

# Automated SmartData Discovery and Classification (ASDAC), and Data Lineage

## March 2021



## WhamTech approach to data discovery, governance and lineage

- There are great INFORMATIONAL data catalog, data governance and/or data lineage tools available, e.g., Alation and Collibra, and if a customer is JUST seeking such a tool, we would recommend they consider these, however:
  - Such INFORMATIONAL tools need to be integrated with other APPLICABLE data-related tools such as
    access control, applied data governance, data transformation/ETL, data security, master data management,
    data integration, query execution, graph database, etc. can take time and cost, and ultimately, not be
    seamless, performant or scalable
  - WhamTech SmartData Fabric<sup>®</sup> can complement and leverage such INFORMATIONAL tools, and APPLY their INFORMATION to rigorous and full data management
- However, if a customer is seeking a tool that provides both INFORMATION and APPLICATION, then SmartData Fabric<sup>®</sup> can provide both to the full range of data management from discovery to delivery, to insight
  - ACTIVE data catalog, ACTIVE data governance (combined with ACTIVE access control) and ACTIVE data lineage in addition to the rest of the data management process

## **Customer Challenges**

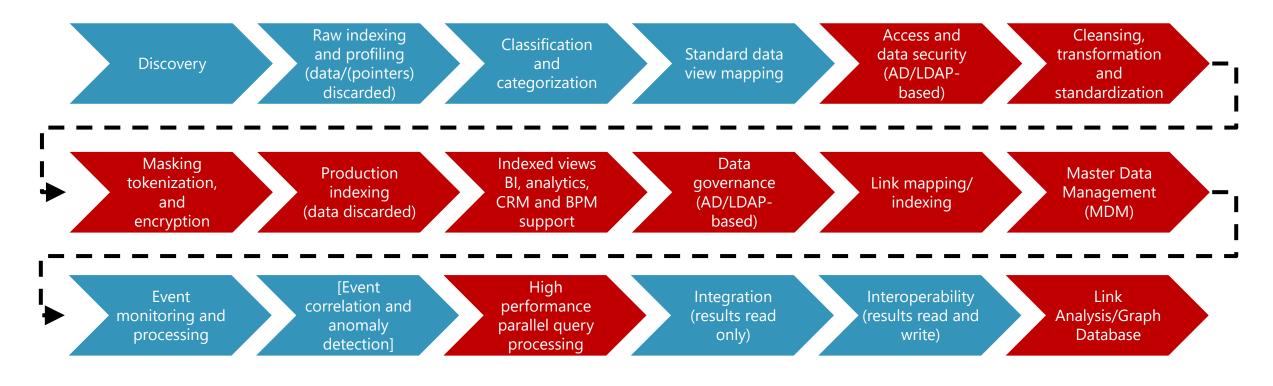
- Incomplete understanding of all data sources and data in the enterprise
- Concerns for locations and associated risk of personal data for PCI, data theft risk, CCPA/CCPR, GDPR, etc.
- Need a means to secure personal data, but still allow it to be used for operations
- Make metadata and data governance information available through a data catalog
- Use the data catalog to impose data governance and rigorous enterprise-wide access control with cross-domain AD/LDAP, self-serve apps and execute SQL queries
- Track and audit data from discovery to delivery to apps
- Apply data management and master data management to create an enterprise virtual data warehouse
- Analyze and report on data usage, and tie-in with User Behavior Analytics (UBA)
- All the above in near real-time little to no latency

## SmartData Fabric® (SDF) Solution

- Run ASDAC\* to automatically discover devices and data sources in the network
- Build raw indexes on data sources with appropriate credentials do not store data or pointers
- Use data profiles generated from raw indexes to automatically obtain metadata, semantically identify and classify data, and manually, for now, develop and test data transforms
- Map indexes to a virtual standard (industry) data model multiple virtual views available
- Handover to next stage, near real-time production indexing and federated adapter configuration
- Using data transforms, build cleansed and standardized production indexes with unique record numbers (URNs) and indexed views, and make available through federated adapters and standard virtual views to standard apps
- Use multiple adapters and indexes to build SDF and execute SQL with rigorous data governance and cross-domain access control through standard drivers and APIs, including RBAC-based dynamic data masking, tokenization and/or encryption
- Provide results to standard apps with data lineage and any other metadata
- Combine SDF activity logs with server logs for complete reporting of data and app use, and user behavior - can also restrict what days and times a role or user can submit queries
- Interact with a User Behavior Analytics (UBA) app to monitor, analyze and limited user access

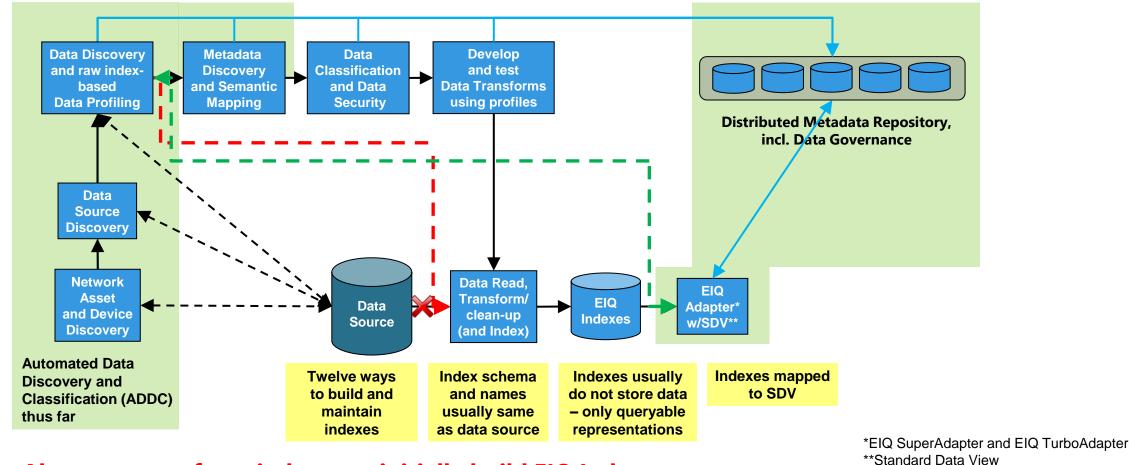


## SmartData Fabric<sup>®</sup> for data virtualization, federation and integration



WhamTech key differentiators addressed upfront



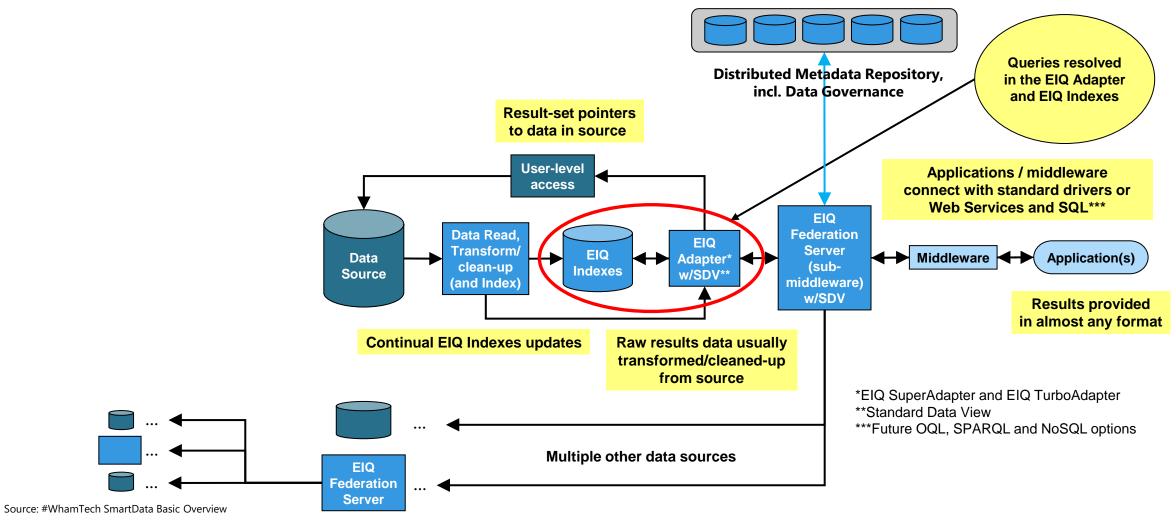


#### Alternate use of raw indexes to initially build EIQ Indexes

Source: #WhamTech SmartData Basic Overview

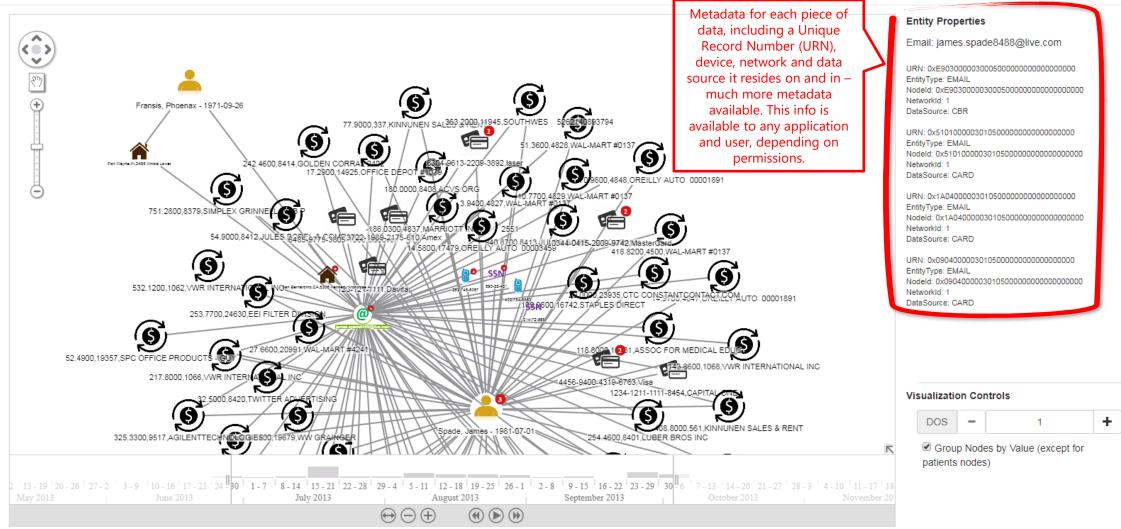


## EIQ Adapter index update, query and results retrieval





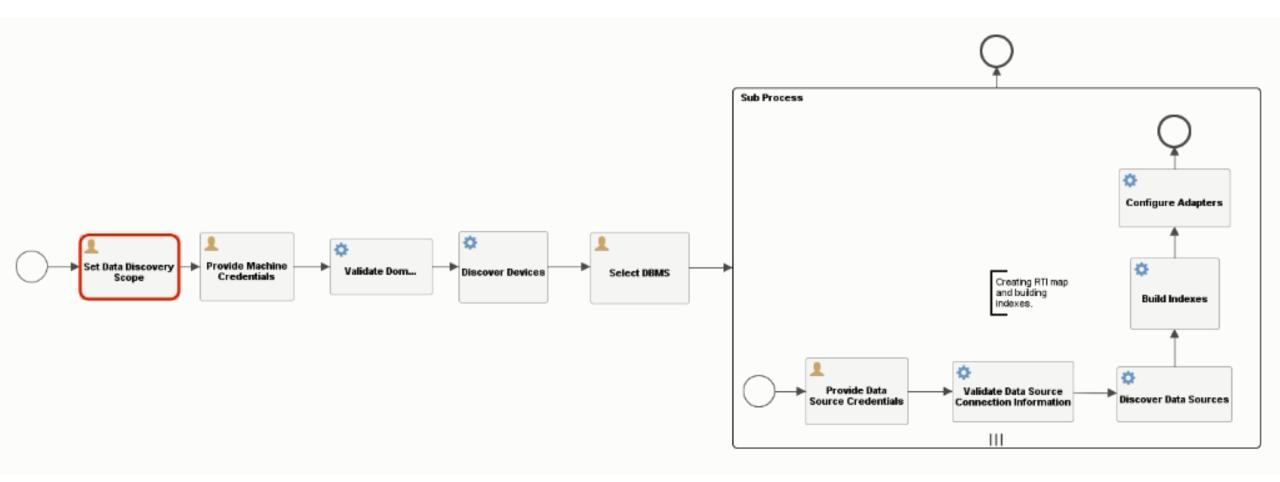
# Example of metadata and data traceability in a graph view of financial services data



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## BPM workflow on top of REST APIs





# Screenshots of ASDAC in action



## Launch the ASDAC app in a Web browser

Automated SmartData Discovery and Classification By



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X Process Dashboard	Business Process Model and Notation (BPMN) Inbox	
Task Inbox (0)	BPMN Process	Actions
Process Status	Data Discovery and Classification	Start
Q Repository Explorer		
Z Export Repository		

Toggle Process Diagram

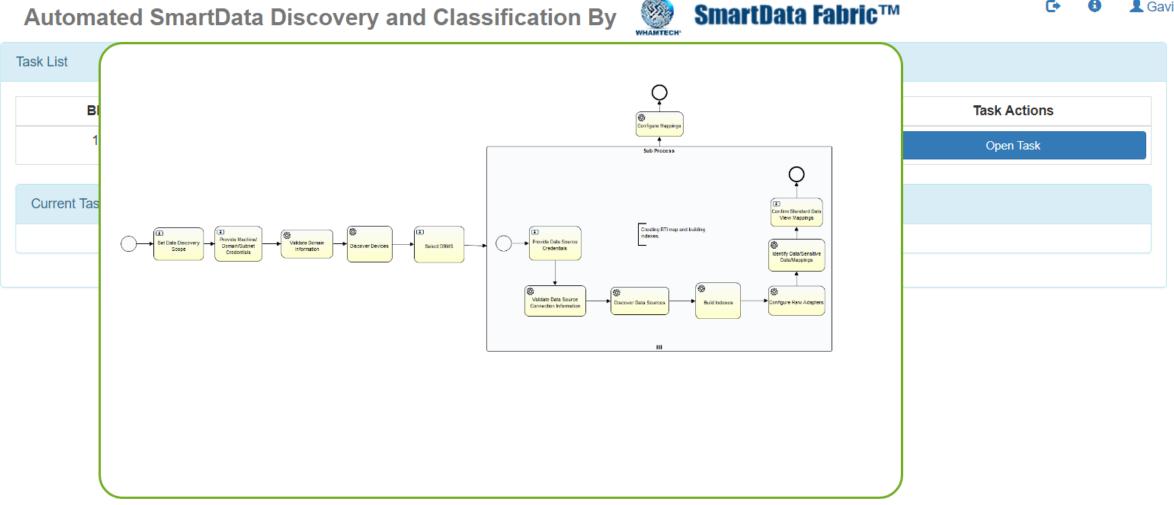
Clear Data Discovery Repository



SmartData Fabric™

## BPM workflow on top of REST APIs

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## Providing domain admin user credentials

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Automated SmartData Discovery and Classification By

	Task Id	Task Description	Task Actions
100077	100085	Provide Machine/Domain/Subnet Credentials	Task running
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## Selecting discovered data sources to analyze

Automated SmartData Discovery and Classification By

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BPMN Id	Task Id	Task Description	Task Actions
92577	92592	Select DBMS	Task running
ect DBMS (BPMN Id: 92577 Task Id: 925	92)		
a Source Selection			
following data sources were discovered	Please select the data sources to in	Itiate data discovery	
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	a la		
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<ul> <li>testbox-1\dev.whamtech.com</li> <li>asdac\dev.whamtech.com</li> </ul>			
- Sqlserv\dev.whamtech.com			
<ul> <li>✓ ■ * sqlserv\dev.whamtech.com</li> <li>✓ ▼ * DBMS</li> </ul>			
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# Providing data source credentials to build raw indexes and configure an adapter

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BPMN Id	Task Id	Task Description Task Actions		
92577	92613	Provide Data Source Credentials	vide Data Source Credentials Task running	
92577	92615	Provide Data Source Credentials		Open Task
	s to initiate data discovery on the	e selected data sources		
	)Oracle			
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erv\dev.whamtech.com@ aserv r 21 editbureau	0 Oracle			



Revision 1.3

SmartData Fabric® security-centric distributed data virtualization, master data management and virtual graph database

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## Data discovery and automated data identification results with Standard Data View mappings and sensitive data information

Repository Explorer		
BUBMS     SQL Server     CREDITCARD	Properties for column: CARD.CUSMS.CUFN	
CREDITCARD      Sys.SYS#_VIEWS      CARD.ACCOUNT      CARD.ACTTT		/Least Frequent
<ul> <li>CARD.CUSMS</li> <li>CUFN</li> </ul>	Data Discovery Findings	
CUDOB	This column very likely contains sensitive information	
* CUG	Suggested Standard Data Model Column Mappings	Possible
CUADSTR	Very Likely     Likely       CUSTOMER_FIRST_NAME	Possible
CUADZC		
k→→ ★ ID k→→ ★ LONGITUDE k→→ ★ LATITUDE	General Properties	
CREDITCARD_ASDAC	Property	Value
······································		CUSMS
m * msdb	COLUMN_NAME DATA_TYPE_NAME	VARCHAR
Police	SUPERSCHEMA_FLAGS	0
* ReportServer	NUMERIC_PRECISION	null
b	INTERNAL_NAME COLLATION_NAME	T3C1 null



# Data analysis and profile used for identification and, eventually, data transforms

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## Display the value distribution for the selected column (1 of 2)



#### Automated SmartData Discovery and Classification

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#### 🔀 Process Dashboard

📰 Task Inbox (0)

🛃 Process Status

**Q** Repository Explorer

Export Repository

Toggle Process Diagram

Clear Data Discovery Repository

1		

Repository Explorer

- BO.EMPLOYERS
   BO.INSURANCE CATEGORIES
- BBO.PATIENT\_POLICIES
- BO.PATIENTS
- BBO.POLICIES
- BO.PRACTITIONERS
- BO.SERVICE\_DIAGNOSES
- BO.SERVICES
- BO.VOUCHERS
- ഻ 🔹 🛊 PATIENT\_ID
- \* ACCOUNT ID
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Column Properties	General /	Analysis	Value Dist	tribution	Most/Le	east Frequent	Nume	erical Analy	sis		
Value distribution											
Value					Fre	quency					Percentage
84.5100	84.5100 !			5						8.333333333333333	
45.7700					4						6.666666666666666
79.6300					4						6.666666666666666
51.7700					3						5.0
14.0000					2						3.333333333333333
20.0000					2						3.333333333333333
43.2000					2						3.333333333333333
73.4800					2						3.333333333333333
100.5800					2						3.333333333333333
117.2600					2						3.333333333333333
145.7700					2						3.333333333333333
21.7700					1						1.666666666666666
23.2900					1						1.666666666666666
25.0000					1						1.666666666666666
25.7700					1						1.666666666666666
27.6000					1						1.666666666666666
40.0000					1						1.66666666666666

## Display the value distribution for the selected column (2 of 2)

- P-	REF_PRACITIONER_ID
ļ	ACTUAL_PROV_PRACTITIONER_ID
ļ	* VOUCHER_ID
ļ	* CARRIER_ID
	* LOCATION_ID
ļ	* DEPARTMENT_ID
p	* PLACE_OF_SERVICE_ID
ļ	* UPDATE_STATUS
ļ	* DATE_UPDATED
ļ	* 🛊 FEES
	POSTED_PAYMENTS
-	* POSTED_ADJUSTMENTS
ļ	* POSTED_REFUNDS
-	* POSTED_MISC_DEBITS
-	SERVICE_DATE
-	* BILLING_DATE
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REF PRACITIONER ID

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		3.33333333	3333333
		3.33333333	3333333
		1.66666666	6666666
		1.66666666	6666666
		1.66666666	6666666
		1.66666666	6666666
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		1.66666666	6666666
		1.66666666	6666666
		1.66666666	6666666
		1.66666666	666666
50 Percentage 60		1 66666666	666666



### Display the most and least frequent values for the selected column



#### Automated SmartData Discovery and Classification

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#### X Process Dashboard

📰 Task Inbox (0)

🛃 Process Status

Q Repository Explorer

Export Repository

Toggle Process Diagram

Clear Data Discovery Repository

•	Properties for column	n: VOUCHERS.POSTE	D_PAYMENTS			
	Column Properties	General Analysis	Value Distribution	Most/Least Frequent	Numerical Analysis	
	Most Frequent Value	s				
	POSTED_PAYMENT	s		cnt		*
	84.5100			5		
	45.7700			4		
	79.6300			4		
	51.7700			3		
R_ID	14.0000			2		
	20.0000			2		
	43.2000			2		
	73.4800			2		
	100.5800			2		
	117.2600			2		
						Ŧ
	Least Frequent Value	es				
	POSTED_PAYMENTS	s		cnt		-
	21.7700			1		

1

1

1

1

BILLING\_DATE

✤ DBO.EMPLOYERS

DBO.PATIENTSDBO.POLICIES

BO.SERVICES
 BO.VOUCHERS

PATIENT\_ID
 ACCOUNT\_ID
 REF\_PRACTITIONER\_ID
 ACTUAL\_PROV\_PRACTITIONER

VOUCHER\_ID
CARRIER\_ID
LOCATION\_ID
DEPARTMENT\_ID
PLACE\_OF\_SERVICE\_ID
UPDATE\_STATUS
DATE\_UPDATED
FEES

POSTED\_PAYMENTS
 POSTED\_ADJUSTMENTS
 POSTED\_REFUNDS
 POSTED\_MISC\_DEBITS
 SERVICE\_DATE

✤ DBO.INSURANCE CATEGORIES

\* DBO.PATIENT POLICIES

DBO.PRACTITIONERS
 DBO.SERVICE DIAGNOSES

\* POLICE

Repository Explorer

\* tempdb

23.2900

25.0000

25,7700

27.6000



### Display the numerical analysis/metadata for the selected column



#### Automated SmartData Discovery and Classification

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#### 🔀 Process Dashboard

📰 Task Inbox (0)

🛃 Process Status

**Q** Repository Explorer

Export Repository

Toggle Process Diagram

Clear Data Discovery Repository

#### BO.EMPLOYERS

Repository Explorer

BO.INSURANCE\_CATEGORIES

- BO.PATIENT\_POLICIES
- BO.PATIENTS
  - Market BBO.POLICIES
  - BO.PRACTITIONERS
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Properties for column	: VOUCHERS.POSTE	D_PAYMENTS		
Column Properties	General Analysis	Value Distribution	Most/Least Frequ	quent Numerical Analysis
Numerical Analysis				
Property				Value
Average				82.3100
Standard Deviation				49.4300
				2443.5500
Variance				



## Automated mappings for review and confirmation by user

92577 92634 Confirm Standard Data View Mappings  m Standard Data View Mappings (BPMN Id: 92577 Task Id: 92634)  firm Standard Data View Mappings allowing mappings were selected by default. Please confirm the suggested standard data mappings.  discovered devices, data sources and drivers  i * ST   * DISP  * * DISP  * * DISP  * * DIRN  * * CARD.CUSMS  * * CULN  * * CULSS  * * CULADSC  * * CULADST  * * D  * * D  * * D  * * D  * * D  * * D  * * D  * * D  * * CARD.MERCHANT  * * D  * * D  * * D  * * D  * * D  * * D  * * CARD.MERCHANT  * * D  * * CARD.MERCHANT  * * D  * * CITY * * ST  *	Task running
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<ul> <li>✓ ✓ CULN</li> <li>✓ ▲ CUDOB</li> <li>✓ ✓ CUEML</li> <li>✓ ✓ CUG</li> <li>✓ ▲ CUSSN</li> <li>✓ ▲ CUADSTR</li> <li>✓ ✓ CUADCC</li> <li>✓ ✓ CUADZC</li> <li>✓ ▲ CUPN</li> <li>★ ID</li> <li>▲ LATITUDE</li> <li>★ CARD.MERCHANT</li> <li>▲ STREET</li> <li>✓ ▲ STREET2</li> <li>★ CITY</li> </ul>	
<ul> <li>A CUDOB</li> <li>CUEML</li> <li>CUG</li> <li>CUSN</li> <li>CUADST</li> <li>CUADC</li> <li>CUADST</li> <li>CUADZC</li> <li>CUADZC</li> <li>A CUPN</li> <li>* ID</li> <li>* LONGITUDE</li> <li>* LONGITUDE</li> <li>* LATITUDE</li> <li>* CARD.MERCHANT</li> <li>* MERCHANT</li> <li>* MERCHANT</li> <li>* A STREET</li> <li>* A STREET2</li> <li>* CITY</li> </ul>	
✓       CUEML         ✓       CUG         ✓       CUSSN         ✓       CUADSTR         ✓       CUADC         ✓       CUADST         ✓       CUADZC         ✓       CUADZC         ✓       CUPN         ID       ID         ✓       LATITUDE         ✓       STRECHANT         ✓       STREET         ✓       STREET2         ✓       CITY	
✓       CUG         ✓       CUSSN         ✓       CUADSTR         ✓       CUADC         ✓       CUADST         ✓       CUADZC         ✓       CUADZC         ✓       CUADITUDE         ✓       LATITUDE         ✓       LATITUDE         ✓       STREET         ✓       STREET2         ✓       STREET2	
<ul> <li>A CUSSN</li> <li>CUADSTR</li> <li>CUADC</li> <li>CUADST</li> <li>CUADZC</li> <li>CUADZC</li> <li>A CUPN</li> <li>ID</li> <li>K LONGITUDE</li> <li>A LATITUDE</li> <li>A LATITUDE</li> <li>* ID</li> <li>* MERCHANT</li> <li>* MERCHANT</li> <li>X STREET</li> <li>X STREET2</li> <li>* CITY</li> </ul>	
✓ ▲ CUADSTR      ✓ ✓ CUADC      ✓ ✓ CUADST      ✓ ✓ CUADST      ✓ ✓ CUADZC      ✓ ▲ CUPN      ✓ ▲ CUPN      ✓ ▲ LATITUDE      ✓ ▲ LATITUDE      ✓ ▲ LATITUDE      ✓ ▲ STREET      ✓ ▲ STREET      ✓ ▲ STREET2      ✓ ▲ CUTY	
✓ ✓ CUADC         ✓ ✓ CUADST         ✓ ✓ CUADZC         ✓ ✓ CUADZC         ✓ ✓ CUPN         ▲ LATITUDE         ✓ ▲ LATITUDE         ✓ ▲ LATITUDE         ✓ ▲ STREET         ✓ ▲ STREET2         ✓ ▲ CITY	
<ul> <li>CUADST</li> <li>CUADST</li> <li>CUADZC</li> <li>CUPN</li> <li>* ID</li> <li>* LONGITUDE</li> <li>* A LATITUDE</li> <li>* CARD.MERCHANT</li> <li>* ID</li> <li>* MERCHANT</li> <li>* MERCHANT</li> <li>* STREET</li> <li>* A STREET</li> <li>* CITY</li> </ul>	
<ul> <li>CUADZC</li> <li>CUPN</li> <li>ID</li> <li>LONGITUDE</li> <li>CARD.MERCHANT</li> <li>ID</li> <li>KERCHANT</li> <li>STREET</li> <li>STREET2</li> <li>CITY</li> </ul>	
<ul> <li>ID</li> <li>ILONGITUDE</li> <li>A LATITUDE</li> <li>CARD.MERCHANT</li> <li>ID</li> <li>MERCHANT</li> <li>A STREET</li> <li>A STREET</li> <li>CITY</li> </ul>	
<ul> <li>LONGITUDE</li> <li>A LATITUDE</li> <li>CARD.MERCHANT</li> <li>ID</li> <li>MERCHANT</li> <li>A STREET</li> <li>A STREET2</li> <li>CITY</li> </ul>	
<ul> <li>A LATITUDE</li> <li>CARD.MERCHANT</li> <li>ID</li> <li>MERCHANT</li> <li>A STREET</li> <li>A STREET2</li> <li>CITY</li> </ul>	
♥ ▲ STREET ♥ ▲ STREET2 ■ ★ CITY	
♥ ▲ STREET2	
🔲 🛊 CITY	
👻 🛩 ZIPCODE	
👻 🛩 PHONENUMBER	
- 👻 🔺 CATEGORY	

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## Alert the user for mappings that are not very likely or have conflicts

#### Confirm Standard Data View Mappings (BPMN Id: 92577 Task Id: 92634)

#### Confirm Standard Data View Mappings

The following mappings were selected by default. Please confirm the suggested standard data mappings.

List discovered	devices.	data sources	and	drivers

	þ		*	CUID	
			*	ACID	
			*	TRDD	
			*	DPST	
			*	MEID	
		•	A	C2657/	AMV
	ļ		*	ST	
	þ		*	DISP	
			*	MTD	
	þ		*	DRN	
i		*	CA	RD.CUS	SMS
		V	~	CUFN	
	þ	•	~	CULN	
	p	V	▲	CUDO	в
	p	•	*	CUEMI	-
	p	V	*	CUG	
	ŀ	¥	4	CUSSN	1
		¥	A	CUADS	STR
	P	¥	*	CUADO	
	ŀ	V	*	CUADS	т
	P	¥	*	CUADZ	2C
	P	V	A	CUPN	
	p		*	ID	
	P		*	LONG	TUDE
	ф	¥	4	LATITU	IDE
	<b>.</b>	*		RD.MEP	RCHANT
	p	i.	*	ID	
	P		*	MERCH	
	0 0 0	•	4	STREE	
	P	•	4		T2
	P		*	CITY	
	4	L 21		OTATE	

roperties for colum	IN: CARD.CUSMS.CUAE	OSTR			
olumn Properties	General Analysis	Value Distribution	Most/Least Frequent		
ata Discovery Find	lings				
This column poss	ibly contains sensitive in	formation			
Suggested Stand	ard Data Model Column	Mannings			
ouggostou otanu		mappings			
Very Likely			Likely		Possible
					CUSTOMED STREET
					CUSTOMER_STREET
eneral Properties					*CUSTOMER_STREET
				Value	CUSTOMER_STREET
Property TABLE_NAME				Value CUSMS	CUSTOMER_STREET
Property TABLE_NAME					CUSTOMER_STREET
Property TABLE_NAME COLUMN_NAME DATA_TYPE_NAME				CUSMS CUADSTR VARCHAR	CUSTOMER_STREET
Property TABLE_NAME COLUMN_NAME DATA_TYPE_NAME SUPERSCHEMA_FI	LAGS			CUSMS CUADSTR VARCHAR 0	CUSTOMER_STREET
Property TABLE_NAME COLUMN_NAME DATA_TYPE_NAME SUPERSCHEMA_FI NUMERIC_PRECISI	LAGS			CUSMS CUADSTR VARCHAR 0 null	CUSTOMER_STREET
Property TABLE_NAME COLUMIN_NAME DATA_TYPE_NAME SUPERSCHEMA_FI NUMERIC_PRECIS NTERNAL_NAME	LAGS			CUSMS CUADSTR VARCHAR 0 null T3C7	*CUSTOMER_STREET
Property TABLE_NAME COLUMN_NAME DATA_TYPE_NAME SUPERSCHEMA_FI NUMERIC_PRECIS INTERNAL_NAME COLLATION_NAME	LAGS			CUSMS CUADSTR VARCHAR 0 null T3C7 null	*CUSTOMER_STREET
Property TABLE_NAME COLUMIN_NAME DATA_TYPE_NAME SUPERSCHEMA_FI NUMERIC_PRECIS NTERNAL_NAME COLLATION_NAME DESCRIPTION	LAGS			CUSMS           CUADSTR           VARCHAR           0           null           T3C7           null           null           null	*CUSTOMER_STREET
Property TABLE_NAME COLUMN_NAME DATA_TYPE_NAME SUPERSCHEMA_FI NUMERIC_PRECIS INTERNAL_NAME COLLATION_NAME DESCRIPTION KEYINFO	LAGS			CUSMS           CUADSTR           VARCHAR           0           null           T3C7           null           null           549	*CUSTOMER_STREET
Property TABLE_NAME COLUMN_NAME DATA_TYPE_NAME SUPERSCHEMA_FI NUMERIC_PRECISI INTERNAL_NAME COLLATION_NAME DESCRIPTION KEYINFO DRIGINAL_SCHEM	LAGS ION			CUSMS           CUADSTR           VARCHAR           0           null           T3C7           null           null           S49           CARD	CUSTOMER_STREET
Property TABLE_NAME COLUMN_NAME DATA_TYPE_NAME SUPERSCHEMA_FI NUMERIC_PRECISI INTERNAL_NAME COLLATION_NAME DESCRIPTION KEYINFO ORIGINAL_SCHEM COLLATION_CATAL CHARAGTER_MAX	LAGS ION A .0G			CUSMS           CUADSTR           VARCHAR           0           null           T3C7           null           null           549	CUSTOMER_STREET

## Green flag for very likely matches and no conflicts

#### Confirm Standard Data View Mappings (BPMN Id: 92577 Task Id: 92634)

#### Confirm Standard Data View Mappings

The following mappings were selected by default. Please confirm the suggested standard data mappings.

#### List discovered devices, data sources and drivers

1	in.	*	CUID	
-		*	ACID	
		*	TRDD	
ę		*	DPST	
-		*	MEID	
p	¥	A	C2657AMV	'
p		*	ST	
p	in.	*	DISP	
P		*	MTD	
þ	in.	*	DRN	
1	*	CA	RD.CUSMS	
P	¥	~	CUFN	
P	¥	*	CULN	
P	¥	A	CUDOB	
P	¥	*	CUEML	
P	¥	*	CUG	
P	¥	4	CUSSN	
	¥	A	CUADSTR	
	¥	~	CUADC	
	•	~	CUADST	
P	•	*	CUADZC	
P	¥	4	CUPN	
P	in.	*	ID	
P	in.	*	LONGITUE	E
þ	•	<b>A</b>	LATITUDE	
	*		RD.MERCH	ANT
p	in.	*	ID	
P		*	MERCHAN	Т
-	•	4	STREET	
P	•	4	STREET2	
		*	CITY	

Properties for colum	n: CARD.CUSMS.CUAI	ж			
Column Properties	General Analysis	Value Distribution	Most/Least Frequent		
ata Discovery Find	ings				
This column very	likely contains sensitive	information			
Suggested Standa	ard Data Model Column	Mappings			
Very Likely			Likely		Possible
●CUSTOMER,	CITY				
General Properties					
				Value	
General Properties Property TABLE_NAME				Value CUSMS	
Property					
Property TABLE_NAME				CUSMS	
Property TABLE_NAME COLUMN_NAME				CUSMS CUADC	
Property TABLE_NAME COLUMN_NAME DATA_TYPE_NAME	LAGS			CUSMS CUADC VARCHAR	
Property TABLE_NAME COLUMN_NAME DATA_TYPE_NAME SUPERSCHEMA_FL	LAGS			CUSMS CUADC VARCHAR 0	
Property TABLE_NAME COLUMN_NAME DATA_TYPE_NAME SUPERSCHEMA_FL NUMERIC_PRECISI	AGS ON			CUSMS CUADC VARCHAR 0 null	
Property TABLE_NAME COLUMN_NAME DATA_TYPE_NAME SUPERSCHEMA_FL NUMERIC_PRECISI INTERNAL_NAME	AGS ON			CUSMS CUADC VARCHAR 0 null T3C8	
Property TABLE_NAME COLUMN_NAME DATA_TYPE_NAME SUPERSCHEMA_FL NUMERIC_PRECISI INTERNAL_NAME COLLATION_NAME	AGS ON			CUSMS CUADC VARCHAR 0 null T3C8 null	
Property TABLE_NAME COLUMN_NAME DATA_TYPE_NAME SUPERSCHEMA_FL NUMERIC_PRECISI INTERNAL_NAME COLLATION_NAME DESCRIPTION	JAGS ON			CUSMS           CUADC           VARCHAR           0           null           T3C8           null           null	
Property TABLE_NAME COLUMN_NAME DATA_TYPE_NAME SUPERSCHEMA_FL NUMERIC_PRECISI INTERNAL_NAME COLLATION_NAME DESCRIPTION KEYINFO	AGS ON			CUSMS           CUADC           VARCHAR           0           null           T3C8           null           null           549	
Property TABLE_NAME COLUMN_NAME DATA_TYPE_NAME SUPERSCHEMA_FL NUMERIC_PRECISI INTERNAL_NAME COLLATION_NAME DESCRIPTION KEYINFO ORIGINAL_SCHEW	AGS ON A OG			CUSMS           CUADC           VARCHAR           0           null           T3CS           null           null           549           CARD	
Property TABLE_NAME COLUMN_NAME DATA_TYPE_NAME SUPERSCHEMA_FL NUMERIC_PRECISI INTERNAL_NAME COLLATION_NAME DESCRIPTION KEYINFO ORIGINAL_SCHEM/ COLLATION_CATAL CHARACTER_MAXI	AGS ON A OG MUM_LENGTH			CUSMS           CUADC           VARCHAR           0           null           T3C8           null           null           549           CARD           null	
Property TABLE_NAME COLUMN_NAME DATA_TYPE_NAME SUPERSCHEMA_FL NUMERIC_PRECISI INTERNAL_NAME COLLATION_NAME DESCRIPTION KEYINFO ORIGINAL_SCHEM/ COLLATION_CATAL	AGS ON A OG MUM_LENGTH			CUSMS           CUADC           VARCHAR           0           null           T3C8           null           null           540           CARD           null           542	



## Data mapping results summary

	Table Name	Column Nama	Mativo		Motodoto Column	Attribute
Schema Na	Table Name	Column Name	Native	EIQ Dat	Metadata Column	Autobile
Card	Account	AccountType	varchar		ACCOUNT_NUMBER	
Card	Account	AvailableBalance	money	NUMERI		
Card	Account	CardNumber	varchar	VARCHA		
Card	Account	CustomerID	int	INT		
Card	Account	ExpiryDate	datetime	TIMESTA		
Card	Account	ID	int identity	INT		PK   RID_PRIMARY
Card	Account	Issuer	varchar	VARCHA	ISSUER	
Card	Account	Limit	real	REAL	LIMIT	
Card	ACTTT	ACID	int	INT		
Card	ACTTT	C2657AMV	money	NUMERI	AMOUNT	
Card	ACTTT	CUID	int	INT		
Card	ACTTT	DISP	bit	CHAR(1)		
Card	ACTTT	DPST	date	DATE		
Card	ACTTT	DRN	varchar	VARCHA		
Card	ACTTT	ID	int identity	INT		PK   RID PRIMARY
Card	ACTTT	MEID	int	INT		_
Card	ACTTT	MTD	varchar	VARCHA		
Card	ACTTT	ST	varchar	VARCHA		
Card	ACTTT	TRDD	datetime	TIMESTA		
Card	CUSMS	CUADC	varchar		CUSTOMER CITY	
Card	CUSMS	CUADST	varchar		CUSTOMER_STATE	
Card	CUSMS	CUADSTR	varchar		CUSTOMER STREET	
Card	CUSMS	CUADZC	varchar		CUSTOMER ZIP	
Jaro	CUSMS	CUDOB	datetime	TIMESTA	CUSTOMER DOB	
Card Card	CUSMS CUSMS	CUDOB CUEML	datetime varchar		CUSTOMER_DOB	
Card	CUSMS	CUEML	varchar	VARCHA	CUSTOMER_EMAIL	
Card Card	CUSMS CUSMS	CUEML CUFN	varchar varchar	VARCHA VARCHA	CUSTOMER_EMAIL CUSTOMER_FIRST	
Card Card Card	CUSMS CUSMS CUSMS	CUEML CUFN CUG	varchar varchar varchar	VARCHA VARCHA VARCHA	CUSTOMER_EMAIL CUSTOMER_FIRST CUSTOMER_GEND	
Card Card Card Card	CUSMS CUSMS CUSMS CUSMS	CUEML CUFN CUG CULN	varchar varchar varchar varchar	VARCHA VARCHA VARCHA VARCHA	CUSTOMER_EMAIL CUSTOMER_FIRST CUSTOMER_GEND CUSTOMER_LAST	
Card Card Card Card Card	CUSMS CUSMS CUSMS CUSMS CUSMS	CUEML CUFN CUG CULN CUPN	varchar varchar varchar varchar varchar	VARCHA VARCHA VARCHA VARCHA VARCHA	CUSTOMER_EMAIL CUSTOMER_FIRST CUSTOMER_GEND CUSTOMER_LAST CUSTOMER_PHONE	
Card Card Card Card Card Card	CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS	CUEML CUFN CUG CULN CUPN CUSSN	varchar varchar varchar varchar varchar varchar	VARCHA VARCHA VARCHA VARCHA VARCHA VARCHA	CUSTOMER_EMAIL CUSTOMER_FIRST CUSTOMER_GEND CUSTOMER_LAST	
Card Card Card Card Card Card Card	CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS	CUEML CUFN CUG CULN CUPN CUSSN ID	varchar varchar varchar varchar varchar varchar int identity	VARCHA VARCHA VARCHA VARCHA VARCHA VARCHA INT	CUSTOMER_EMAIL CUSTOMER_FIRST CUSTOMER_GEND CUSTOMER_LAST CUSTOMER_PHONE	PK   RID_PRIMARY
Card Card Card Card Card Card Card Card	CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS	CUEML CUFN CUG CULN CUPN CUSSN ID Latitude	varchar varchar varchar varchar varchar varchar int identity float	VARCHA VARCHA VARCHA VARCHA VARCHA VARCHA INT FLOAT	CUSTOMER_EMAIL CUSTOMER_FIRST CUSTOMER_GEND CUSTOMER_LAST CUSTOMER_PHONE	
Card Card Card Card Card Card Card Card	CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS	CUEML CUFN CUG CULN CUPN CUSSN ID Latitude Longitude	varchar varchar varchar varchar varchar varchar int identity float float	VARCHA VARCHA VARCHA VARCHA VARCHA INT FLOAT FLOAT	CUSTOMER_EMAIL CUSTOMER_FIRST CUSTOMER_GEND CUSTOMER_LAST CUSTOMER_PHONE	
Card Card Card Card Card Card Card Card	CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS Merchant	CUEML CUFN CUG CULN CUPN CUSSN ID Latitude Longitude Category	varchar varchar varchar varchar varchar varchar int identity float float varchar	VARCHA VARCHA VARCHA VARCHA VARCHA INT FLOAT FLOAT VARCHA	CUSTOMER_EMAIL CUSTOMER_FIRST CUSTOMER_GEND CUSTOMER_LAST CUSTOMER_PHONE	
Card Card Card Card Card Card Card Card	CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS Merchant Merchant	CUEML CUFN CUG CULN CUPN CUSSN ID Latitude Longitude Category City	varchar varchar varchar varchar varchar int identity float float varchar varchar	VARCHA VARCHA VARCHA VARCHA VARCHA INT FLOAT FLOAT VARCHA VARCHA	CUSTOMER_EMAIL CUSTOMER_FIRST CUSTOMER_GEND CUSTOMER_LAST CUSTOMER_PHONE	PK   RID_PRIMARY
Card Card Card Card Card Card Card Card	CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS Merchant Merchant Merchant	CUEML CUFN CUG CULN CUPN CUSSN ID Latitude Longitude Category City ID	varchar varchar varchar varchar varchar varchar int identity float varchar varchar int identity	VARCHA VARCHA VARCHA VARCHA VARCHA INT FLOAT FLOAT VARCHA VARCHA INT	CUSTOMER_EMAIL CUSTOMER_FIRST CUSTOMER_GEND CUSTOMER_LAST CUSTOMER_PHONE	
Card Card Card Card Card Card Card Card	CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS Merchant Merchant Merchant Merchant	CUEML CUFN CUG CULN CUPN CUSSN ID Latitude Longitude Category City ID Latitude	varchar varchar varchar varchar varchar varchar int identity float varchar varchar int identity float	VARCHA VARCHA VARCHA VARCHA VARCHA INT FLOAT FLOAT VARCHA VARCHA INT FLOAT	CUSTOMER_EMAIL CUSTOMER_FIRST CUSTOMER_GEND CUSTOMER_LAST CUSTOMER_PHONE	PK   RID_PRIMARY
Card Card Card Card Card Card Card Card	CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS Merchant Merchant Merchant Merchant Merchant	CUEML CUFN CUG CULN CUPN CUSSN ID Latitude Longitude Category Cty ID Latitude Longitude	varchar varchar varchar varchar varchar varchar float varchar varchar varchar int identity float float float	VARCHA VARCHA VARCHA VARCHA VARCHA INT FLOAT FLOAT VARCHA INT FLOAT FLOAT FLOAT FLOAT	CUSTOMER_EMAIL CUSTOMER_FIRST CUSTOMER_GEND CUSTOMER_LAST CUSTOMER_PHONE	PK   RID_PRIMARY
Card Card Card Card Card Card Card Card	CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS Merchant Merchant Merchant Merchant Merchant Merchant	CUEML CUFN CUG CULN CUPN CUSSN ID Latitude Category City ID Latitude Longitude Merchant	varchar varchar varchar varchar varchar varchar float varchar varchar int identity float float float varchar varchar	VARCHA VARCHA VARCHA VARCHA VARCHA INT FLOAT FLOAT VARCHA INT FLOAT FLOAT FLOAT VARCHA	CUSTOMER_EMAIL CUSTOMER_FIRST CUSTOMER_GEND CUSTOMER_LAST CUSTOMER_PHONE	PK   RID_PRIMARY
Card Card Card Card Card Card Card Card	CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS Merchant Merchant Merchant Merchant Merchant Merchant Merchant	CUEML CUFN CUG CULN CUPN CUSSN ID Latitude Longitude Category City ID Latitude Longitude Merchant PhoneNumber	varchar varchar varchar varchar varchar int identity float float varchar int identity float float varchar int identity float varchar	VARCHA VARCHA VARCHA VARCHA VARCHA VARCHA INT FLOAT FLOAT VARCHA INT FLOAT FLOAT VARCHA VARCHA VARCHA	CUSTOMER_EMAIL CUSTOMER_FIRST CUSTOMER_GEND CUSTOMER_LAST CUSTOMER_PHONE	PK   RID_PRIMARY
Card Card Card Card Card Card Card Card	CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS Merchant Merchant Merchant Merchant Merchant Merchant Merchant Merchant Merchant	CUEML CUFN CUG CULN CUPN CUSSN ID Latitude Longitude Category City ID Latitude Longitude Latitude Longitude Merchant PhoneNumber State	varchar varchar varchar varchar varchar int identity float float varchar int identity float float varchar varchar varchar varchar varchar varchar	VARCHA VARCHA VARCHA VARCHA VARCHA VARCHA INT FLOAT FLOAT VARCHA VARCHA VARCHA VARCHA VARCHA VARCHA VARCHA	CUSTOMER_EMAIL CUSTOMER_FIRST CUSTOMER_GEND CUSTOMER_LAST CUSTOMER_PHONE	PK   RID_PRIMARY
Card Card Card Card Card Card Card Card	CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS Merchant Merchant Merchant Merchant Merchant Merchant Merchant Merchant Merchant Merchant	CUEML CUFN CUG CULN CUPN CUSSN ID Latitude Category City ID Latitude Longitude Merchant PhoneNumber State Street	varchar varchar varchar varchar varchar int identity float float varchar int identity float varchar varchar varchar varchar varchar varchar varchar varchar	VARCHA VARCHA VARCHA VARCHA VARCHA VARCHA VARCHA INT FLOAT FLOAT FLOAT FLOAT VARCHA VARCHA VARCHA VARCHA VARCHA	CUSTOMER_EMAIL CUSTOMER_FIRST CUSTOMER_GEND CUSTOMER_LAST CUSTOMER_PHONE	PK   RID_PRIMARY
Card Card Card Card Card Card Card Card	CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS CUSMS Merchant Merchant Merchant Merchant Merchant Merchant Merchant Merchant Merchant	CUEML CUFN CUG CULN CUPN CUSSN ID Latitude Longitude Category City ID Latitude Longitude Latitude Longitude Merchant PhoneNumber State	varchar varchar varchar varchar varchar int identity float float varchar int identity float float varchar varchar varchar varchar varchar varchar	VARCHA VARCHA VARCHA VARCHA VARCHA VARCHA INT FLOAT FLOAT VARCHA VARCHA VARCHA VARCHA VARCHA VARCHA VARCHA	CUSTOMER_EMAIL CUSTOMER_FIRST CUSTOMER_GEND CUSTOMER_LAST CUSTOMER_PHONE	PK   RID_PRIMARY



## The End