

Snowflake

Sunday, April 18, 2021 10:00 AM

#1.create database

#create database and switch to it

```
CREATE OR REPLACE DATABASE ZTS;  
USE ZTS
```

#create schemas

```
Create or replace schema ingestion;  
Create or replace schema curation;  
Create or replace schema calculation;
```

Show schemas;

Row	created_on	name	is_default	is_current	database_name	owner	comment	options	retention_time
1	2018-05-03 10:19:2...	CALCULATION	N	Y	ZTS	ZTS_ADMIN			1
2	2018-05-03 10:19:2...	CURATION	N	N	ZTS	ZTS_ADMIN			1
3	2018-05-03 10:19:3...	INFORMATION_SC...	N	N	ZTS		Views describing th...		1
4	2018-05-03 10:19:2...	INGESTION	N	N	ZTS	ZTS_ADMIN			1
5	2018-05-03 10:18:3...	PUBLIC	N	N	ZTS	ZTS_ADMIN			1

Public is the default schema, information_schema is where all the system views are in terms of the metadata and database itself

#create an external, s3 stage(public bucket)

Create or replace stage ingestion.s3_stage

Url = 's3://dlx-zero-to-snowflake'

Credentials = (

Aws_key_id = 'AKIAIRIY07UUKKJXX64A'

'AKIAIRIY07UUKKJXX64A'

'YX67150BujDXff1JPe0wtJU8qESyAf3NqkbKZYe9'

AWS_SECRET_KEY =

);

List @ingestion.s3_stage; #draw us out a list of all the objects and files in that stage

Row	name	size	md5	e5665c6c754e92c4210ef86735ad8888	last_modified
1	s3://dlx-zero-to-snowflake/assets/20180302-102317...	34785	e5665c6c754e92c4210ef86735ad8888		Fri, 2 Mar 2018 10:23:21 GMT
2	s3://dlx-zero-to-snowflake/events/20180302-092512...	5602753	59b53e7c91334c23d46eb8920ff12fb-2		Fri, 2 Mar 2018 09:25:23 GMT
3	s3://dlx-zero-to-snowflake/events/20180302-092512...	5649112	c9c04cd06ff428fb78fb3559c9d9b784-2		Fri, 2 Mar 2018 09:25:23 GMT
4	s3://dlx-zero-to-snowflake/events/20180302-092512...	5613139	e3240727a35d270901dcd56cb24e5d78-2		Fri, 2 Mar 2018 09:25:23 GMT
5	s3://dlx-zero-to-snowflake/events/20180302-092512...	5629833	669ce6f3b74b0c2d7112c55141f87181-2		Fri, 2 Mar 2018 09:25:23 GMT
6	s3://dlx-zero-to-snowflake/events/20180302-092512...	5615627	0bda05ae9f4c12e25fe23b6d130092e3-2		Fri, 2 Mar 2018 09:25:32 GMT

#create CSV files format for ingestion

```
-- Create CSV file format for ingestion  
  
CREATE OR REPLACE FILE FORMAT INGESTION.CSV_FORMAT  
TYPE = 'CSV'  
COMPRESSION = 'AUTO'  
FIELD_DELIMITER = ','  
RECORD_DELIMITER = '\n'  
SKIP_HEADER = 1  
FIELD_OPTIONALLY_ENCLOSED_BY = '\042'  
ERROR_ON_COLUMN_COUNT_MISMATCH = TRUE  
ESCAPE = 'NONE'  
ESCAPE_UNENCLOSED_FIELD = '\134'  
NULL_IF = ('NULL');
```

Databases > ZTS

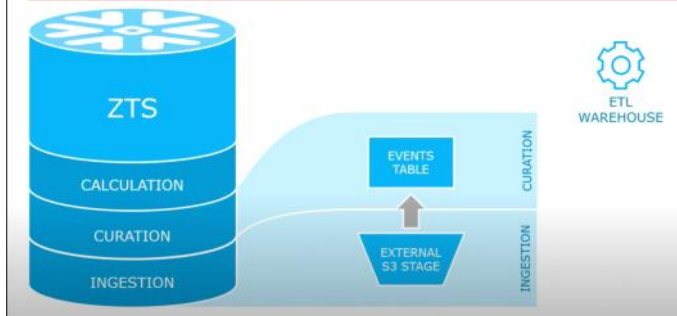
Tables Views Schemas Stages **File Formats** Sequences

+ Create... Clone... Edit... Drop... Transfer Ownership

File Format	Schema	Type	Creation Time	Owner	Comment
CSV_FORMAT	INGESTION	CSV	11:22:18 AM	ZTS_ADMIN	

2. curate events data

2. Curate Events Data



#create curation table for events

Create or replace table curation.events{

Id string,
Asset_id string,
Metric_id string,
Value number(18,9),
Created int

};

Desc table curation.events; -- Also look at this via the database tab

snowflake

Databases Warehouses Worksheet History

Databases > ZTS > EVENTS (CURATION)

Tables Views Schemas Stages File Formats Sequences

Load Table

Column Name	Ordinal	Type	Nullable	Default	Comment
ID	1	VARCHAR(16777216)	true	NULL	
ASSET_ID	2	VARCHAR(16777216)	true	NULL	
METRIC_ID	3	VARCHAR(16777216)	true	NULL	
VALUE	4	NUMBER(18,9)	true	NULL	
CREATED	5	NUMBER(38,0)	true	NULL	

#now need a warehouse

CREATE or replace warehouse zts_etl_mh with

Warehouse_size = 'large'
Auto_suspend = 300
Auto_resume = true
Comment = 'Zero to Snowflake ETL Warehouse';

Grant usage on warehouse zts_etl_wh to role zts_admin;

Use warehouse zts_etl_wh;

#green dot means live

Warehouse: ZTS_ETL_WH

Context: ZTS_ADMIN ZTS_ETL_WH (L) ZTS

Warehouse: ZTS_ETL_WH

Context: ZTS_ADMIN ZTS_ETL_WH (L) ZTS

copy in events from s3 stage(LARGE 1M20S)

Copy into `curation.events`
From `@ingestion.s3_stage/events/`
`FILE_FORMAT = (FORMAT_NAME = 'INGESTION.CSV_FORMAT');`

`SELECT * FROM CURATION.EVENTS LIMIT 10;`

Row	ID	ASSET_ID	METRIC_ID	VALUE	CREATED
1	49cf7594-bcca-4cd7-b4ad-3318d1d7f2cb	aab33e6c-7fcc-33e5-b422-e0cf5e21de12	77a379dc-6603-3d6a-8d2c-55b7ec685f65	0.401249200	1523338880
2	a5f71dac-34c2-4e78-b25f-9106cd04bc1f	98cf19c2-e12e-37cc-9e0c-e73f285da5f6	c40cf251-a6d0-3712-aaee-209ccae1fed3	0.133727875	1523338776
3	8ead7a30-2747-46b2-a186-1c99d9aad4e8	44d6c837-1bca-3c69-9eff-30b235aa624f	376b4c88-9410-325a-8ed5-67dae77bf0d	0.149774081	1523339809
4	11ae4f66-fc2c-4dab-8f3d-ea88a92ef737	dd3aa249-aa9b-308a-8501-412d38630f67	d93864ab-bf1a-3b1c-b551-c89f95ccbc8	0.281515376	1523339479
5	2a3a5efc-e381-4750-82ec-318a09f93c10	b9aafce4-175b-3c92-839a-bfd50ad5e5bc	c40cf251-a6d0-3712-aaee-209ccae1fed3	0.964294689	1523336596
6	eb35f6ca-f515-498d-ae88-52583328259a	0c172076-fc19-3572-af7b-8aff1bc29b173	f8e59b70-32de-37b4-9523-fabb198957f2	0.650793384	1523338231

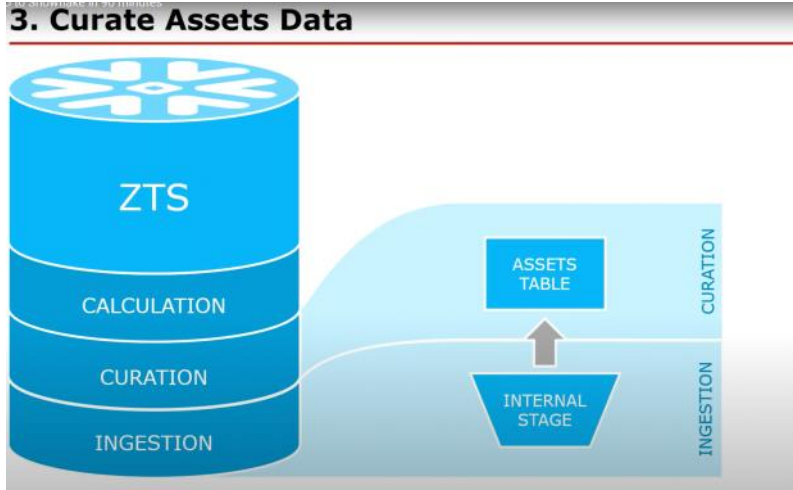
#Try again with 2xl (30S)

`TRUNCATE TABLE CURATION.EVENTS;`
`ALTER WAREHOUSE ZTS_ETL_WH SET WAREHOUSE_SIZE = 'XXLARGE';`

#switch the warehouse back to large for now (THIS SORT OF THING CAN BE AUTOMATED)

`ALTER WAREHOUSE ZTS_ETL_WH SET WAREHOUSE_SIZE = 'LARGE';`

#3.CURATE ASSETS DATA



#CREATE AN INTERNAL, SNOWFLAKE-NAMAGED STAGE

`CREATE OR REPLACE STAGE INGESTION.INTERNAL_STAGE;`

Databases > ZTS

Tables Views Schemas **Stages** File Formats Sequences

+

 Create...
 Clone...
 Edit...
 Drop...
 Transfer Ownership

Stage	Schema	Location	Creation Time ▾	Owner	Comment
INTERNAL_STAGE	INGESTION	Snowflake	11:35:42 AM	ZTS_ADMIN	
S3_STAGE	INGESTION	s3://dlc-zero-to-snowflake	11:20:17 AM	ZTS_ADMIN	

-- push this assets file using snowsql

```
-- Push the assets file using SnowSQL

/*
snowsql --accountname datalytx.eu-west-1 --username ZTS_ALEX
USE ZTS;
USE WAREHOUSE ZTS_ETL_WH;
PUT file://D:/Temp/ZeroToSnowflake/assets/* @INGESTION.INTERNAL_STAGE/assets/;
*/

LIST @INGESTION.INTERNAL_STAGE.
```

```
C:\Program Files\Snowflake\SnowSQL> snowsql.exe
SnowSQL V1.1.35
Type SQL statements or !help
ZTS_ALEX#(no warehouse)@ZTS_PUBLIC> use ZTS;
status
-----
Statement executed successfully.
1 Row(s) produced. Time Elapsed: 0.284s
ZTS_ALEX#(no warehouse)@ZTS_PUBLIC> use WAREHOUSE ZTS_ETL_WH;
status
-----
Statement executed successfully.
1 Row(s) produced. Time Elapsed: 0.059s
ZTS_ALEX#ZTS_ETL_WH@ZTS_PUBLIC> PUT file://D:/Temp/ZeroToSnowflake/assets/* @INGESTION.INTERNAL_STAGE/assets/;
assets-20180302-102317.csv.gz (0.03MB): [#####] 100.00% Done (0.340s, 0.10MB/s).
source            | target            | source_size | target_size | source_compression | target_compression | status | message |
-----|-----|-----|-----|-----|-----|-----|-----|
assets-20180302-102317.csv.gz | assets-20180302-102317.csv.gz | 34785 | 34785 | GZIP | GZIP | UPLOADED |
1 Row(s) produced. Time Elapsed: 2.876s
ZTS_ALEX#ZTS_ETL_WH@ZTS_PUBLIC>
```

LIST @INGESTION.INTERNAL_STAGE

Row	name	size	md5	last_modified
1	internal_stage/assets/assets-20180302-102317.csv.gz	34800	09cb7fdd30d0250922d8199476742a52	Thu, 3 May 2018 10:45:04 GMT

#Create Assets table

```
CREATE OR REPLACE TABLE CURATION.ASSETS (
  ID STRING,
  TYPE STRING,
  ATTRIBUTES VARIANT, #JSON DATA/UNSTRUCTURE DATA
  CREATED INT,
  LAST_UPDATED INT,
  CLIENT_ID STRING,
  CLIENT_SFDC_ID STRING,
  CLIENT_NAME STRING
);
```

#COPY IN ASSETS FROM INTERNAL STAGE

```
COPY INTO CURATION.ASSETS
FROM @INGESTION.INTERNAL_STAGE/assets/
FILE_FORMAT = (FORMAT_NAME = 'INGESTION.CSV_FORMAT');
```

SELECT * FROM CURATION.ASSETS LIMIT 10;

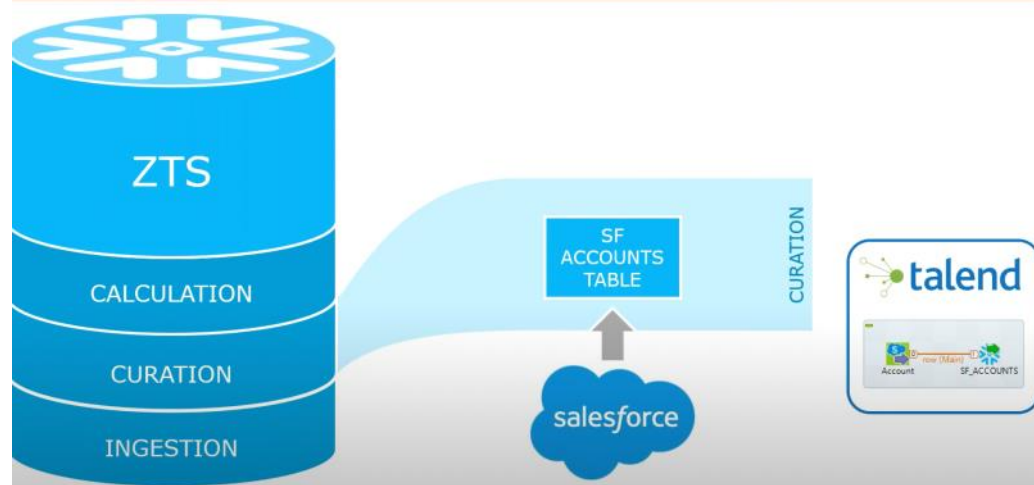
```
-- Create Assets table
--
CREATE OR REPLACE TABLE CURATION.ASSETS (
  ID STRING,
  TYPE STRING,
  ATTRIBUTES VARIANT, -- JSON data
  CREATED INT,
  LAST_UPDATED INT,
  CLIENT_ID STRING,
  CLIENT_SFDC_ID STRING,
  CLIENT_NAME STRING
);
-- Copy in assets from internal stage
COPY INTO CURATION.ASSETS
FROM @INGESTION.INTERNAL_STAGE/assets/
FILE_FORMAT = (FORMAT_NAME = 'INGESTION.CSV_FORMAT');
```

Details

```
{
  "engine": {
    "fuel": "PETROL",
    "size": 2.5
  },
  "make": "FORD",
  "model": {
    "base": "KA",
    "trimLevel": "EDGE"
  },
  "registration": "YJ87 YPB",
  "year": 2007
}
```

Row	ID	TYPE	ATTRIBUTES	CREATED	LAST_UPDATED	CLIENT_ID	CLIENT_SFDC_ID	CLIENT_NAME
1	486a76b-3a56-30eb...	VAN	{}	1519986202	1519986202	9a53b1c3-fc42-32d9-a...	0010Y90001DMMyQAN	TAYLOR COMPANY E...
2	d3a484c7-57aa-34b7...	CAR	{"engine": {"fuel": "PE...	1519986202	1519986202	fbcc19e-5caa-3e1f-84...	0010Y90001DMMyQAN	MURPHY LTD
3	a43b9971-0e53-3518-a...	TRUCK	{}	1519986202	1519986202	012a3d77-1257-3a8b-9...	0010Y90001DMMyQAN	JONES & CO. FLC
4	1fb487e5-5352-3204-b...		{}	1519986202	1519986202	388a04c9-8923-333c-a...	0010Y90001DMMyQAN	GLOVER
5	5e94c053-c489-343a-...	VAN	{}	1519986202	1519986202	388a04c9-8923-333c-a...	0010Y90001DMMyQAN	GLOVER

4. Curate Salesforce Data



#LOOK AT THE ACCOUNTS IN SALESFORCE

#CREATE SF ACCOUNTS TABLE

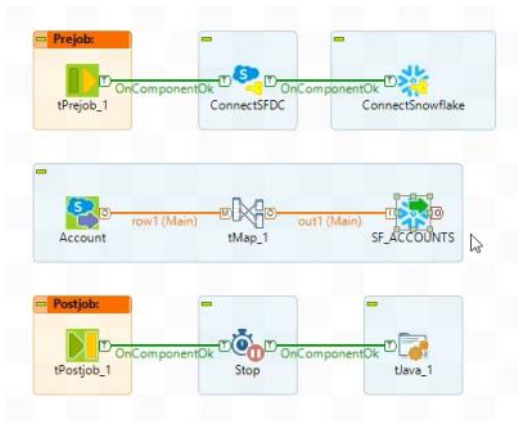
CREATE OR REPLACE TABLE CURATION.SF_ACCOUNTS (

```
ID STRING,
ISDELETED BOOLEAN,
MASTERRECORDID STRING,
NAME STRING,
TYPE STRING,
PARENTID STRING,
BILLINGSTREET STRING,
BILLINGCITY STRING,
BILLINGSTATE STRING,
BILLINGPOSTALCODE STRING,
BILLINGCOUNTRY FLOAT,
BILLINGLATITUDE FLOAT,
BILLINGGEOCODEACCURACY STRING,
BILLINGADDRESS STRING,
SHIPPINGSTREET STRING,
SHIPPINGCITY STRING,
SHIPPINGSTATE STRING,
SHIPPINGPOSTALCODE STRING,
SHIPPINGCOUNTRY FLOAT,
SHIPPINGLATITUDE FLOAT,
SHIPPINGGEOCODEACCURACY STRING,
SHIPPINGADDRESS STRING,
PHONE STRING,
```

```
ANNUALREVENUE NUMBER(18,2),
NUMBEROFEMPLOYEES INTEGER,
OWNERSHIP STRING,
TICKERSYMBOL STRING,
DESCRIPTION STRING,
RATING STRING,
SITE STRING,
OWNERID STRING,
CREATEDDATE TIMESTAMP_NTZ,
CREATEDBYID STRING,
LASTMODIFIEDDATE TIMESTAMP_NTZ,
LASTMODIFIEDBYID STRING,
SYSTEMMOODSTAMP TIMESTAMP_NTZ,
LASTACTIVITYDATE TIMESTAMP_NTZ,
LASTVIEWEDDATE TIMESTAMP_NTZ,
LASTREFERENCEDATE TIMESTAMP_NTZ,
JIGSAW STRING,
JIGSAWCOMPANYID STRING,
CLEANSTATUS STRING,
ACCOUNTSOURCE STRING,
DUNSNUMBER STRING,
TRADESTYLE STRING,
NAICS CODE STRING,
NAICSDESC STRING,
YEARSTARTED STRING,
SICCODE STRING,
DANDBCOMPANYID STRING,
CUSTOMERPRIORITY__C STRING,
```

```
CUSTOMERPRIORITY__C STRING,
SLA__C STRING,
ACTIVE__C STRING,
NUMBEROFLOCATIONS__C FLOAT,
UPSELLOPPORTUNITY__C STRING,
SLASERIALNUMBER__C STRING,
SLAEXPIRATIONDATE__C TIMESTAMP_NTZ
);
```

#LOAD THE sf ACCOUNTS USING Talend

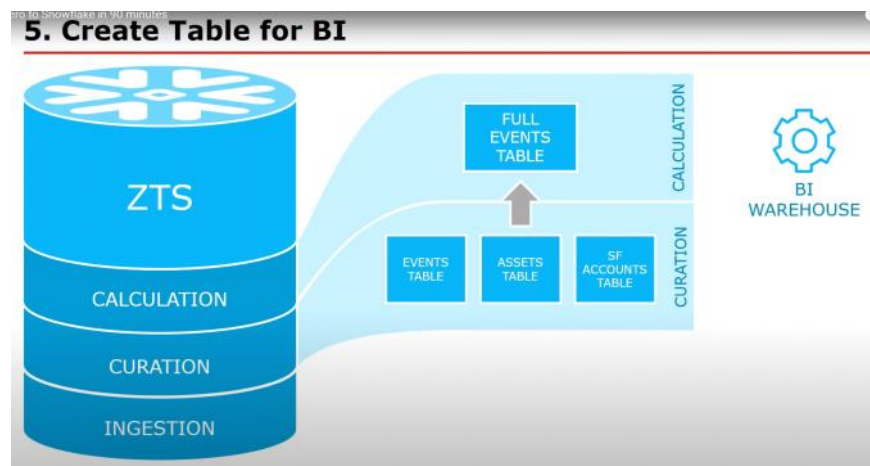


#run job Demo/ZeroToSnowflake/ZeroToSnowflake30_IngestSFDCAccountsToSnoeflake

SELECT * FROM CURATION.SF_ACCOUNTS LIMIT 10;

Row	ID	ISDELETED	MASTERRE...	NAME	TYPE	PARENTID	BILLINGSTR...	BILLINGCITY	BILLINGSTATE	BILLINGPO...	BILLINGCO...	BILLINGLATI...	BILL
1	0010Y00001...	FALSE	NULL	Dalton & Ste...	Customer - ...	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL
2	0010Y00001...	FALSE	NULL	A. Jones Co...	Customer - ...	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL
3	0010Y00001...	FALSE	NULL	Taylor Comp...	Customer - ...	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL
4	0010Y00001...	FALSE	NULL	Thompson & ...	Customer - ...	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL
5	0010Y00001...	FALSE	NULL	Stokes & Bar...	Customer - ...	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL
6	0010Y00001...	FALSE	NULL	Edwards Fir...	Customer - ...	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

5. Create Table for BI



-- Create a flattened events table, joining with the other tables

```
CREATE OR REPLACE TABLE CALCULATION.EVENTS AS
SELECT
  E.ID AS EVENT_ID,
  E.METRIC_ID,
  E.VALUE,
  TO_TIMESTAMP_NTZ(E.CREATED) AS EVENT_CREATED,
  DATE_TRUNC('MINUTE', TO_TIMESTAMP_NTZ(E.CREATED)) AS EVENT_CREATED_MINUTE,
  A.ID AS ASSET_ID,
  A.TYPE AS ASSET_TYPE,
  A.ATTRIBUTES AS ASSET_ATTRIBUTES,
  TO_TIMESTAMP_NTZ(A.CREATED) AS ASSET_CREATED,
  TO_TIMESTAMP_NTZ(A.LAST_UPDATED) AS ASSET_LAST_UPDATED,
  A.CLIENT_ID,
  A.CLIENT_NAME,
  S.ID AS SF_ACCOUNT_ID,
  S.NAME AS SF_ACCOUNT_NAME,
  S.TYPE AS SF_ACCOUNT_TYPE,
  S.INDUSTRY AS SF_ACCOUNT_INDUSTRY
FROM CURATION.EVENTS E
INNER JOIN CURATION.ASSETS A ON E.ASSET_ID = A.ID
INNER JOIN CURATION.SF_ACCOUNTS S ON A.CLIENT_SFDC_ID = S.ID;
```

#take a look at the table, noting that data comes from the WH cache
SELECT * FROM CALCULATION.EVENTS LIMIT 10;

Results

Data Preview

Query ID

SQL

3.44s

924 OMB bytes scanned

10 rows

LATEST

Filter result...

Download

Copy

Columns

Raw	EVENT_ID	METRIC_ID	VALUE	EVENT_CR...	EVENT_CR...	ASSET_ID	ASSET_TYPE	ASSET_ATT	ASSET_CR...	ASSET_LAS...	CLIENT_ID	CLIENT_NA...	SF
1	6d084020-99...	e4a518a2-fa...	0.975695495	2018-01-08 ...	2018-01-08 ...	c8393895-9e...	LAPTOP	()	2018-03-02 ...	2018-03-02 ...	ee94ee42-f3f...	DALTON & S...	00
2	a5131d88-4ff...	77a379dc-66...	0.570241416	2018-01-08 ...	2018-01-08 ...	e3947ea9-44...	SERVER	()	2018-03-02 ...	2018-03-02 ...	ab5b1c50-2c...	A. JONES C...	00
3	2bbc78ed-40...	536dd227-38...	0.847163238	2018-01-08 ...	2018-01-08 ...	c36266b8-8b...	LAPTOP	()	2018-03-02 ...	2018-03-02 ...	2c96045d-4e...	THOMPSON...	00
4	595b8c33-5e...	95132e71-b9...	0.099793426	2018-01-08 ...	2018-01-08 ...	87995305-30...	LAPTOP	()	2018-03-02 ...	2018-03-02 ...	59c93b0f-22...	LEWIS COM...	001
5	a7c79fa4-62...	376b4c96-64...	0.815043771	2018-01-08 ...	2018-01-08 ...	06c7ed24-ba...	VAN	()	2018-03-02 ...	2018-03-02 ...	c79a344e-c1...	PAGE LUK	001

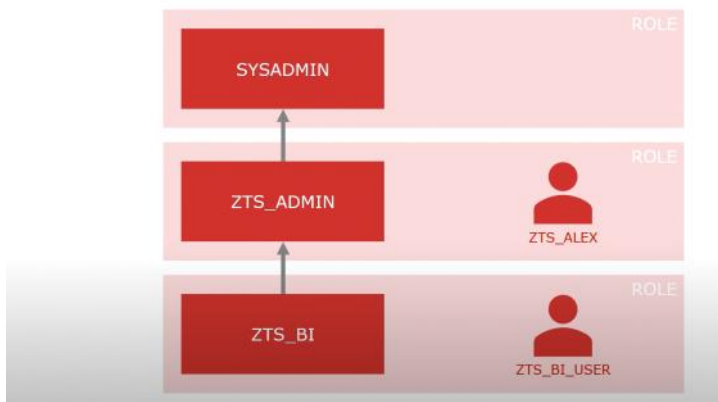
#RUN THE SELECT AGAIN, NOTING THAT DO DATA IS SCANNED(RESULTS CACHE)

#CREATE WAREHOUSE FOR bi

```
CREATE OR REPLACE WAREHOUSE ZTS_BI_WH WITH
  WAREHOUSE_SIZE = 'MEDIUM'
  AUTO_SUSPEND = 300
  AUTO_RESUME = TRUE
  COMMENT = 'Zero to Snowflake BI Warehouse';
```

6. Set permission for BI

6. Set Permissions for BI



#assume accountadmin role

Use role accountadmin; #or use menu

#create role for BI

```
Create or replace role ZTS_BI COMMENT = 'Zero to Snowflake - BI Role';
GRANT ROLE ZTS_BI TO ROLE ZTS_ADMIN;
```

```
GRANT USAGE ON DATABASE ZTS TO ROLE ZTS_BI;
GRANT USAGE ON SCHEMA ZTS.CALCULATION TO ROLE ZTS_BI;
GRANT USAGE ON WAREHOUSE ZTS_BI_WH TO ROLE ZTS_BI;
```

#GRANT BI ROLE SELECT ACCESS TO FLATTENED EVENTS TABLE

```
GRANT SELECT ON CALCULATION.EVENTS TO ROLE ZTS_BI;
```

#CREATE USER FOR BI (USER UI - SWITCH ROLE TO ACCOUNTADMIN

```
CREATE OR REPLACE USER ZTS_BI_USER
  PASSWORD = 'Brear5'
  DISPLAY_NAME = 'BI User'
  COMMENT = 'Zero to Snowflake - BI user'
  DEFAULT_ROLE = ZTS_BI
  DEFAULT_WAREHOUSE = ZTS_BI_WH
;
```

```
GRANT ROLE ZTS_BI TO USER ZTS_BI_USER;
```