

Pipes in Snowflake

1. Pipes :-

Automatic loading of data using copy into command.

Pipes mainly help automate data transfers and keep data moving in and out of Snowflake.

- Firstly, I have created a table called Book_table

The screenshot shows the Snowflake SQL Editor interface. On the left, the 'Databases' tab is active, showing a list of databases: CLONE_DATABASE, SNOWFLAKE, SNOWFLAKE_SAMPLE_DATA, TEST1_DB, TEST2_DB, TRAINING, and VEDA_DB. The main editor area shows the following SQL code:

```
1 create or replace table book_table_1 (  
2 id int,  
3 name varchar ,  
4 category varchar  
5 )  
6  
7 CREATE OR REPLACE FILE FORMAT training.public.csv_format  
8 TYPE = 'CSV'  
9 COMPRESSION = 'AUTO'  
10 FIELD_DELIMITER = ','  
11 RECORD_DELIMITER = '\n'
```

The 'Results' tab is active, showing a single row with the status: 'Table BOOK_TABLE_1 successfully created.' The 'Query Details' panel on the right shows a query duration of 273ms, 1 row, and a query ID of 01b083b5-3200-f0e2-...

- Now I have created a file_format

The screenshot shows the Snowflake SQL Editor interface. On the left, the 'Databases' tab is active, showing a list of databases: CLONE_DATABASE, SNOWFLAKE, SNOWFLAKE_SAMPLE_DATA, TEST1_DB, TEST2_DB, TRAINING, and VEDA_DB. The main editor area shows the following SQL code:

```
1 create or replace table book_table_1 (  
2 id int,  
3 name varchar ,  
4 category varchar  
5 )  
6  
7 CREATE OR REPLACE FILE FORMAT training.public.csv_format  
8 TYPE = 'CSV'  
9 COMPRESSION = 'AUTO'  
10 FIELD_DELIMITER = ','  
11 RECORD_DELIMITER = '\n'  
12 SKIP_HEADER = 0  
13 FIELD_OPTIONALLY_ENCLOSED_BY = '\042'  
14 TRIM_SPACE = FALSE  
15 ERROR_ON_COLUMN_COUNT_MISMATCH = TRUE  
16  
17 ESCAPE = 'none'  
18 ESCAPE_UNENCLOSED_FIELD = '\134'  
19 DATE_FORMAT = 'AUTO'  
20 TIMESTAMP_FORMAT = 'AUTO'  
21 NULL_IF = ('\n')  
22
```

The 'Results' tab is active, showing a single row with the status: 'File format CSV_FORMAT successfully created.' The 'Query Details' panel on the right shows a query duration of 68ms, 1 row, and a query ID of 01b083af-3200-f084-0...

- Then I have created an `aws_external_stage` with `pipes` folder in order to upload my csv files into it so that it can be loaded or copied into snowflake tables using pipe.

The screenshot shows the Snowflake SQL Editor interface. On the left, the 'Databases' tab is active, showing a list of databases including CLONE_DATABASE, SNOWFLAKE, SNOWFLAKE_SAMPLE_DATA, TEST1_DB, TEST2_DB, TRAINING, and VEDA_DB. The main editor area displays a SQL script for creating an external stage. The script includes settings for `ERROR_ON_COLUMN_COUNT_MISMATCH`, `ESCAPE`, `ESCAPE_UNENCLOSED_FIELD`, `DATE_FORMAT`, `TIMESTAMP_FORMAT`, and `NULL_IF`. The stage is created with the URL `s3://vedabucket-101123/pipes_folder/` and specific AWS credentials. The command `list @training.public.AWS_EXTERNAL_STAGE_pipes;` is also present. Below the editor, the 'Results' tab shows a single row with the status: 'Stage area AWS_EXTERNAL_STAGE_PIPES successfully created.' The 'Query Details' panel on the right indicates a query duration of 82ms and 1 row returned.

```
--  
15 ERROR_ON_COLUMN_COUNT_MISMATCH = TRUE  
16  
17 ESCAPE = 'none'  
18 ESCAPE_UNENCLOSED_FIELD = '\134'  
19 DATE_FORMAT = 'AUTO'  
20 TIMESTAMP_FORMAT = 'AUTO'  
21 NULL_IF = ('\\n');  
22  
23 CREATE OR REPLACE stage training.public.AWS_EXTERNAL_STAGE_pipes URL='s3://vedabucket-101123/pipes_folder/'  
24 Credentials=(aws_key_id='AKIA5HAAK4YDFLJ4TYEK' aws_secret_key='iEWeeoJqDBCP3vpU0RDL+Jt9FZj0eblDzTWPQmLM');  
25  
26  
27 list @training.public.AWS_EXTERNAL_STAGE_pipes;  
28
```

status
1 Stage area AWS_EXTERNAL_STAGE_PIPES successfully created.

Query Details
Query duration 82ms
Rows 1
Query ID 01b083b1-3200-f084-...

- Now I am creating an event configuration using SQS so that whenever the files available in the `aws_external_stage` it immediately sends the notification to snowflake

The screenshot shows the Amazon S3 console interface. At the top, a green notification bar states: 'Successfully created event notification "pipe_event". Operation successfully completed.' The breadcrumb navigation shows 'Amazon S3 > Buckets > vedabucket-101123'. The bucket name 'vedabucket-101123' is displayed with an 'Info' link. Below this, the 'Properties' tab is selected, showing the 'Bucket overview' section. This section includes the AWS Region (Asia Pacific (Mumbai) ap-south-1), the Amazon Resource Name (ARN) (arn:aws:s3:::vedabucket-101123), and the Creation date (November 10, 2023, 10:39:18 (UTC+05:30)). Below the overview, the 'Bucket Versioning' section is visible, with an 'Edit' button. The text explains that versioning is a means of keeping multiple variants of an object in the same bucket and provides a link to learn more.

Successfully created event notification "pipe_event".
Operation successfully completed.

Amazon S3 > Buckets > vedabucket-101123

vedabucket-101123 Info

Objects Properties Permissions Metrics Management Access Points

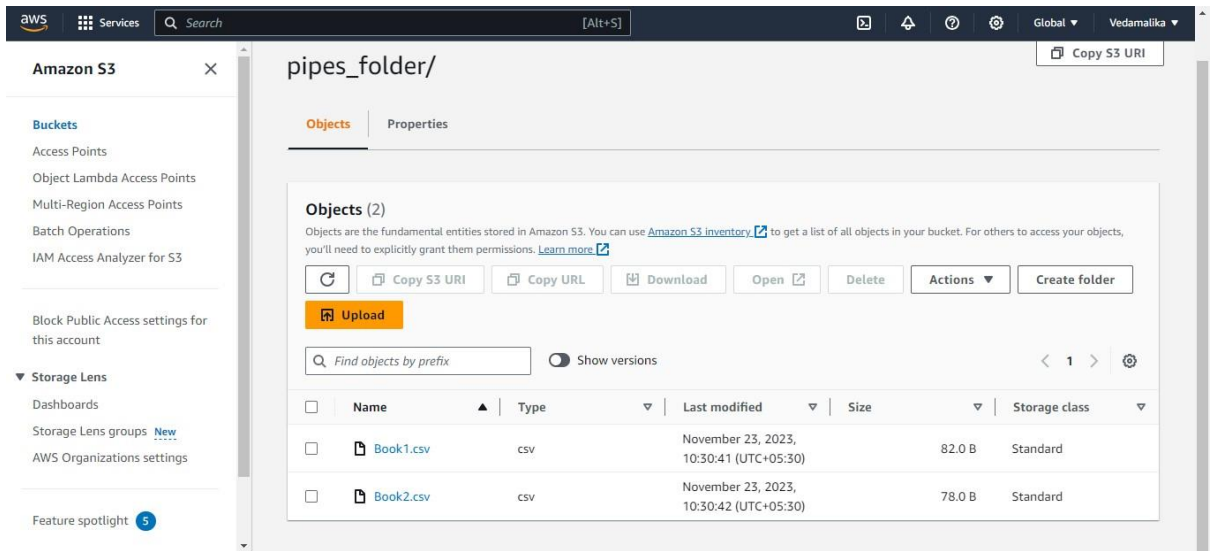
Bucket overview

AWS Region Asia Pacific (Mumbai) ap-south-1	Amazon Resource Name (ARN) arn:aws:s3:::vedabucket-101123	Creation date November 10, 2023, 10:39:18 (UTC+05:30)
--	--	--

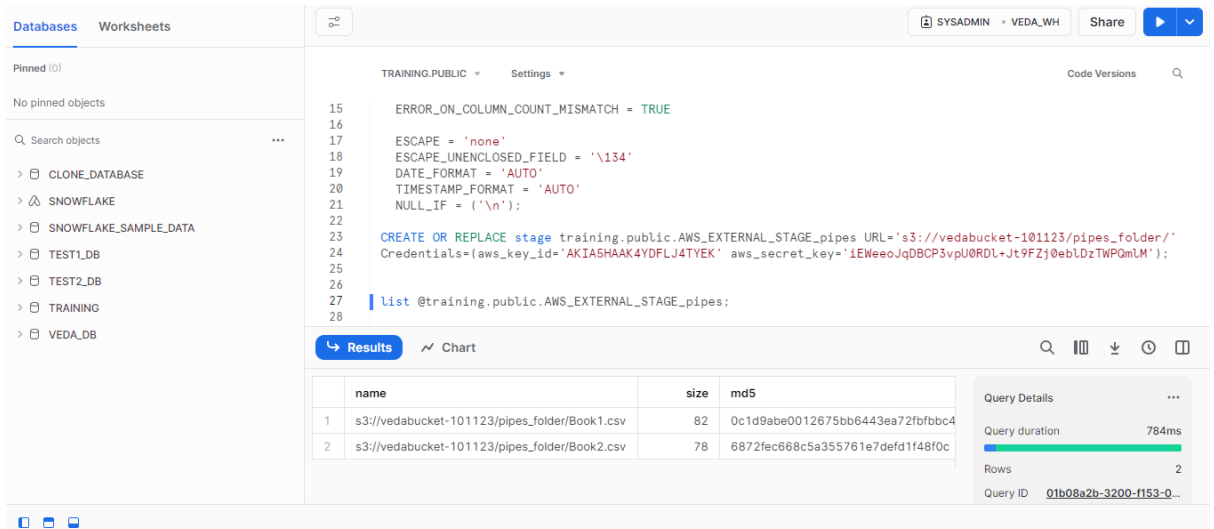
Bucket Versioning Edit

Versioning is a means of keeping multiple variants of an object in the same bucket. You can use versioning to preserve, retrieve, and restore every version of every object stored in your Amazon S3 bucket. With versioning, you can easily recover from both unintended user actions and application failures. [Learn more](#)

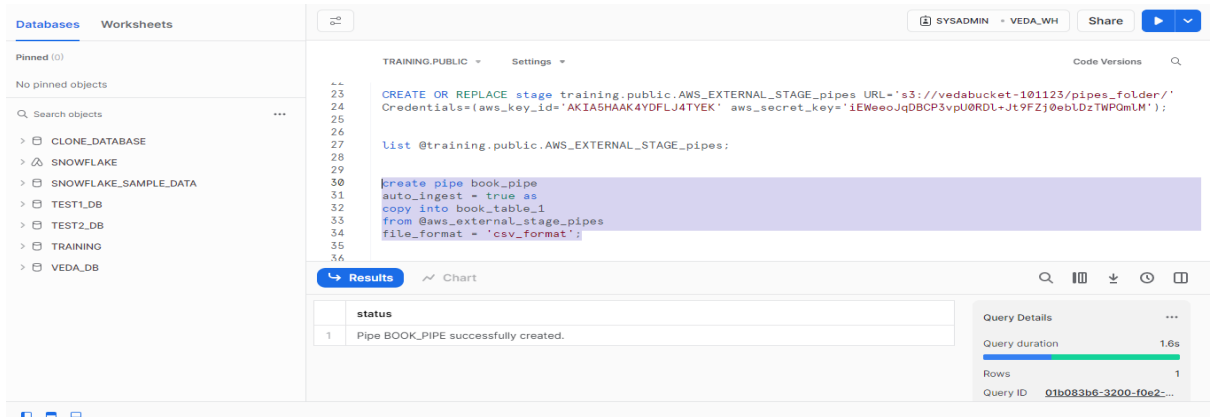
- Placing the files in s3 bucket in pipes folder



- Listing the files in external stage
I have placed two csv files called book1.csv and book2.csv



- I have created a pipe successfully



Databases Worksheets

SYSDADMIN VEDA_WH Share

TRAINING.PUBLIC Settings

```

27 list @training.public.AWS_EXTERNAL_STAGE_pipes;
28
29
30 create pipe book_pipe
31 auto_ingest = true as
32 copy into book_table_1
33 from @aws_external_stage_pipes
34 file_format = 'csv_format';
35
36 show pipes;
37
38
39
40

```

Results Chart

	created_on	name	database_name	schema_name	definition
1	2023-11-22 21:10:41.263 -0800	BOOK_PIPE	TRAINING	PUBLIC	copy ir

Query Details

Query duration 37ms

Rows 1

Query ID 01b083b7-3200-f0da...

• Aws sending notification to snowflake

Databases Worksheets

SYSDADMIN VEDA_WH Share

TRAINING.PUBLIC Settings

```

38
39
40
41
42
43
44
45 select * from book_table_1;
46
47 select system$pipe_status('book_pipe');
48
49 alter pipe book_pipe refresh;
50
51

```

Results Chart

	File	Status
1	Book1.csv	SENT
2	Book2.csv	SENT

Query Details

Query duration 1.5s

Rows 2

Query ID 01b08a32-3200-f163-0...

• Now data getting loaded into the book_table

Worksheets roles and permissions file format and external table json data external stage data loading internal stage Time travel, cloning and ca... streams and tasks +

Databases Worksheets

SYSDADMIN VEDA_WH Share

TRAINING.PUBLIC Settings

```

39
40
41
42
43
44
45 select * from book_table_1;
46
47 select system$pipe_status('book_pipe');
48
49 alter pipe book_pipe refresh;
50
51
52 CREATE OR REPLACE TASK pipe_task

```

Results Chart

	ID	NAME	CATEGORY
1	6	juba	hardwork
2	7	salnath	curious
3	8	devi	calm
4	9	chandu	beauty

Query Details

Query duration 1.7s

Rows 10

Query ID 01b08a38-3200-f14b-0...

Status of pipe is in running state

Worksheets

roles and permissions

file format and external table

json data external stage

data loading internal stage

Time travel, cloning and ca...

streams and tasks

Databases

Worksheets

Pinned (0)

No pinned objects

Q Search objects

CLONE_DATABASE

SNOWFLAKE

SNOWFLAKE_SAMPLE_DATA

TEST1_DB

TEST2_DB

TRAINING

VEDA_DB

TRAINING.PUBLIC

Settings

Code Versions

Q

39

40

41

42

43

44

45

46

47

48

49

50

51

52

select * from book_table_1;

select system\$pipe_status('book_pipe');

alter pipe book_pipe refresh;

alter pipe book_pipe set pipe_execution_Paused = true

alter pipe book_pipe set pipe_execution_Paused = false

Results

Chart

Q

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SYSTEM\$PIPE_STATUS('BOOK_PIPE')

1	("executionState":"RUNNING","pendingFileCount":0,"lastingestedTimestamp":"2023-11-23T05:11:00.604Z",
---	--

Query Details

...

Query duration

45ms

Rows

1

Query ID

01b08a3a-3200-f163-0...

Now I am pausing the pipe

Worksheets

roles and permissions

file format and external table

json data external stage

data loading internal stage

Time travel, cloning and ca...

streams and tasks

Databases

Worksheets

Pinned (0)

No pinned objects

Q Search objects

CLONE_DATABASE

SNOWFLAKE

SNOWFLAKE_SAMPLE_DATA

TEST1_DB

TEST2_DB

TRAINING

VEDA_DB

TRAINING.PUBLIC

Settings

Code Versions

Q

39

40

41

42

43

44

45

46

47

48

49

50

51

52

select * from book_table_1;

select system\$pipe_status('book_pipe');

alter pipe book_pipe refresh;

alter pipe book_pipe set pipe_execution_Paused = true

alter pipe book_pipe set pipe_execution_Paused = false

Results

Chart

Q

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SYSTEM\$PIPE_STATUS('BOOK_PIPE')

1	("executionState":"PAUSED","pendingFileCount":0,"lastingestedTimestamp":"2023-11-23T05:11:00.604Z",
---	---

Query Details

...

Query duration

44ms

Rows

1

Query ID

01b08a3b-3200-f14b-0...