

Oracle E-Business Suite

# Data Masking

**ORACLE®**

**E-BUSINESS SUITE**



 **dataZense™** Whitepaper

# Objective



This paper provides an insight into Best Practices for protecting and securing the Oracle E-Business Suite sensitive PII data by implementing the Data Profiling and Data Remediation solution, thereby assuring the companies to ensure compliance with the GDPR, SOX Compliance and similar data privacy laws worldwide and maximize the business value.



## Ganapathy Arumugam

Senior Enterprise Architect  
ChainSys Corporation

Senior Enterprise Architect in ChainSys with 20+ years of experience specialized in Data Security and Compliance. Heavily engaged with the Global Clients to secure their sensitive data. Published several ML Algorithms for sensitive data identification and remediation. My current focus areas are Data Security and Compliance, Data Migration, Data Integration, Big Data, Master Data Management, Business Intelligence and Artificial Intelligence.

PII Oracle EBS

# Data Masking

## BUSINESS EXPECTATIONS

Personal information or Personally identifiable information (PII) is any data that could potentially identify a specific individual. No company can claim 100% compliance, but they have to make "Good Faith Effort" to cover most of the ground. The new rules grant people more rights regarding how companies handle their personally identifiable information (PII), and it imposes heavy fines for non-compliance and data breaches--up to 4 percent of a company's yearly revenue.

For security teams, this means making sure that PII is adequately protected and that the proper reporting processes are in place. Companies are at high risk of significant fines, data breach, brand reputation, and potential loss of customers if they do not mitigate the risk of adhering to the proper compliance levels in all regions.

Making 'Zense' of data is a challenge for most companies. dataZense is an end-to-end analytics platform that integrates all of your company's data, secures it, and brings it to life through easy-to-use Dashboards. The Data Catalog helps look for needed data in an organization. dataZense® provides an end-to-end capability for Data Profiling, Data Remediation (Masking, Scrambling, and Encryption), and Data Governance.



# PII Data Categories

Personal data are grouped in to two different categories Critical and Confidential Data Elements or Categories.

## Critical Data Elements/Categories

Critical data elements are those elements by which you can directly identify individual/person such as their social security number, National Identifier, Visa Number, Passport Number, Employee Number etc.

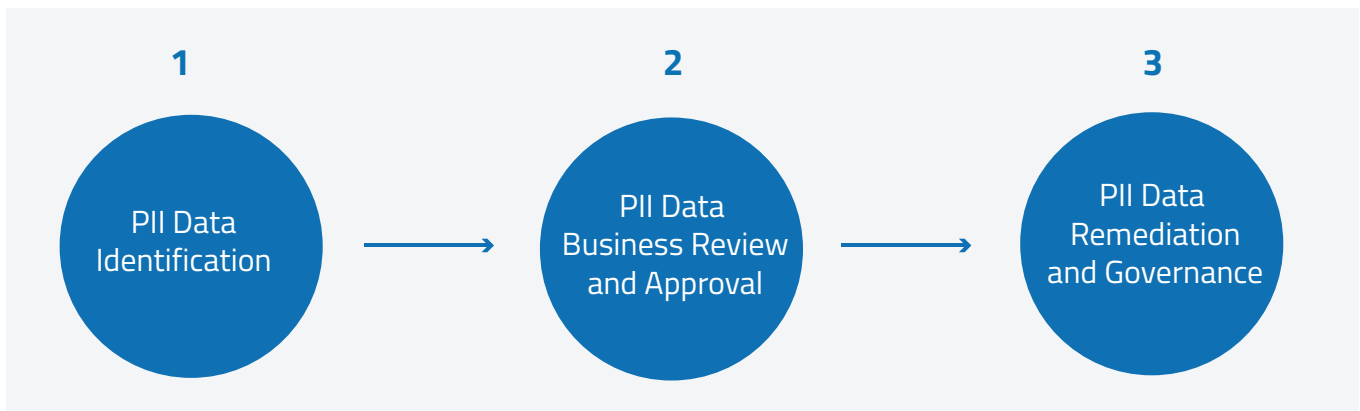
## Confidential Data Elements/Categories

Confidential data elements are information which when combined other personal data elements can able to identify individual. E.g.: First name, Last Name, Date of Birth.

## Oracle E-Business Suite PII Data Profiling and Data Masking

The PII Data Profiling and Data Masking within the dataZense application is broken out into the following three high level process

- PII Data Identification
- PII Business Review and Approval
- PII Data Remediation and Governance



### PII Identification

Identify Systems considered for Sensitive Data Identification (PII) and run the Data profiling process to identify the PII Attributes. Provides the complete visibility of the identified PII data. i.e., Server, Instance, Database, Schema, Table, Column level details.

### PII Business Review and Approval

The identified PII attributes will go through False-Positive / False-Negative analysis and approved for remediation

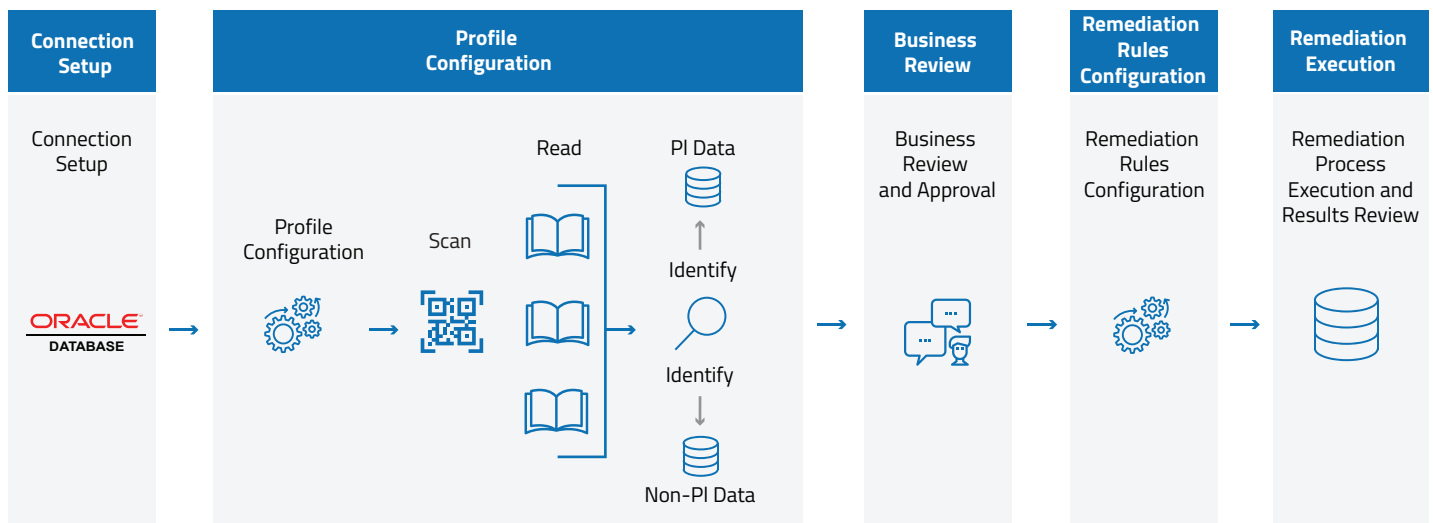
### PII Remediation and Governance

The business approved PII attributes will be considered for remediation.

## Remediation Options:

- Scramble the Data
- Mask the Data
- Remove Data (With capture of logs) – remove from all production and non-production environments
- Keep the Data (Encrypt in all Non-Production environments)

## High Level Architecture



## Data Masking Process Steps

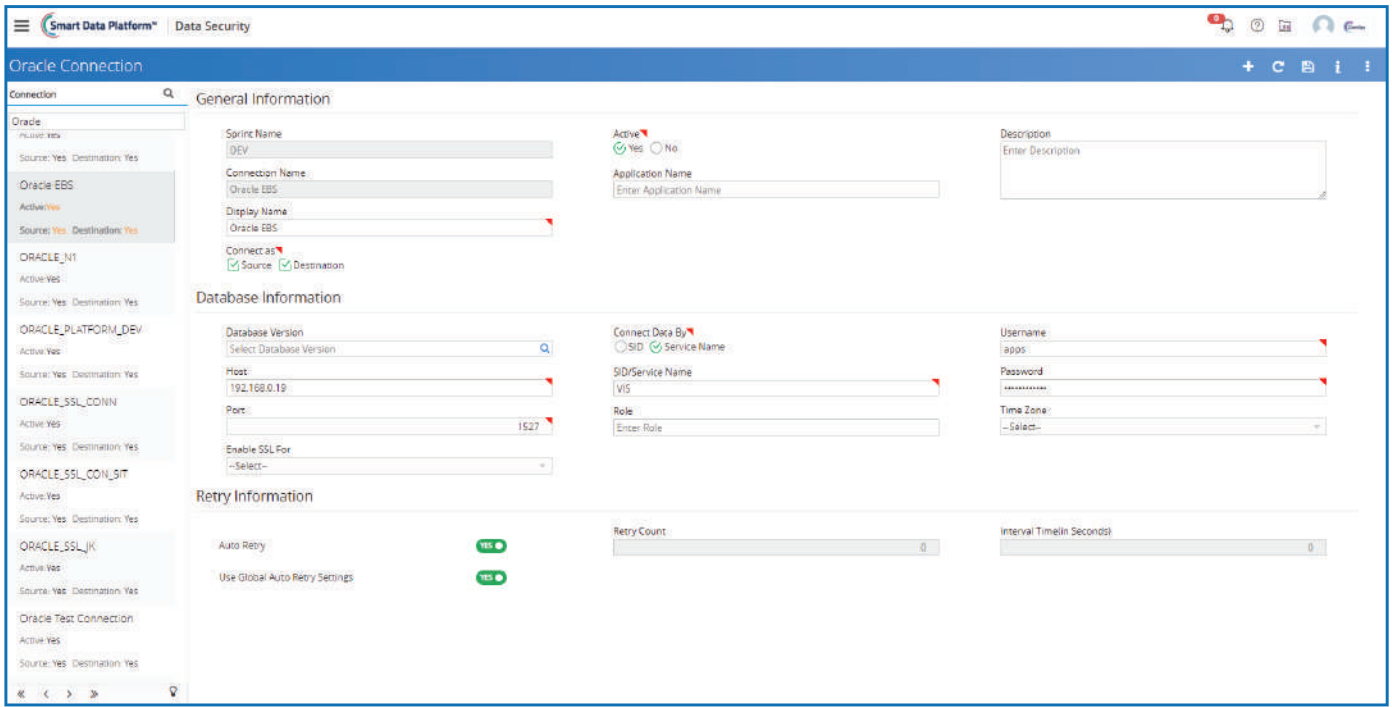
### Steps to configure:

- Create a Connection to the Oracle E-Business instance.
- Create a Data Security profile for scanning the Oracle EBS Database.
- Business Review of scanned results and complete the Business validation of Approve/Reject the PII Data.
- Create a Remediation Profile to configure the Remediation Rules for masking the data.
- Execute the configured Remediation Profile to mask the data and Review the masked results from the Oracle EBS Application and database.

# Connection

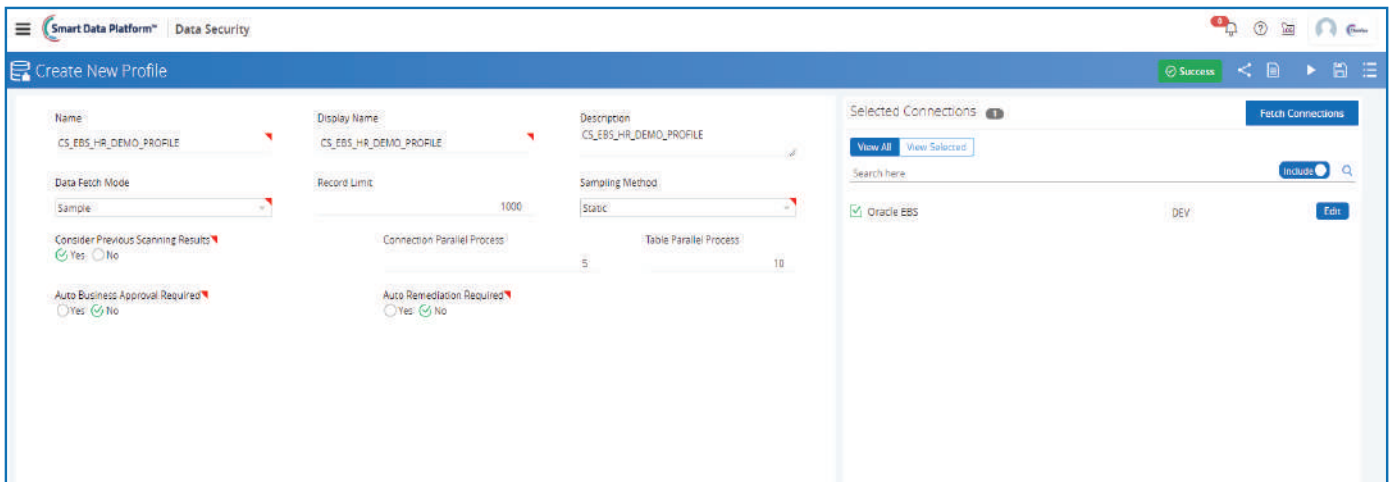
Verifying the Source Connection:

Ensure that the respective Oracle EBS source connection is available. If not, create a new connection.



# Profile Creation and Execution

Create a profile for scanning the Oracle EBS Database and execute.



# Business Review

Review the scanned results and complete the Business validation by Approving or Rejecting the PII Data.

The screenshot shows the 'Business Validation and Approval' interface in Smart Data Platform. It displays a table of PII data for the 'PER\_ALL\_PEOPLE\_F' table in the 'HR' schema. The table has columns for Table Name, Column Name, Possible Category, Match(%), Category Name, Status, and Sample. The data is as follows:

Table Name	Column Name	Possible Category	Match(%)	Category Name	Status	Sample
PER_ALL_PEOPLE_F	EMPLOYEE_NUMBER	EMPLOYEE_NO	100	EMPLOYEE_NO	Approved	View Data
PER_ALL_PEOPLE_F	FULL_NAME	NAME	99	NAME	Approved	View Data
PER_ALL_PEOPLE_F	DATE_OF_BIRTH	DATE	100	DATE	Approved	View Data
PER_ALL_PEOPLE_F	BACKGROUND_DATE_CHECK	DATE	100	DATE	Approved	View Data
PER_ALL_PEOPLE_F	ORIGINAL_DATE_OF_HIRE	DATE	100	DATE	Approved	View Data
PER_ALL_PEOPLE_F	EFFECTIVE_START_DATE	DATE	100	DATE	Approved	View Data
PER_ALL_PEOPLE_F	NATIONAL_IDENTIFIER	NATIONALIDENTIFIER	100	NATIONAL_IDENTIFIER	Approved	View Data
PER_ALL_PEOPLE_F	LAST_NAME	NAME	89	NAME	Approved	View Data
PER_ALL_PEOPLE_F	START_DATE	DATE	100	DATE	Approved	View Data
PER_ALL_PEOPLE_F	FIRST_NAME	NAME	97	NAME	Approved	View Data
PER_ALL_PEOPLE_F	REGION_OF_BIRTH	STATE_OR_PROVINCE	100	STATE_OR_PROVINCE	Approved	View Data
PER_ALL_PEOPLE_F	LAST_MEDICAL_TEST_DATE	DATE	100	DATE	Approved	View Data
PER_ALL_PEOPLE_F	COUNTRY_OF_BIRTH	COUNTRY	100	COUNTRY	Approved	View Data
PER_ALL_PEOPLE_F	TOWN_OF_BIRTH	CTY	50	CITY	Approved	View Data
PER_ALL_PEOPLE_F	MIDDLE_NAMES	NAME	60	NAME	Approved	View Data

# Remediation Profile

Create a Remediation Profile to configure the Remediation Rules for masking the data.

The screenshot shows the 'PII Remediation Profile Lookup Setup' interface in Smart Data Platform. It displays a list of Category Rules for the 'CS\_PII\_REMEDIATION\_PROFILE'. The table has columns for Category, Category Type, Security Level, Remediation Type, and Mask/Scramble Type. The data is as follows:

Category	Category Type	Security Level	Remediation Type	Mask/Scramble Type
<input checked="" type="checkbox"/> CLIENT APPLICATIONS AND OS	STRING	Confidential	Scramble	NA
<input checked="" type="checkbox"/> CONTACTS	STRING	Confidential	Scramble	NA
<input checked="" type="checkbox"/> CONTACTS COMMUNICATIONS	STRING	Confidential	Scramble	NA
<input checked="" type="checkbox"/> CORPORATIONS	STRING	Confidential	Scramble	NA
<input checked="" type="checkbox"/> COUNTRY	STRING	On the Record	Scramble	NA
<input checked="" type="checkbox"/> CREDIT CARD	CREDIT CARD	Critical	Mask	KEEP_LAST4
<input checked="" type="checkbox"/> CREDIT CARD NUMBER	CREDIT CARD	Critical	Mask	KEEP_LAST4
<input checked="" type="checkbox"/> CURRENT ADDRESS	STRING	Confidential	Scramble	NA
<input checked="" type="checkbox"/> DATE	DATE	Confidential	Mask	DAY
<input checked="" type="checkbox"/> DATE OF BIRTH	DATE	Confidential	Mask	DAY
<input checked="" type="checkbox"/> DATE OF DEATH	DATE	Confidential	Mask	DAY
<input checked="" type="checkbox"/> DEVICE IP	IP ADDRESSES	Confidential	Delete	NA
<input checked="" type="checkbox"/> DIGITAL RECORDS OF PHYSICAL	STRING	Confidential	Scramble	NA
<input checked="" type="checkbox"/> DISABILITY	STRING	Confidential	Scramble	NA

# Remediation Execution

Execute the configured Remediation Profile to mask the data.

**Remediate by Configured Profiles**

Configuration Profile Name: Contains CS\_PII\_REMEDIATION\_PROFILE  
 PII Category Type: Equals --Select--

Search Clear Minimize

**Results** 1 Records Remediate Selected

Configuration Profile Name	Description	PII Categories	Databases
CS_PII_REMEDIATION_PROFILE	CS_PII_REMEDIATION_PROFILE	22	2

# Remediation Process Status

**Remediation Process Status**

Category Name: ACADEMIC,ACADEMIC CERTIFICATE N  
 Region: Region  
 Country: Country  
 Location: Location

Remediation Status: Completed  
 Instance: Instance  
 Database: Database  
 Schema Name: Schema Name

Search Reset

Remediation Profile Name	Server Name	Instance	Database	Schema Name	Table Name	Column Name	Category	Remediation	Status	Log
CS_ORACLE_DEMO_PROFILE	ORACLE	ORACLE	ORACLE	SYSTEM	CP_EMPLOYE...	EMAIL_ADDR...	EMAIL	Mask	Completed	
CS_ORACLE_DEMO_PROFILE	ORACLE	ORACLE	ORACLE	SYSTEM	CP_EMPLOYE...	NATIONAL_I...	NATIONAL.ID...	Mask	Completed	
CS_ORACLE_DEMO_PROFILE	ORACLE	ORACLE	ORACLE	SYSTEM	CP_EMPLOYE...	FIRST_NAME	STRING	Scramble	Completed	
CS_ORACLE_DEMO_PROFILE	ORACLE	ORACLE	ORACLE	SYSTEM	CP_EMPLOYE...	LAST_NAME	STRING	Scramble	Completed	
CS_ORACLE_DEMO_PROFILE	ORACLE	ORACLE	ORACLE	SYSTEM	CP_EMPLOYE...	ADDRESS_1	STRING	Scramble	Completed	
CS_EBS_PII_REMEDIATION_PR...	ORACLE	ORACLE	HR	HR	PER_ALL_PE...	EMAIL_ADDR...	EMAIL	Mask	Completed	
CS_EBS_PII_REMEDIATION_PR...	ORACLE	ORACLE	HR	HR	PER_ALL_PE...	NATIONAL_I...	NATIONAL.ID...	Mask	Completed	
CS_EBS_PII_REMEDIATION_PR...	ORACLE	ORACLE	HR	HR	PER_ALL_PE...	FIRST_NAME	STRING	Scramble	Completed	
CS_EBS_PII_REMEDIATION_PR...	ORACLE	ORACLE	HR	HR	PER_ALL_PE...	LAST_NAME	STRING	Scramble	Completed	
CS_EBS_PII_REMEDIATION_PR...	ORACLE	ORACLE	HR	HR	PER_ALL_PE...	FULL_NAME	STRING	Scramble	Completed	
CS_SALESFORCE_DEMO_PROF...	ORACLE	ORACLE	SF_DEMO	SF_DEMO	CP_CONTACT...	EMAIL_ADDR...	EMAIL	Mask	Completed	
CS_SALESFORCE_DEMO_PROF...	ORACLE	ORACLE	SF_DEMO	SF_DEMO	CP_CONTACT...	NATIONAL_I...	NATIONAL.ID...	Mask	Completed	



# Review Masked Results

Review the masked results from the Oracle EBS Application and database.

**People**

Name

Last **Finn**  
First **John**  
Title **Mr.**  
Prefix  
Suffix  
Middle

Gender **Male** Action  
Person Type for Action  
Person Types **Employee.Ex-applicant**  
Identification **Employee** 168  
**Social Security** **XXX-99-8866**

**Personal** Employment Office Details Applicant Background Rehire Further Name Medical Other Benefits

Birth Date **13-FEB-1967** Age **53**  
Town of Birth Status **Single**  
Region of Birth Nationality  
Country of Birth Registered Disabled **No**

Effective Dates  
From **22-APR-1998** To Latest Start Date **15-FEB-1997**

Address Picture Assignment Special Info Others...

**Address(Finn, Mr. John)**

**Address** **xw a5icfq2K 6NQc**

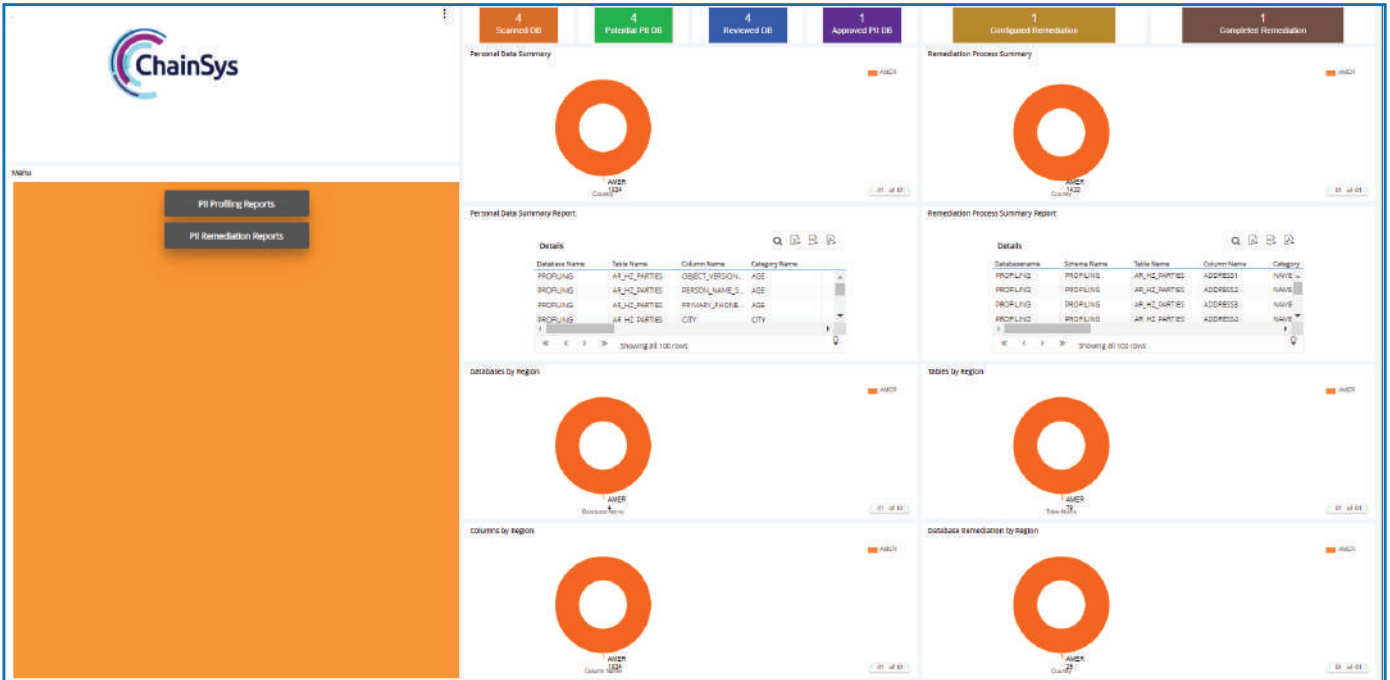
City **San Jose** State **CA** Zip **95013**  
County **Santa Clara** Country  
Telephone #1 Telephone #2  
Type **Home**  Primary

Effective Dates  
From **11-JAN-2001** To

# Dashboards

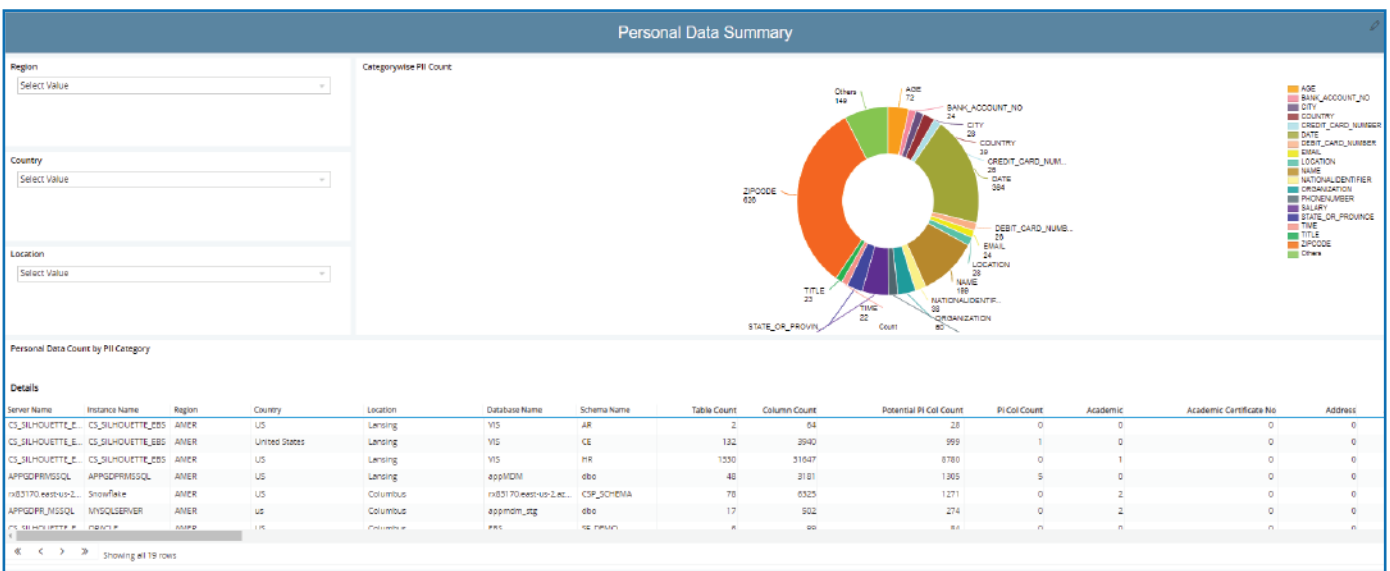
## PII Home Dashboard

Provides the high-level summary of Profiled and Remediated Databases



## Personal Data Count by PII Category

Provides the PII data count by each PII Category



## Supported Endpoints ( Partial )

Oracle Sales Cloud, Oracle Marketing Cloud, Oracle Engagement Cloud, Oracle CRM On Demand, SAP C/4HANA, SAP S/4HANA, SAP BW, SAP Concur, SAP SuccessFactors, Salesforce, Microsoft Dynamics 365, Workday, Infor Cloud, Procore, Planview Enterprise One

Cloud Applications

Oracle E-Business Suite, Oracle ERP Cloud, Oracle JD Edwards, Oracle PeopleSoft, SAP S/4HANA, SAP ECC, IBM Maximo, Workday, Microsoft Dynamics, Microsoft Dynamics GP, Microsoft Dynamics Nav, Microsoft Dynamics Ax, Smart ERP, Infor, BaaN, Mapics, BPICS

Enterprise Applications

Windchill PTC, Oracle Agile PLM, Oracle PLM Cloud, Teamcenter, SAP PLM, SAP Hybris, SAP C/4HANA, Enovia, Proficy, Honeywell OptiVision, Salesforce Sales, Salesforce Marketing, Salesforce CPQ, Salesforce Service, Oracle Engagement Cloud, Oracle Sales Cloud, Oracle CPQ Cloud, Oracle Service Cloud, Oracle Marketing Cloud, Microsoft Dynamics CRM

PLM, MES & CRM

Oracle HCM Cloud, SAP SuccessFactors, Workday, ICON, SAP APO and IBP, Oracle Taleo, Oracle Demantra, Oracle ASCP, Steelwedge

HCM & Supply Chain Planning

Oracle Primavera, Oracle Unifier, SAP PM, Procore, Ecosys, Oracle EAM Cloud, Oracle Maintenance Cloud, JD Edwards EAM, IBM Maximo

Project Management & EAM

OneDrive, Box, SharePoint, File Transfer Protocol (FTP), Oracle Webcenter, Amazon S3

Enterprise Storage Systems

HIVE, Apache Impala, Apache Hbase, Snowflake, mongoDB, Elasticsearch, SAP HANA, Hadoop, Teradata, Oracle Database, Redshift, BigQuery

Big Data

mangoDB, Solr, CouchDB, Elasticsearch

No SQL Databases

PostgreSQL, Oracle Database, SAP HANA, SYBASE, DB2, SQL Server, MySQL, memsql

Databases

IBM MQ, Active MQ

Message Broker

Java, .Net, Oracle PaaS, Force.com, IBM, ChainSys Platform

Development Platform

# One Platform for your

End to End

Data Management needs

## Smart Data Platform™



Data Migration  
Data Reconciliation  
Data Integration



Data Quality Management  
Data Governance  
Analytical MDM



Data Analytics  
Data Catalog  
Data Security & Compliance

[www.chainsys.com](http://www.chainsys.com)