**External Tables & Insert only Streams**

External Tables in Snowflake let us access and query data stored in external storage like S3 or Azure Blob without loading it into Snowflake. I’ve used them to query large CSV/Parquet datasets directly from cloud storage for quick analysis and reporting before deciding what data to bring into Snowflake tables.

Insert-only streams in Snowflake capture only new rows added to a table, ignoring updates and deletes. They’re very useful in scenarios like event logging or transactional data, where the focus is only on appends. I’ve used them to capture incremental inserts from source systems for downstream processing in data pipelines.”

-- Create AWS Free Tier Account

-- Create the S3 bucket and the required folders

-- IAM Role for Bucket

-- Create Integration Object - Get the role ARN and copy below in storage\_aws\_role\_arn

-- copy the S3 URL in storage\_allowed\_location

-- If You re-create the storage integration object. You need to update the storage\_iam\_user\_arn and storage\_aws\_external\_id

-- at aws role - edit trust relationship

create or replace storage integration int\_aws\_s3

type = external\_stage

storage\_provider = s3

enabled = true

storage\_aws\_role\_arn = 'arn:aws:iam::755743318453:role/snowflake-aws-s3-access'

storage\_allowed\_locations = ('s3://snowflakes3datafiles/external\_tables/')

comment = 'This is the integration object for loading the files from AWS S3 to Snowflake' ;

-- Describe Intergation Object

desc integration int\_aws\_s3 ;

-- Copy ARN and External ID in IAM Role at AWS

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-- create file format - since it will be used in external stage and copy command. so creating is better

create or replace file format file\_format\_csv skip\_header = 1 compression = none field\_delimiter = '|'

filed\_optionally\_enclosed\_by = '"';

--describe file formats

describe file format file\_format\_csv ;

-- create external stage for loading data

create or replace stage ext\_stage\_ld

url = 's3://snowflakes3datafiles/external\_tables/'

storage\_integration = int\_aws\_s3

file\_format = file\_format\_csv ;

-- Show stages

show stages ;

-- list

list @ext\_stage\_ld ;

-- Two ways

-- 1) without specifying the columns

create or replace external table customer\_ext

location = @ext\_stage\_ld

file\_format = file\_format\_csv;

select value:c1::integer as CUSTOMER\_PK,

value:c2::varchar as SALUTATION,

value:c3::varchar as FIRST\_NAME,

value:C4::varchar as LAST\_NAME

from customer\_ext;

-- 2) with specifying the columns

-- Create external tabe to load

CREATE OR REPLACE EXTERNAL TABLE customer\_data (

CUSTOMER\_PK NUMBER(38,0) AS (value:c1::integer) ,

SALUTATION STRING(10) AS (value:c2::varchar) ,

FIRST\_NAME STRING(50) AS (value:c3::varchar) ,

LAST\_NAME STRING(50) AS (value:c4::varchar) ,

GENDER STRING(1) AS (value:c5::varchar) ,

MARITAL\_STATUS STRING(1) AS (value:c6::varchar) ,

DAY\_OF\_BIRTH DATE AS (value:c7::date) ,

BIRTH\_COUNTRY STRING(50) AS (value:c8::varchar) ,

EMAIL\_ADDRESS STRING(100) AS (value:c9::varchar) ,

CITY\_NAME STRING(50) AS (value:c10::varchar) ,

ZIP\_CODE STRING(10) AS (value:c11::varchar) ,

COUNTRY\_NAME varchar AS (value:c12::varchar) ,

GMT\_TIMEZONE\_OFFSET FLOAT AS (value:c13::FLOAT) ,

PREFERRED\_CUST\_FLAG BOOLEAN AS (value:c14::BOOLEAN) ,

REGISTRATION\_TIME TIMESTAMP AS (value:c15::timestamp)

)

location = @ext\_stage\_ld

file\_format = file\_format\_csv

AUTO\_REFRESH = false;

select \* from customer\_data;

-- Copy command

-- parameters

AUTO\_REFRESH = TRUE

PATTERN = ''

PARTITION BY =

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-- Insert Only - For external Tables

list @ext\_stage\_ld ;

-- show

-- check data in stage

select $1, $2, $3, $4 from @ext\_stage\_ld;

-- Check the data of external table

select metadata$filename, metadata$file\_row\_number, pet.\* from customer\_data pet ;

-- create insert only stream

-- Append Only Stream

create or replace stream strm\_applicant3 on external table customer\_data insert\_only = true ; -- check the word externa and insert only

-- check the data in stream

select \* from strm\_applicant3 ;

-- Lets add file promotions3.csv at gcs location

alter external table customer\_data refresh ; -- The table can be created as

--check the data in stream

select \* from strm\_applicant3 ;

select \* from customer\_data;

-- delete the files from cloud location

-- refresh

alter external table customer\_data refresh ;

--check the data in stream

select \* from strm\_applicant3 ;

-- add files and refresh

select metadata$filename, metadata$file\_row\_number, pet.\* from promotions\_ext pet ;

alter external table promotions\_ext refresh ;

select \* from strm\_applicant3 ;