FLEXCUBE Private Banking Suite

DATA MASKING GUIDE

ORACLE
FINANCIAL SERVICES

Revision History

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Document Revision History

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Anshul Jain	22-May-2018	First Review	1	Prakash Parte	22-MAY-2018

Table of Contents

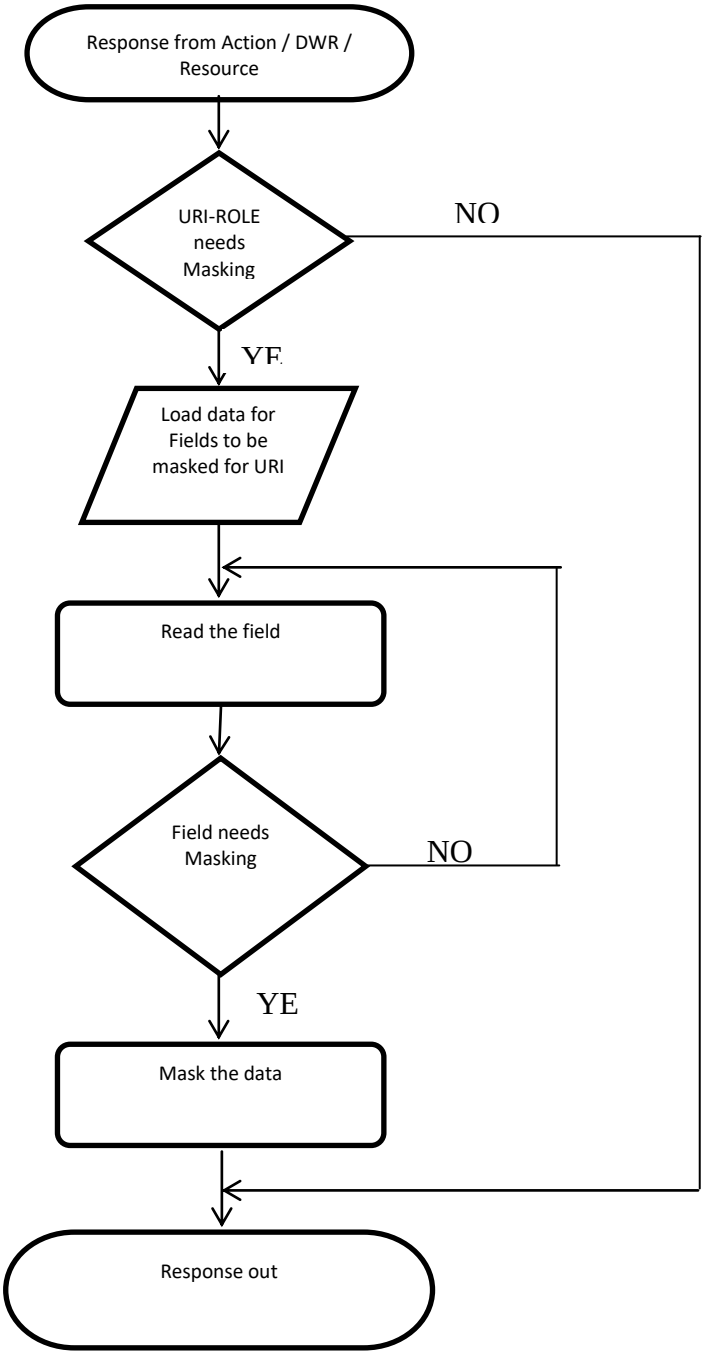
1 Introduction to Data Masking Framework:

Data masking framework is designed to mask personal identifiable data, personal sensitive data or commercially sensitive data. It includes screens, DWR calls, Report & JSON / XML sent out by PBSERVICEHUB.

2 Scope of changes

- ***Screen Data Masking***: To mask the data on screen beforeResult method of AbstractInterceptor will be used. It will read the configuration data from tables and mask the data before view is rendered.
- ***DWR Data Masking:*** To mask the data for DWR calls DWRFilter (AjaxFilter) will be used. It will read the configuration data from tables and mask the data before DWR response is returned.
- ***REST Data Masking:*** To mask the data for REST responses either Filter or Message Body writer will be used which. It will read the configuration data from tables and mask the data before sending out the response..

3 Flow Diagram



4 Table Details-

There are 4 main tables used in this framework

a) **PMS_DATA_MASK_MASTER:** It contain the Master data that requires masking, it contains URI, applicability and other details.

Column Name	Description
MASK_ID	Primary Key
MASK_URI	URI needs to be masked
MASK_APPLICABILITY	Mask Applicability like APP / REST / DWR
STATUS	Status used to control Masking ar URI level
VERSION	Version number
METHOD_NAME	Method which is being call in DWR calls
NESTED_OBJECT	Nested object name in case we have a List of object A which has object B and Masking is required for **Object B**

b) **PMS_DATA_MASK_OBJECT:** It contains the Object details which require masking along with field name, number of characters to be masked, mask pattern.

Column Name	Description
MASK_OBJECT_ID	Primary Key
FULL_CLASS_NAME	Full Class name (Model name) for which Masking is required
FIELD_NAME	Field for which Masking is required
MASK_PATTERN	Pattern to be used for Masking
START_MASK_COUNT	Number of Char to be masked from start
END_MASK_COUNT	Number of Char to be masked from end
VERSION	Version number
CLASS_DISPLAY_NAME	Class Display Name

c) **PMS_MASK_MAPPING:** It is a mapping table for Mask Master & Mask Object tables. It represents which Objects are mapped for which URIs.

Column Name	Description
MASK_ID	Mask Id from PMS_DATA_MASK_MASTER table
MASK_OBJECT_ID	Mask Object Id from PMS_DATA_MASK_OBJECT table

d) **PMS_MASK_ROLE:** It is mapping table for Role & Mask Master table, it has details that which URIs will be masked for which Role.

Column Name	Description
MASK_ID	Mask Id from PMS_DATA_MASK_MASTER table
ROLE_ID	Role Id from SMS_ROLE table

5 Steps to Enable / Disable Masking at application level

One global key is maintained in business config table (MASK_DATA_YN) which controls Masking, if value is Y then data will be masked else no masking is there. Queries to enable / disable the same are-

```
--Enable the Masking
UPDATE PBS_BUSINESS_CONFIG
   SET CONFIG_VALUE = 'Y'
 WHERE CONFIG_KEY = 'MASK_DATA_YN';

--Disable the Masking
UPDATE PBS_BUSINESS_CONFIG
   SET CONFIG_VALUE = 'N'
 WHERE CONFIG_KEY = 'MASK_DATA_YN';
```

6 Steps to Enable / Disable Masking at URI level

Every record in PMS_DATA_MASK_MASTER table has status flag. If Status is A it means masking is ON else masking is disabled for this URI. Below is sample query-

```
UPDATE PMS_DATA_MASK_MASTER
   SET STATUS = 'A'
 WHERE UPPER(MASK_URi) LIKE UPPER('%custSearch.action%')
          OR MASK_ID = 1;
```

7 Illustration for Masking at Action level

Suppose we want to mask customer name on the search page for RM Role. In this case URI is custSearch.action applicability will be APP and we want to mask firstName, middleName and lastName of customer Model com.iflexsolutions.wm.crm.model.Customer. Data in the tables would be like-

PMS_DATA_MASK_MASTER table-

MASK_ID	MASK_URI	MASK_APPLICABILITY	STATUS	VERSION	METHOD_NAME	NESTED_OBJECT
1	custSearch.action	APP	A	1		

PMS_DATA_MASK_OBJECT table-

MASK_OBJECT_ID	FULL_CLASS_NAME	FIELD_NAME	MASK_PATTERN	START_MASK_COUNT	END_MASK_COUNT	VERSION	CLASS_DISPLAY_NAME
1	com.iflexsolutions.wm.crm.model.Customer	firstName		2	1	1	Customer
2	com.iflexsolutions.wm.crm.model.Customer	lastName		1	3	1	Customer
3	com.iflexsolutions.wm.crm.model.Customer	middleName		2		1	Customer

PMS_MASK_MAPPING table-

MASK_ID	MASK_OBJECT_ID
1	7
1	1
1	2
1	3

PMS_MASK_ROLE table-

MASK_ID	ROLE_ID
1	2

Screenshot-

Customer No.	External Ref ID	Name	Customer Segment	Status	Phone	Last Transaction Date	Inte
2686042145		##jee# #an###	TOP CUSTOMERS	Active	#######890		
2624010106		##ndhi# ##mar ###	TOP CUSTOMERS	Active	#######077	13/03/2016	
2624010244		##ddh# ###	TOP CUSTOMERS	Active	#######63077		

8 Illustration for Masking at DWR level

Suppose we want to mask customer name on the order capture page for RM Role. In this case URI is commonOMPMProxy.execute.dwr method name would be fetchCustOrderData and applicability will be DWR and we want to mask firstName, middleName and lastName of customer Model com.iflexsolutions.wm.crm.model.Customer. Data in the tables would be like-

PMS_DATA_MASK_OBJECT table-

MASK_OBJECT_ID	FULL_CLASS_NAME	FIELD_NAME	MASK_PATTERN	START_MASK_COUNT	END_MASK_COUNT	VERSION	CLASS_DISPLAY_NAME
1	com.iflexsolutions.wm.crm.model.Customer	firstName		2	1	1	Customer
2	com.iflexsolutions.wm.crm.model.Customer	lastName		1	3	1	Customer
3	com.iflexsolutions.wm.crm.model.Customer	middleName		2		1	Customer

PMS_DATA_MASK_MASTER table-

MASK_ID	MASK_URI	MASK_APPLICABILITY	STATUS	VERSION	METHOD_NAME	NESTED_OBJECT
42	commonOMPMProxy.execute.dwr	DWR	A	1	fetchCustOrderData	

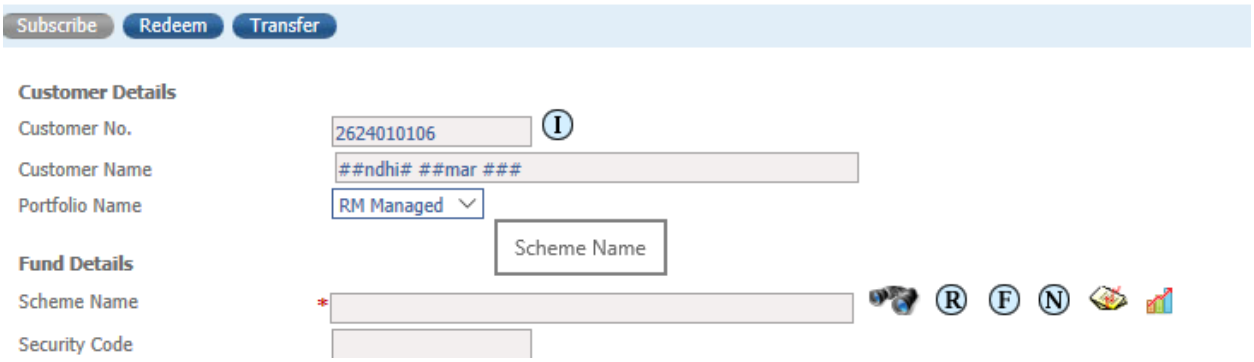
PMS_MASK_ROLE table-

MASK_ID	ROLE_ID
42	2

PMS_MASK_MAPPING table-

MASK_ID	MASK_OBJECT_ID
42	1
42	2
42	3

Screenshot-



9 Illustration for Masking at REST level

Suppose we want to mask REST response for a URI. URL mapping would not be thete as REST is a stateless in nature. In this case URI is customerService and applicability will be REST and we want to mask firstName, middleName and lastName of CustomerData Model com.ofss.schemas.pbdomain.custom.pbcrm.pbcustomerdetails.m3.CustomerData. Data in the tables would be like-

PMS_DATA_MASK_OBJECT table-

MASK_OBJECT_ID	FULL_CLASS_NAME	FIELD_NAME	MASK_PATTERN	START_MASK_COUNT	END_MASK_COUNT	VERSION	CLASS_DISPLAY_NAME
4	com.ofss.schemas.pbdomain.custom.pbcrm.pbcustomerdetails.m3.CustomerData	firstname		2	1	1	CustomerData
5	com.ofss.schemas.pbdomain.custom.pbcrm.pbcustomerdetails.m3.CustomerData	middlename		2		1	CustomerData
6	com.ofss.schemas.pbdomain.custom.pbcrm.pbcustomerdetails.m3.CustomerData	lastname		2		1	CustomerData

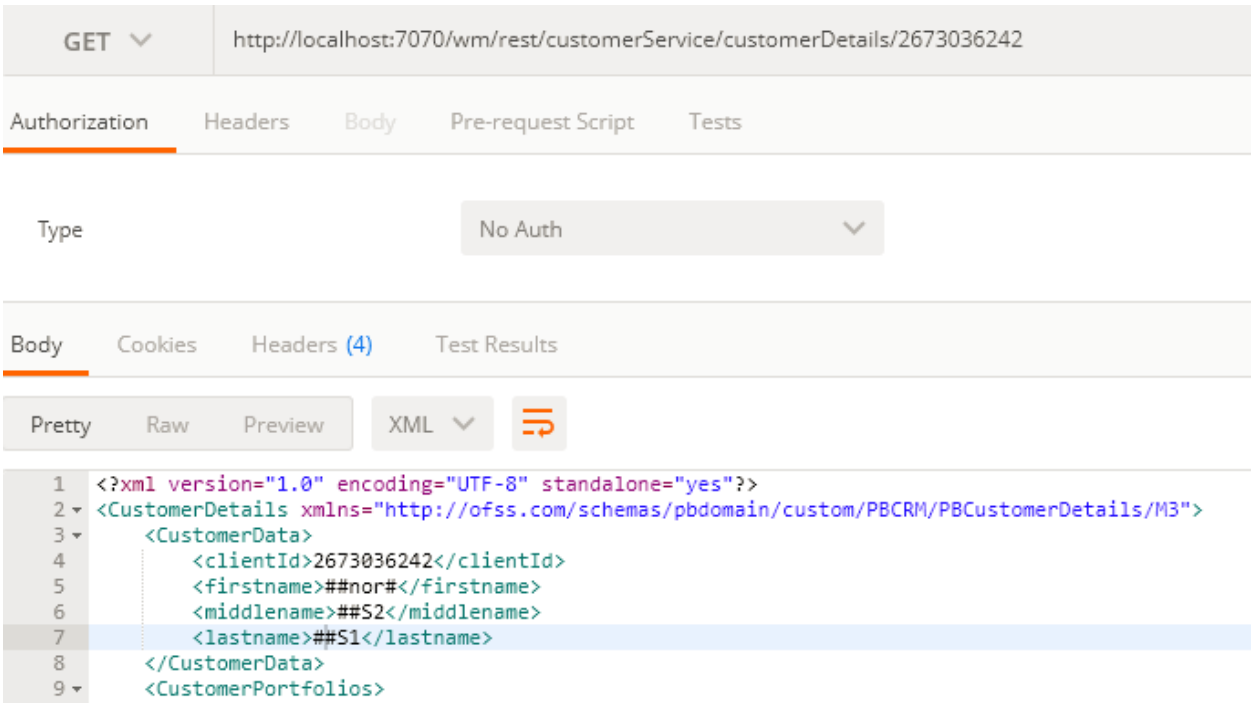
PMS_DATA_MASK_MASTER table-

MASK_ID	MASK_URI	MASK_APPLICABILITY	STATUS	VERSION	METHOD_NAME	NESTED_OBJECT
10002	customerService/customerDetails	REST	A	1		

PMS_MASK_MAPPING table-

MASK_ID	MASK_OBJECT_ID
10002	6
10002	4
10002	5

Screenshot-



10 Sample Configuration

Below are some sample configurations-

10.1.1 PMS_DATA_MASK_OBJECT table

MASK_OBJECT_ID	FULL_CLASS_NAME	FIELD_NAME	MASK_PATTERN	START_MASK_COUNT	END_MASK_COUNT	VERSION	CLASS_DISPLAY_NAME
1	com.iflexsolutions.wm.crm.model.Customer	firstName		2	1	1	Customer
2	com.iflexsolutions.wm.crm.model.Customer	lastName		1	3	1	Customer
3	com.iflexsolutions.wm.crm.model.Customer	middleName		2		1	Customer
4	com.ofss.schemas.pbdomain.custom.pbcrm.pbcustomerdetails.m3.CustomerData	firstname		2	1	1	CustomerData
5	com.ofss.schemas.pbdomain.custom.pbcrm.pbcustomerdetails.m3.CustomerData	middlename		2		1	CustomerData
6	com.ofss.schemas.pbdomain.custom.pbcrm.pbcustomerdetails.m3.CustomerData	lastname		2		1	CustomerData
7	com.iflexsolutions.wm.crm.model.Customer	workPhone		7		1	Customer
9	com.iflexsolutions.wm.crm.model.Customer	homePhone		3	3	1	Customer
10	com.iflexsolutions.wm.crm.model.Customer	email	\b\w{1,4}			1	Customer

10.1.2 PMS_DATA_MASK_MASTER table

MASK_ID	MASK_URI	MASK_APPLICABILITY	STATUS	VERSION	METHOD_NAME	NESTED_OBJECT
1	custSearch.action	APP	A	1		
2	mfOrder.action	APP	A	1		
3	mfOrderHldAway.action	APP	A	1		
4	eqOrder.action	APP	A	1		
5	commOrder.action	APP	A	1		
6	bondOrderCapture.action	APP	A	1		

22	rmCust.action	APP	A	1		custdbdata
42	commonOMPMProxy.execute.dwr	DWR	A	1	fetchCustOrderData	
43	commonOMPMProxy.execute.dwr	DWR	A	1	fetchOrderPortfolioData	
10002	customerService/customerDetails	REST	A	1		

10.1.3 PMS_MASK_ROLE table

MASK_ID	ROLE_ID
1	2
2	2
3	2
4	2
5	2
6	2
22	2
42	2
43	2
75	2

10.1.4 PMS_MASK_MAPPING table

MASK_ID	MASK_OBJECT_ID
1	7
1	1
1	2
1	3
2	1
2	2
2	3
3	1
3	3
3	2
4	1
4	2
4	3
5	2
5	1

5	3
6	1
6	3
6	2
22	9
22	10
22	1
22	2
22	3
42	1
42	2
42	3
43	1
43	2
43	3
75	2
75	1
75	3
10002	6
10002	4
10002	5

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