final Structure of Demand Increase and Decrease")</p>	<p>;"NOT TESTING PER DIAGRAM OUTLINE IN: Final Structure of Demand Increase and Decrease")</p>
--	-----	---	--	--	--

		MVP4.1 Project			
10	CTP_SIT_MVP4.1_DEMAND_IN CREASE_2.5	SS	=HYPERLINK ("https://share.merck.com/display/DAEnablement/Final+Structure+of+Demand+Increase+and+Decrease";"NOT TESTING PER DIAGRAM OUTLINE IN: Final Structure of Demand Increase and Decrease")	=HYPERLINK ("https://share.merck.com/display/DAEnablement/Final+Structure+of+Demand+Increase+and+Decrease";"NOT TESTING PER DIAGRAM OUTLINE IN: Final Structure of Demand Increase and Decrease")	=HYPERLINK ("https://share.merck.com/display/DAEnablement/Final+Structure+of+Demand+Increase+and+Decrease";"NOT TESTING PER DIAGRAM OUTLINE IN: Final Structure of Demand Increase and Decrease")
		Dashboard			
		Board #1:			

		L is t o pt io n s( m ar k et s) w it h S h ar e d p a c k (s a m e S K U )- s h o			
--	--	---	--	--	--

		w d e m a n d/ s u p p l y L i s t o f m a r k e t s b a s e d o n h i s t o r i c a l s			
--	--	---	--	--	--

		hi p m e nt . L is t S c h e d u l e d p r o c e ss o r d er s f o r p a c k a			
--	--	--	--	--	--

		g n g f o r s a m e b ul k (r e p u r p o s e) (s u bj e ct to p a c k a g n g			
--	--	---	--	--	--

		component availability)			
--	--	-------------------------	--	--	--



1 1	CTP_ SIT_ MVP4 .1_DE MAN D_IN CREA SE_2. 6	M V P 4. 1 P r o c e ss S te p 2. 6 C h e c k B ul k A v ai la bi li ty to m e et in	LOG INTO REDSHIFT SIT SELECT THE EXTERNAL TABLE: DEMANDINC REASE_CHEC KBULKAVAI LABILITY FILTER THE COLUMN LABELED: PRODUCT FAMILY = DIA FILTER THE COLUMN LABELED: DEMAND TYPE TO 'DEMAND INCREASE'	ABLE TO LOG INTO REDSHIFT SIT ENVIRONME NT SUCCESSFUL LY ABLE TO SELECT THE DATABASE TABLE OK ABLE TO QUERY THE TABLE AND FILTER THE COLUMN OK	REDSHIFT SIT REDSHIFT EXTERNAL TABLE: DEMANDINC REASE_CHEC KBULKAVAI LABILITY
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		cr e a s e d d e m a n d			
1 2	CTP_ SIT_ MVP4 .1_DE MAN D_IN CREA SE_2.	M V P 4. 1 P r o	LOG INTO REDSHIFT SIT SELECT THE EXTERNAL TABLE: ZZZZ FILTER THE COLUMN	ABLE TO LOG INTO REDSHIFT SIT ENVIRONME NT SUCCESSFUL LY ABLE TO	REDSHIFT SIT REDSHIFT EXTERNAL TABLE: ZZZZ

	7	c e ss S te p 2. 7 E v al u at e S K U P a c k a g e O pt io n s T e st in g S c	LABELED: PRODUCT FAMILY = DIA FILTER THE COLUMN LABELED: DEMAND TYPE TO 'DEMAND INCREASE'	SELECT THE DATABASE TABLE OK ABLE TO QUERY THE TABLE AND FILTER THE COLUMN OK	
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		e n a r i o s:			
1 3	CTP_ SIT_ MVP4 .1_DE MAN D_IN CREA SE_2. 7.1	M V P 4. 1 P r o c e ss S te p 2. 7. 1 P a c k a g e a t a l te r n a t e	LOG INTO REDSHIFT SIT SELECT THE EXTERNAL TABLE: DEMANDINC REASE_LINE CAPACITY DEMANDINC REASE_LINE CAPACITYB ULK FILTER THE COLUMN LABELED: PRODUCT FAMILY = DIA FILTER THE COLUMN LABELED: DEMAND TYPE TO 'DEMAND INCREASE'	ABLE TO LOG INTO REDSHIFT SIT ENVIRONME NT SUCCESSFUL LY ABLE TO SELECT THE DATABASE TABLE OK ABLE TO QUERY THE TABLE AND FILTER THE COLUMN OK	REDSHIFT SIT REDSHIFT EXTERNAL TABLE: DEMANDINC REASE_LINE CAPACITY DEMANDINC REASE_LINE CAPACITYB ULK

		line at the same site Testing Scenario:			
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1 4	CTP_ SIT_ MVP4 .1_DE MAN D_IN CREA SE_2. 7.2	M V P 2. 7. 2 P r o c e ss S te p P a c k a g e at al te r n at e si te s T e st in	LOG INTO REDSHIFT SIT SELECT THE EXTERNAL TABLE: DEMANDINC REASE_LINE CAPACITY FILTER THE COLUMN LABELED: PRODUCT FAMILY = DIA FILTER THE COLUMN LABELED: DEMAND TYPE TO 'DEMAND INCREASE'	ABLE TO LOG INTO REDSHIFT SIT ENVIRONME NT SUCCESSFUL LY ABLE TO SELECT THE DATABASE TABLE OK ABLE TO QUERY THE TABLE AND FILTER THE COLUMN OK	REDSHIFT SIT REDSHIFT EXTERNAL TABLE: DEMANDINC REASE_LINE CAPACITY
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		gg S c e n ar io s:			
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1 5	CTP_ SIT_ MVP4 .1_DE MAN D_IN CREA SE_2. 8	M V P 4. 1 P r o c e ss S te p 2. 8 E v al u at e A P I a v ai la bi li ty a cr o ss	LOG INTO REDSHIFT SIT SELECT THE EXTERNAL TABLE: DEMANDINC REASE_CHEC KAPIAVAILA BILITY FILTER THE COLUMN LABELED: PRODUCT FAMILY = DIA FILTER THE COLUMN LABELED: DEMAND TYPE TO 'DEMAND INCREASE'	ABLE TO LOG INTO REDSHIFT SIT ENVIRONME NT SUCCESSFUL LY ABLE TO SELECT THE DATABASE TABLE OK ABLE TO QUERY THE TABLE AND FILTER THE COLUMN OK	REDSHIFT SIT REDSHIFT EXTERNAL TABLE: DEMANDINC REASE_CHEC KAPIAVAILA BILITY
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		J a n u v i a f a m i l y T e s t i n g S c e n a r i o s:			
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1 6	CTP_ SIT_ MVP4 .1_DE MAN D_IN CREA SE_2. 9	M V P 4. 1 P r o c e ss S te p 2. 9 E v al u at e o p p o rt u ni ti e s to in cr e	LOG INTO REDSHIFT SIT SELECT THE EXTERNAL TABLE: DEMANDINC REASE_LINE CAPACITYB ULK FILTER THE COLUMN LABELED: PRODUCT FAMILY = DIA FILTER THE COLUMN LABELED: DEMAND TYPE TO 'DEMAND INCREASE'	ABLE TO LOG INTO REDSHIFT SIT ENVIRONME NT SUCCESSFUL LY ABLE TO SELECT THE DATABASE TABLE OK ABLE TO QUERY THE TABLE AND FILTER THE COLUMN OK	REDSHIFT SIT REDSHIFT EXTERNAL TABLE: DEMANDINC REASE_LINE CAPACITYB ULK
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		assess bulk capacity Testing Scenarios:			
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1 7	CTP_ SIT_ MVP4 .1_DE MAN D_IN CREA SE_2. 10	M V P 4. 1 P r o c e ss S te p 2. 1 0 R e c o m m e n d - D a s h b o a r d #	=HYPERLINK ("https://share. merck.com/dis play/DAEnable ment/Final+Str ucture+of+De mand+Increase +and+Decrease ";"MOST LIKELY A QLIK SENSE DASHBOARD ITEM NOT TESTING TABLES PER DIAGRAM OUTLINE IN: Final Structure of Demand Increase and Decrease")	=HYPERLINK ("https://share. merck.com/dis play/DAEnable ment/Final+Str ucture+of+De mand+Increase +and+Decrease ";"MOST LIKELY A QLIK SENSE DASHBOARD ITEM NOT TESTING PER DIAGRAM OUTLINE IN: Final Structure of Demand Increase and Decrease")	=HYPERLINK ("https://share. merck.com/dis play/DAEnable ment/Final+Str ucture+of+De mand+Increase +and+Decrease ";"MOST LIKELY A QLIK SENSE DASHBOARD ITEM NOT TESTING PER DIAGRAM OUTLINE IN: Final Structure of Demand Increase and Decrease")
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		2: 1. L is t o f p ri m ar y p a c k a gi n g li n e s - A d di ti o n al h rs n e			
--	--	---	--	--	--

		ended 2. List of secondary packages and capacity			
--	--	--	--	--	--

		3. L is t B ul k c a p a ci ty a n d A P I a v ai la bi li ty			
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# **CHAPTER 4**

## **USER MANUAL**



1. Go to web page <http://com-dev-wfl.s3-website-eu-west-1.amazonaws.com/matillionTools/index.html>
2. Go to tab "DEPLOY" and choose your artifacts (config file and dsqfile) from your computer



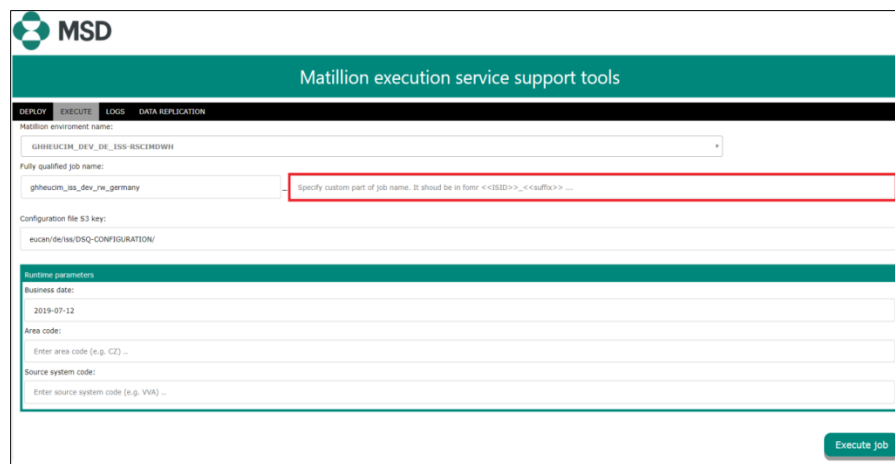
The screenshot shows the 'Matillion execution service support tools' interface. At the top, there is a green header with the MSD logo and the title 'Matillion execution service support tools'. Below the header is a navigation bar with tabs: 'DEPLOY', 'EXECUTE', 'LOGS', and 'DATA REPLICATION'. The 'DEPLOY' tab is selected. The main content area has a 'Target s3 bucket name:' field with the value 'com-merck-ghheucim-dev-etlexecservice'. Below this is a section 'Select file/s to be uploaded:' containing two file selection fields: 'Select configuration file local computer path ..' and 'Select DSQ file local computer path ..'. Each field has a 'Choose file' button to its right. At the bottom right of the form is an 'Import' button.

You can import both files at once, or you can import only one of them.

When you deploy artefact again with the same name, it will be automatically overwritten.

## Executing job via WEB GUI

1. Go to web page <http://com-dev-wfl.s3-website-eu-west-1.amazonaws.com/matillionTools/index.html>, tab EXECUTE and fill in just job name (your ISID and particular suffix)

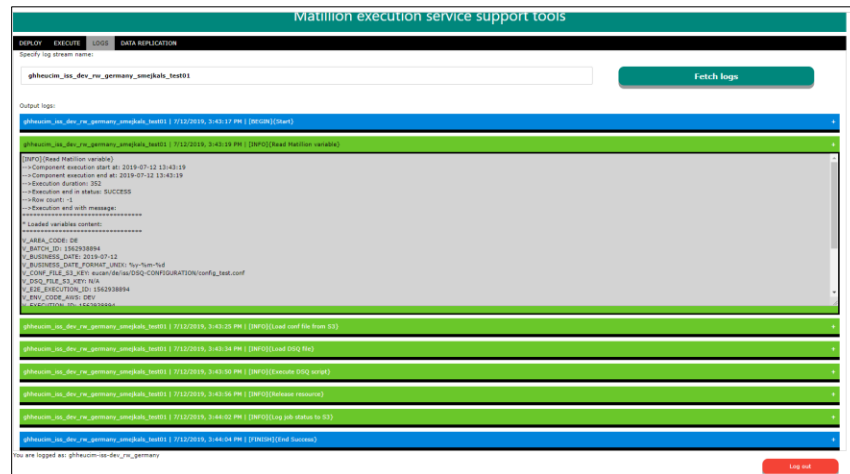


The screenshot shows the 'Matillion execution service support tools' web interface. At the top, there's a green header with the MSD logo and the title 'Matillion execution service support tools'. Below this is a navigation bar with tabs: 'DEPLOY', 'EXECUTE' (which is active), 'LOGS', and 'DATA REPLICATION'. The main form area contains several input fields: 'Matillion environment name' (a dropdown menu showing 'GHHESUCM\_DEV\_DE\_ISS-RSCSHDWH'), 'Fully qualified job name' (a text field with 'ghheucm\_iss\_dev\_rw\_germany' and a red box highlighting the suffix part with a tooltip 'Specify custom part of job name. It should be in form <<ISID>>\_<<suffix>> ...'), and 'Configuration file S3 key' (a text field with 'eucm/de/iss/DSQ-CONFIGURATION/'). Below these is a section titled 'Runtime parameters' with fields for 'Business date' (2019-07-12), 'Area code' (with a placeholder 'Enter area code (e.g. CZ) ...'), and 'Source system code' (with a placeholder 'Enter source system code (e.g. VVA) ...'). An 'Execute job' button is located at the bottom right of the form.

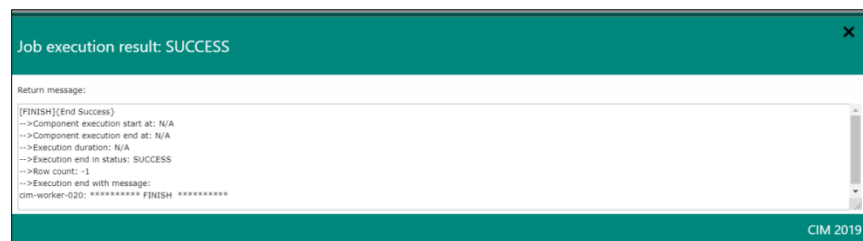
2. Section "Runtime parametrs" contains parameters which are initially populated for you. No need to change it, in case of parametrized your dsq transformation

➤ Press "Execute job" button

- During a few minutes execution, you can go on tab LOG where can you fetch your logs from CloudWatch and watch whether or what something goes wrong.



- Execution result.



## **DRAWBACKS AND LIMITATIONS**

AWS is the fastest-growing cloud provider, and it offers more than 70 different services. For just about any service that you could think of, there is probably already a specialized service on AWS where you can deploy your setup. And the entire AWS infrastructure is at your disposal. However, this doesn't mean that you can do whatever you want as every system has its advantages and disadvantages.



### **Cloud computing fallbacks**

AWS does have general cloud computing issues when you move to a cloud, such as a downtime, limited control, and backup protection. However, these flaws can be overcome after some time. This makes them a temporary issue.



### **Lack of relevant knowledge by your team**

If you choose to work with AWS as your Cloud provider, be prepared to learn and invest in your team's education. As we mentioned before, AWS is an excellent and extensive platform, and you need to know what you're doing if you want to use it.

## **PROPOSED ENHANCEMENTS**

We are continually taking the users' feedback about their experience while using this application and their suggestions. So that we can improve the user's experience easier and at the same time efficient and reliable.

In our next version of **ISS 2.0**, we will be going to introduce a **Tiger Framework**, which will include a new Apache Airflow service to schedule the data pipelines. This will straightly reduce the User's work of manually sending files to integration. This Tiger Framework will automatically pull the files/data from any type of source and ingest it into the system automatically without any human intervention. We are working to increase the infrastructure capacity in order to avoid the storage issue. We are trying to make the interfaces user friendly so that any user can access it and will be more comfortable.

Also in order to educate or guide the users that will be accessing for the first time we will providing the Knowledge articles guide which will help the user to have a hands on help on the workflows. The

articles will ultimately help the end users to get the knowledge about the newly launched features which will ultimately help in the smooth functioning for the end users as well the team.



## **CONCLUSION**

In the ISS 1.0 version, we have deployed all the User's requirements successfully without any post-delivery defects. Currently, everyone is using it at its best and we are continuously receiving appreciation notes from all the Users.

Now we will be planning/working on the ISS 2.0 to put one step ahead in interface appearance and improve the service at its best.

## **BIBLIOGRAPHY**

✚ **Amazon Elastic Compute Cloud (Amazon**

**EC2):** <http://aws.amazon.com/ec2/>.

✚ **AWS Step Functions:** [https://aws.amazon.com/step-](https://aws.amazon.com/step-functions/?nc2=h_ql_prod_ap_stf)

[functions/?nc2=h\\_ql\\_prod\\_ap\\_stf](https://aws.amazon.com/step-functions/?nc2=h_ql_prod_ap_stf)

✚ **Amazon Redshift:**

[https://aws.amazon.com/redshift/?nc2=h\\_ql\\_prod\\_an\\_rs&wh](https://aws.amazon.com/redshift/?nc2=h_ql_prod_an_rs&wh)

[ats-new-cards.sort-](https://aws.amazon.com/redshift/?nc2=h_ql_prod_an_rs&wh)

[by=item.additionalFields.postDateTime&whats-new-](https://aws.amazon.com/redshift/?nc2=h_ql_prod_an_rs&wh)

[cards.sort-order=desc](https://aws.amazon.com/redshift/?nc2=h_ql_prod_an_rs&wh)

✚ **AWS Lambda:**

[https://aws.amazon.com/lambda/?nc2=h\\_ql\\_prod\\_fs\\_lbd](https://aws.amazon.com/lambda/?nc2=h_ql_prod_fs_lbd)

✚ **AWS Database Migration Service:**

[https://aws.amazon.com/dms/?nc2=type\\_a](https://aws.amazon.com/dms/?nc2=type_a)

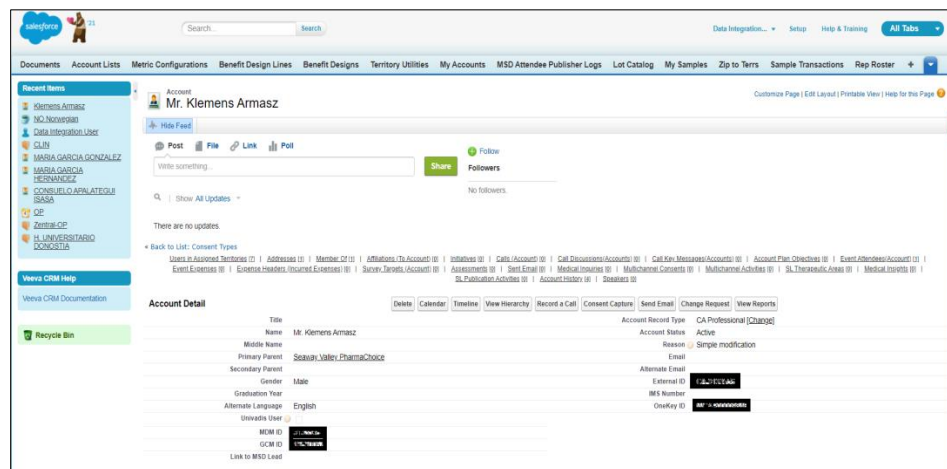
✚ **Amazon CloudWatch:**

[https://aws.amazon.com/cloudwatch/?nc2=type\\_a](https://aws.amazon.com/cloudwatch/?nc2=type_a)

## **ANNEXURES**

## ANNEXURE 1 : USER INTERFACE SCREENS

### **Salesforce CRM(Customer Relationship Management) Portal**



The above snap is of the Salesforce CRM portal which is the front-end of this entire model. Here every detail is shown like Employee, Customers, Products, Promotional products, consents, emails, etc.

This is the portal where all Merck business associates interact with each other for business purposes. e.g. If anyone wants to take some information about some particular employee like in which

▼ Account Specialty			
Individual Type	Pharmacist	Individual Class Alt Language	Pharmacist
Individual Class	Pharmacy	Specialty 1 Alt Language	Pharmacist
Specialty 1		Specialty 2 Alt Language	
Specialty 2		Specialty 3 Alt Language	
Specialty 3			
▼ Data Privacy and Data Consents			
Privacy Consent status	N/A	Privacy Consent status date	01/07/2020
▼ Web Profile			
Title		Profession	
First Name		Web Specialty	
Last Name		Graduation Year	
Portal Email		Language Preference	
Portal User Status		Primary Office Postal	
Pre-Register	<input type="checkbox"/>	Phone Number	
Registration Date		Total Number of Profiles	
Last Login Date			
▼ Local Custom Attributes			
EFT Email		FMV Supplement	

Users in Assigned Territories				
Full Name	Email	Role in Territory	Territory	Territory Model
Amanda Barabaz	amanda.barabaz@msd.com		CA-MSD	MSD EUCAN Territory
Patrick Damasz	pdamasz@msd.com		CA-CMGG	MSD EUCAN Territory
Steve Leon	sleon@msd.com		CA-KAMQC	MSD EUCAN Territory
Angela Novati	anovati@msd.com		CA-PC12D	MSD EUCAN Territory
SIDRA SIDDIQUI	ssiddiqui@msd.com		CA-QMHE	MSD EUCAN Territory
Anu Vaj	avaj@msd.com		CA-VI1C	MSD EUCAN Territory
Mark Reece	mreece@msd.com		CA-CMC1C	MSD EUCAN Territory

Addresses								Addresses Help ?		
Action	Address Line 1	City	Postal Code	State/Province	Unit	Phone 1	Receptionist Name	Primary	Mailing	Inactive
Edit / Del	[REDACTED]	[REDACTED]	[REDACTED]	CN	[REDACTED]	[REDACTED]	[REDACTED]	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

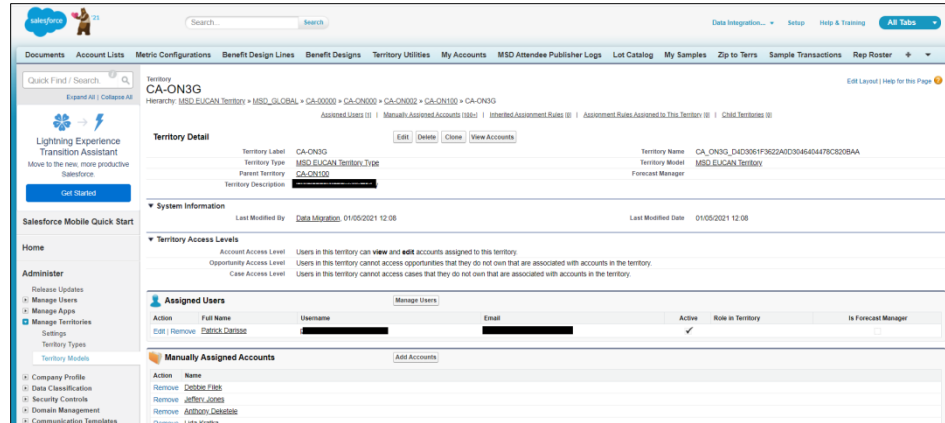
  

Member Of							Member Of help ?
Action	Member ID	Parent Account	Top Level Account	Primary	Effective Date	Deleted	
Edit / Del	[REDACTED]	[REDACTED]	[REDACTED]	Yes	[REDACTED]	<input type="checkbox"/>	

Affiliations (To Account)		New Affiliation	Affiliations (To Account) Help ?
No records to display			

Here we can see which all associates are tagged under the same territories(Geographical Areas) under which this <<Mr. Khelmens Armasz>> is tagged.

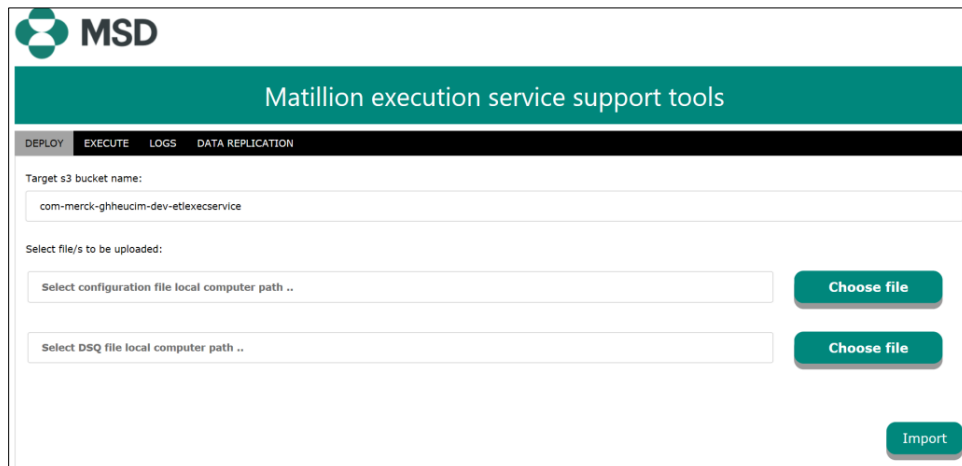


In the upper portion, we have seen the Employee profile and along with under which Territory he is tagged. The territory is the geographical area. (e.g. Kothrud is the sub Territory of Pune)

In the above snap, we can see the all details of any Territory. i.e. Territory Code, Area Covers, which all associates are tagged under this particular Territory. Etc.



## Matillion UI Portal

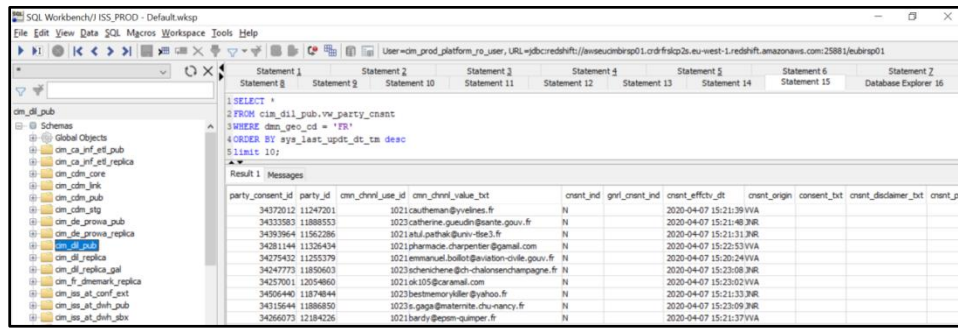


The screenshot displays the Matillion UI Portal interface. At the top left is the MSD logo. Below it, a teal header bar contains the text "Matillion execution service support tools". Underneath the header is a navigation bar with four tabs: "DEPLOY", "EXECUTE", "LOGS", and "DATA REPLICATION". The "EXECUTE" tab is currently selected. The main content area includes a form for uploading files to a target S3 bucket. The "Target s3 bucket name:" field is populated with "com-merck-ghheucim-dev-etlexecservice". Below this, the "Select file/s to be uploaded:" section contains two input fields: "Select configuration file local computer path .." and "Select DSQ file local computer path ..". Each input field is accompanied by a teal "Choose file" button. At the bottom right of the form is a teal "Import" button.

The above snap is of the UI portal which we have built for the Local IT admin members, they can easily just upload the file here and it will get loaded into the Redshift database. The table structures, column data types, column length. Everything is managed by the python script in the backend.

By dumping the data into the system, users can easily perform the queries on their data as per their need/requirement and link that data to the Qlik reports.

## SQL Workbench(Redshift DB) Tool



The screenshot shows the SQL Workbench interface with a query executed against a Redshift database. The query is as follows:

```
1 SELECT *
2 FROM cim_dtl_pub_vw_party_cnnt
3 WHERE dm_geo_cd = 'FR'
4 ORDER BY sys_last_upd_dt_tm desc
5 limit 10;
```

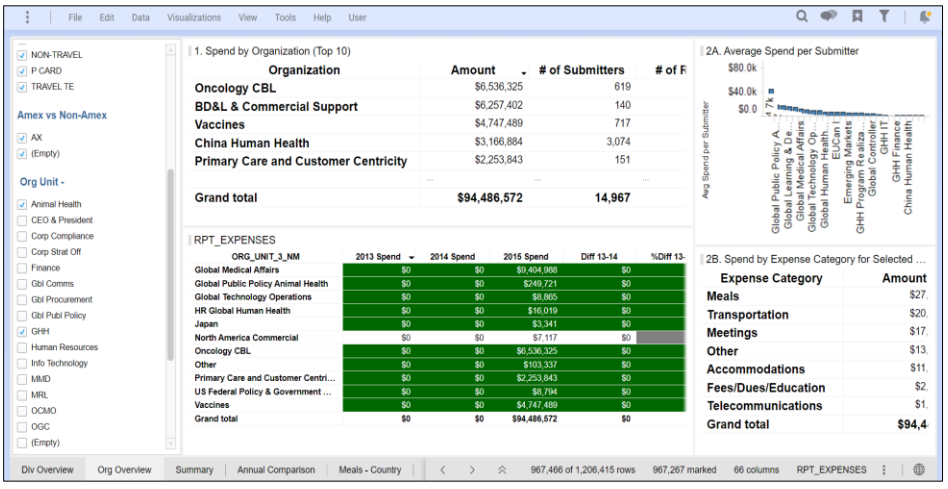
The results are displayed in a table with the following columns: party\_consnt\_id, party\_id, cmn\_chrvl\_use\_id, cmn\_chrvl\_value\_txt, cmnt\_ind, gvrl\_cmnt\_ind, cmnt\_effctv\_dt, cmnt\_origin, cmnt\_txt, cmnt\_disclamer\_txt, and cmnt\_gpa. The table contains 10 rows of data, showing various user identifiers, email addresses, and timestamps.

party_consnt_id	party_id	cmn_chrvl_use_id	cmn_chrvl_value_txt	cmnt_ind	gvrl_cmnt_ind	cmnt_effctv_dt	cmnt_origin	cmnt_txt	cmnt_disclamer_txt	cmnt_gpa
34372012	11247201	1021	cautheman@velines.fr	N		2020-04-07 15:21:39 VVA				
34333583	11888553	1023	catherine.guedin@sante.gouv.fr	N		2020-04-07 15:21:40 JNR				
34393964	11562286	1021	atlu.pothak@univ-tlse3.fr	N		2020-04-07 15:21:31 JNR				
34381144	11235434	1021	pharmacie.cherpenier@gmail.com	N		2020-04-07 15:22:53 VVA				
34275432	11255379	1021	emmanuel.bollot@aviation-civile.gouv.fr	N		2020-04-07 15:20:24 VVA				
34247773	11850603	1023	schenechene@ch-chalonsenchampagne.fr	N		2020-04-07 15:23:08 JNR				
34257001	12054860	1021	ok105@icemail.com	N		2020-04-07 15:23:02 VVA				
34556440	11874844	1023	bestmemorykiller@yahoo.fr	N		2020-04-07 15:21:33 JNR				
34315644	11886850	1023	s.gaga@maternite.chu-nancy.fr	N		2020-04-07 15:23:09 JNR				
34266073	12184236	1021	bardy@epsm-quimper.fr	N		2020-04-07 15:21:37 VVA				

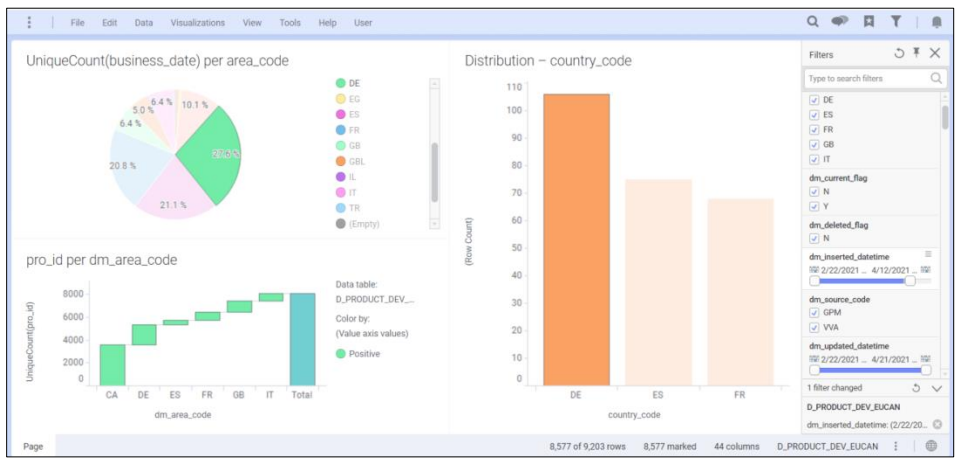
The above is the SQL workbench, through which Users connect to the Redshift database and perform/fire their queries on the data.

ANNEXURE 2 : OUTPUT REPORTS WITH DATA

1.Expense Report



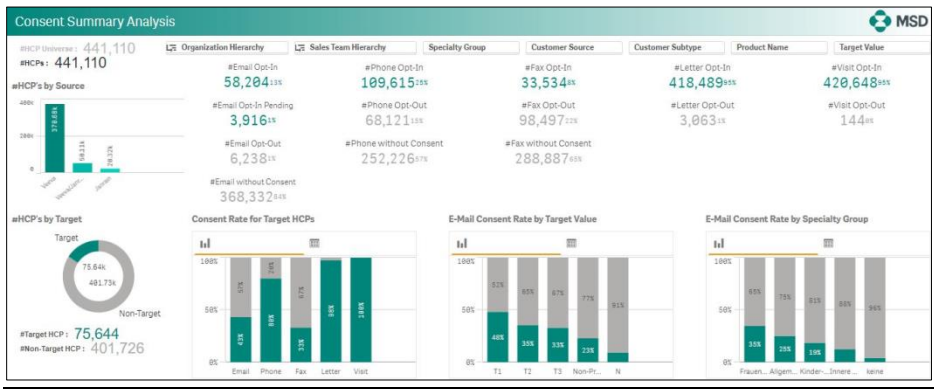
2.Product Report



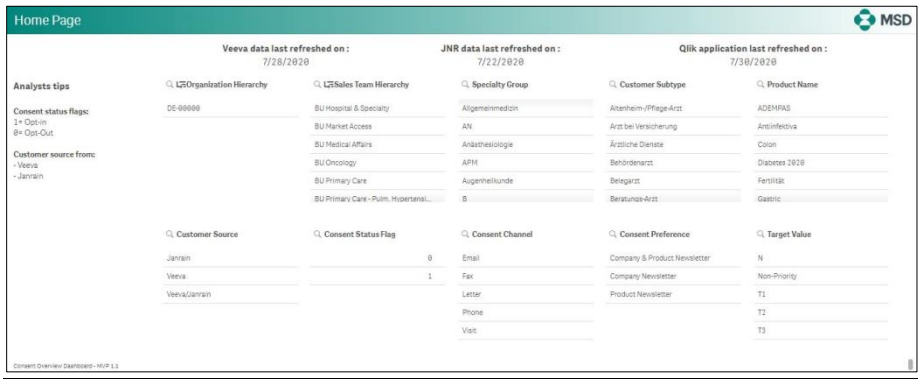
3.Consent Report

Consent Custom Report			
Organization Hierarchy		Sales Team Hierarchy	
Specialty Group		Customer Source	
Customer Subtype		Product Name	
Target Value		MonthYear	
Visualizations			
Consent ad-hoc			
Custom Report			
Target Value			
#Customer			
Consent ad-hoc			
Product Name		Target Value	
Sales Team Hierarchy		#HCPs	
Specialty Group		Totals	
Target		N	
Target Value		Non-Priority	
		T1	
		T2	
		T3	
		441118	
		439358	
		32484	
		58499	
		37686	
		6874	
Measures			
#Customer			
#Email Opt-In			
#Email Opt-Out			
#Email without Consent			
#Email Opt-In			

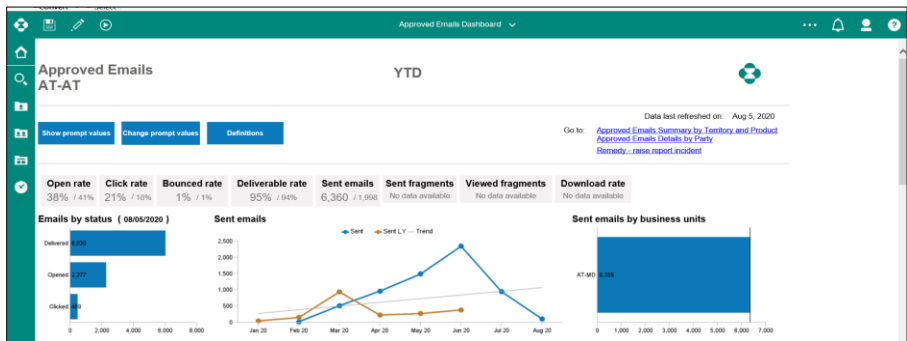
4.Consent Summary Analysis Report



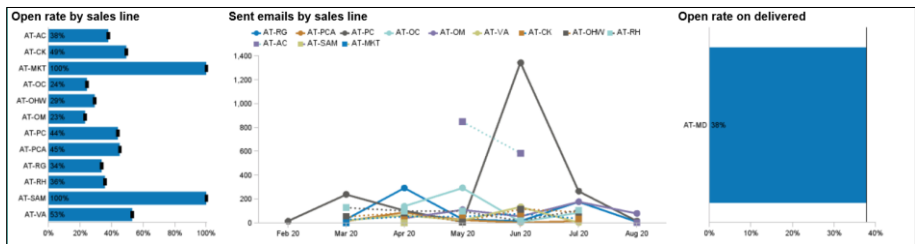
4.Dashboard



5.Approved Email Report



6.Sent Email by Sales Line Report



7.Approved Email Open & Click Analysis Report

