VIRTUAL HANDS-ON LAB

ADVANCE YOUR ANALYTICS WITH SNOWFLAKE AND TABLEAU

To participate in the virtual hands-on lab please login to your Snowflake Account and Open Tableau Desktop.

HANDS-ON LAB SET UP

- Sign-in to your Snowflake free trial account. URL looks something like: https://XY12345.snowflakecomputing.com
- If you have not already signed up for a free trial account, sign up here:
  - https://trial.snowflake.com
  - Please select the region closest to you and the Enterprise Edition
- Open Tableau Desktop
- Install Tableau ODBC Drivers for Snowflake
  - https://sfc-repo.snowflakecomputing.com/odbc/index.html
- Download files from On24 resource section
  - SQL script - .sql file - Required

MEET TODAY'S HANDS-ON LAB LEADERS

David Spezia
Sales Engineer

Chris Richardson
Sales Engineer

Jeremy Patoc
Sales Engineer

WHAT WE'LL COVER TODAY

> Snowflake Query History

> Load Tableau Server JSON data into cloud storage and then perform SQL queries directly with Snowflake

> Load data into Snowflake

> Prepare and optimize data for analytics

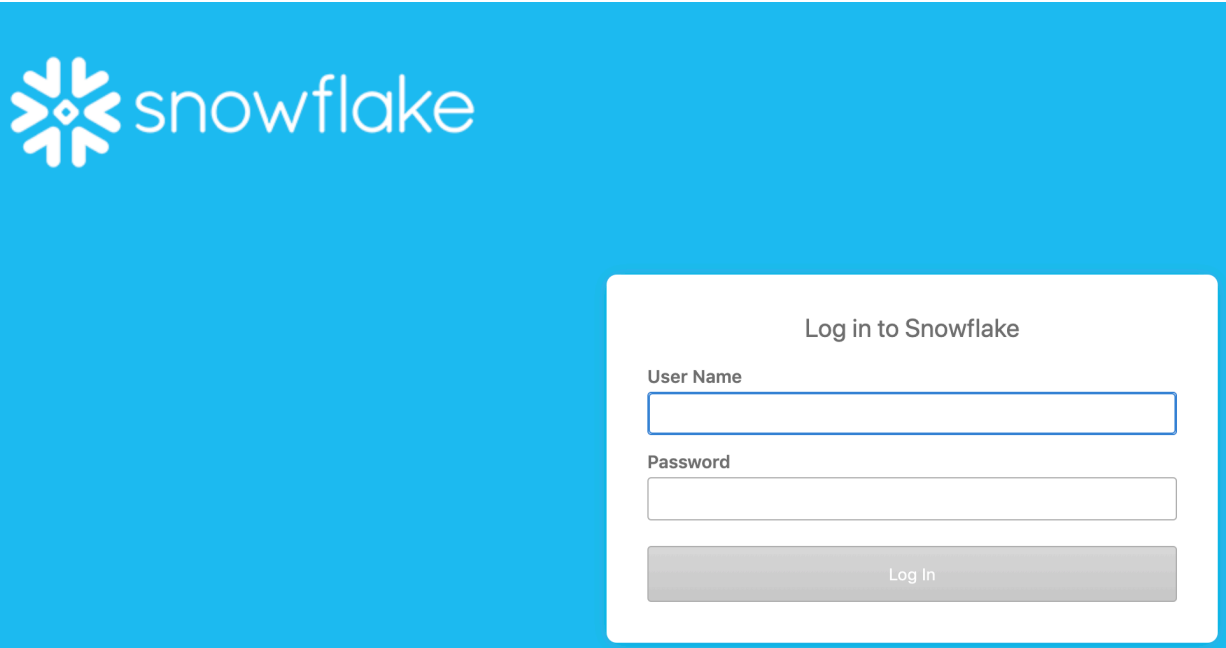
> Configure Tableau and connect to Snowflake

> Use Tableau to query semi-structured data, tables, views, and aggregations

> Q&A

LET’S DIVE IN

Sign in to Your Snowflake Account



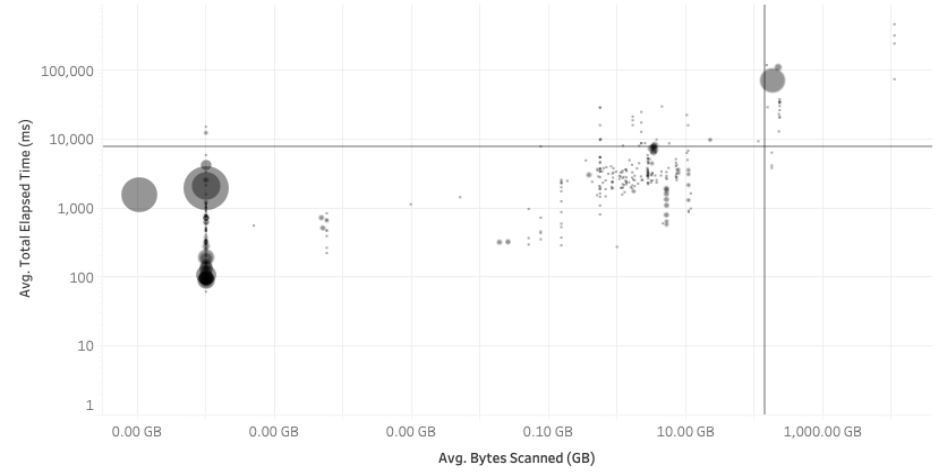
Section I
Query History

SELECT Queries Since Sept-06 | SQID = Select Query by ID | SQT = Select Query by Query Text

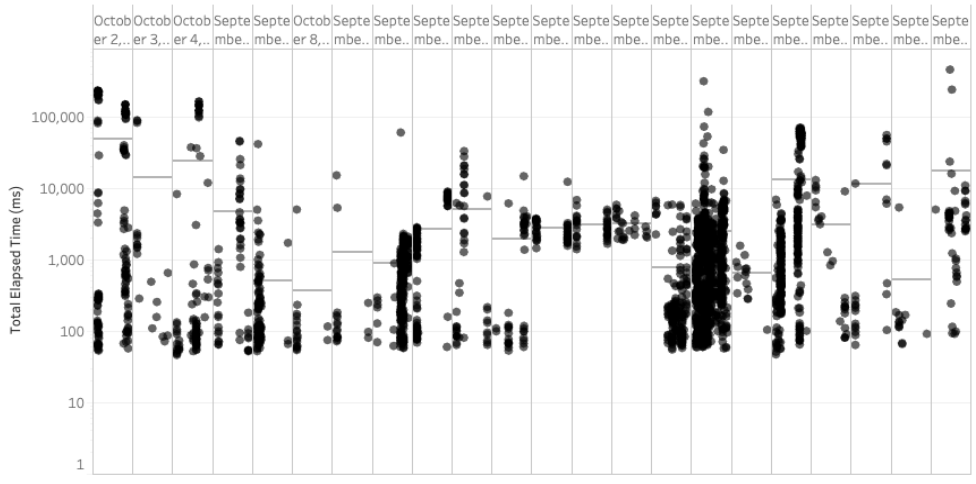
87,616.78 GB	2,762	338:22.203	0:07.735
Total GB Scanned	*Total Queries*	*Total Query Time (MM:SS.000)*	*Avg Query Time (MM:SS.000)*

Query Test Number: (All)

SQT by Elapsed & Bytes - *click to filter*

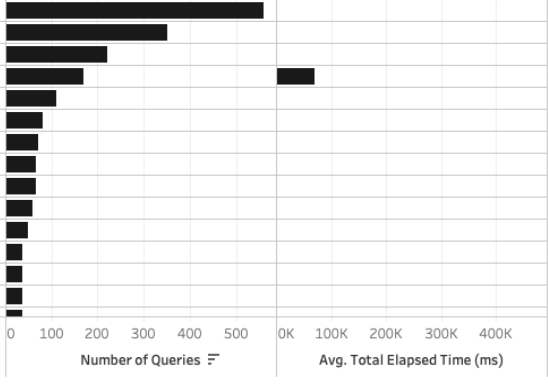


SQID Over Time



SQT Number & Elapsed - *click to filter*

Query Text	Query Test Number
SELECT DISTINCT COUNT(..	NO TEST INDENTIFIED IN ..
select max(id) from COUN..	NO TEST INDENTIFIED IN ..
select distinct count(*) fr..	NO TEST INDENTIFIED IN ..
SELECT SUM(1) AS "sum:..	NO TEST INDENTIFIED IN ..
SELECT SYSTEM$BOOTST..	NO TEST INDENTIFIED IN ..
select 1;	NO TEST INDENTIFIED IN ..
select system$list_outbo..	NO TEST INDENTIFIED IN ..
SELECT CAST('test unicod..	NO TEST INDENTIFIED IN ..
SELECT CAST('test plain r..	NO TEST INDENTIFIED IN ..
SELECT SF_ALL_PRIVILEG..	NO TEST INDENTIFIED IN ..
SELECT CURRENT_AVAILA..	NO TEST INDENTIFIED IN ..
SELECT ENTITY_DETAIL(?,..	NO TEST INDENTIFIED IN ..
SELECT system$GET_NPS..	NO TEST INDENTIFIED IN ..
SELECT SYSTEM$SHOW_..	NO TEST INDENTIFIED IN ..



SQID Gantt

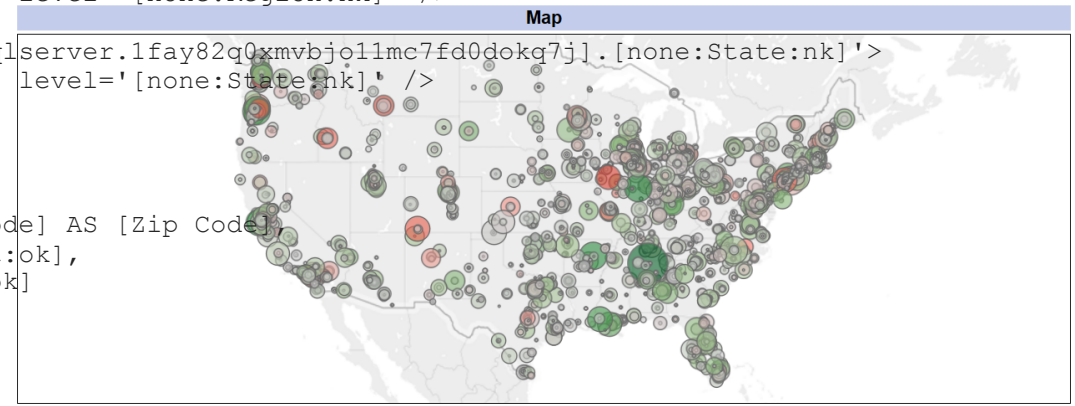
Total Elaps..	Total Time (..
61,475	1:01.614
46,881	0:46.468
45,927	0:45.459
42,392	0:42.423
33,775	0:33.337
28,298	0:28.282
26,045	0:26.260
21,523	0:21.215
21,292	0:21.212
21,000	0:21.210
18,871	0:18.188
15,989	0:15.159
15,988	0:15.159
15,474	0:15.154
15,046	0:15.150
13,924	0:13.139
12,789	0:12.127

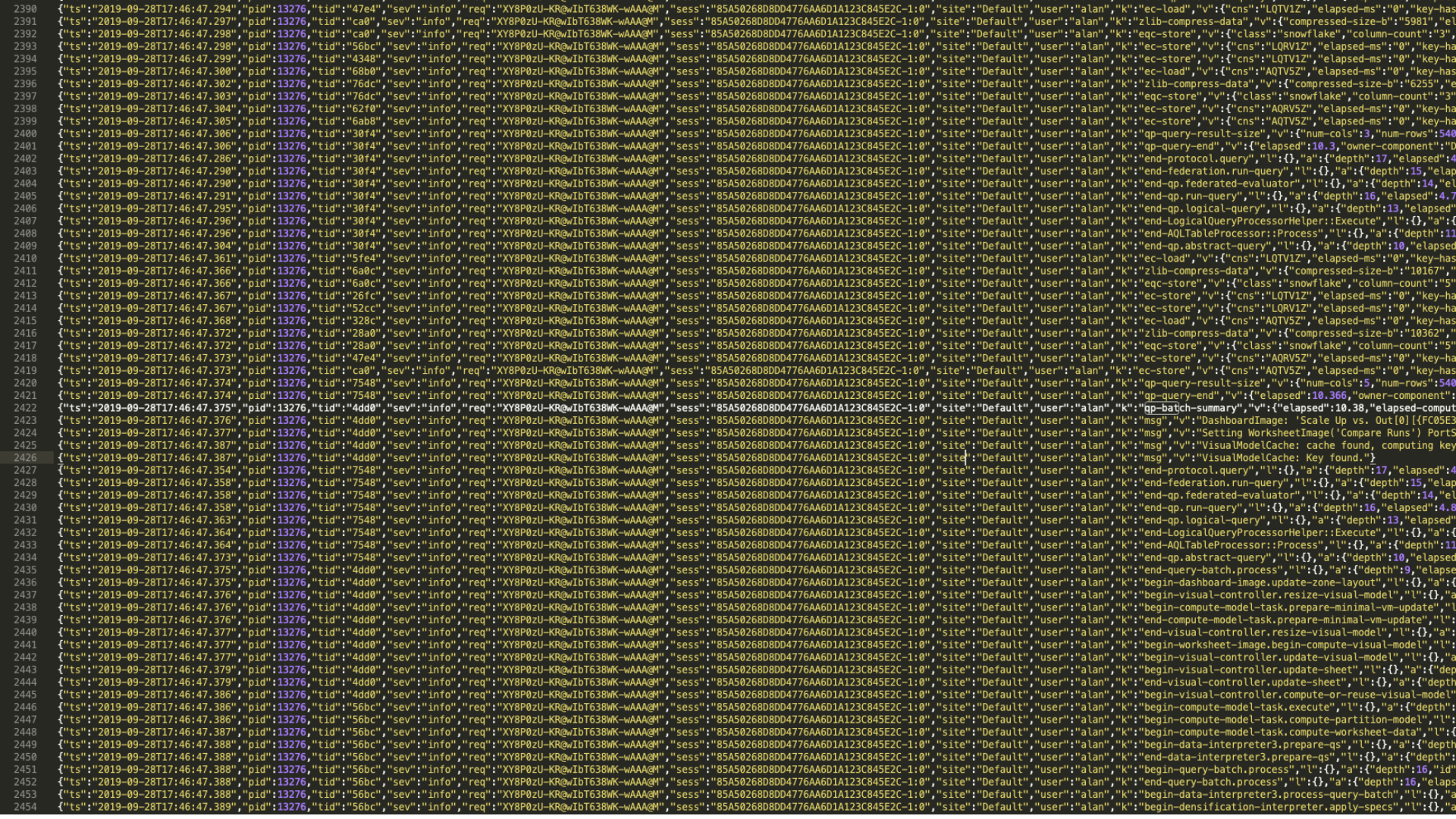
Section II
Tableau Server JSON

Query from UX

```
cache-hit: none
elapsed: 0.266
owner-component: DataInterpreter
owner-dashboard: Dashboard
owner-worksheet: Map
protocol-id: 3
query-abstract: <query aggregation='true' caching='normal' hierarchize-rows='false' include-empty='false'>
  <fields>
    <field column='[sqlserver.1fay82q0xmvbjo11mc7fd0dokq7j].[none:Zip Code:ok]' />
    <output column='[sqlserver.1fay82q0xmvbjo11mc7fd0dokq7j].[none:Zip Code:ok]' />
    <output column='[sqlserver.1fay82q0xmvbjo11mc7fd0dokq7j].[sum:Profit:qk]' />
    <output column='[sqlserver.1fay82q0xmvbjo11mc7fd0dokq7j].[sum:Sales:qk]' />
    <filter class='categorical' column='[sqlserver.1fay82q0xmvbjo11mc7fd0dokq7j].[none:Region:nk]'>
      <groupfilter function='level-members' level='[none:Region:nk]' />
    </filter>
    <filter class='categorical' column='[sqlserver.1fay82q0xmvbjo11mc7fd0dokq7j].[none:State:nk]'>
      <groupfilter function='level-members' level='[none:State:nk]' />
    </filter>
  </fields>
</query>

query-compiled: SELECT [tbl_Orders].[Zip Code] AS [Zip Code],
  SUM([tbl_Orders].[Profit]) AS [sum:Profit:ok],
  SUM([tbl_Orders].[Sales]) AS [sum:Sales:ok]
FROM [dbo].[tbl_Orders] [tbl_Orders]
GROUP BY [tbl_Orders].[Zip Code]
query-id: 3
```





QPBS – Logical Structure

Header	“ts”:”timestamp”, “pid”:”process id”, “tid”:”thread id”, “sev”:”severity”, “req”:”request”, “sess”:”session”, “site”:”site”, “user”:”user”, “k”:”key”, “v”:”value”
S	Summary
Q	Queries

QPBS – Logical Structure

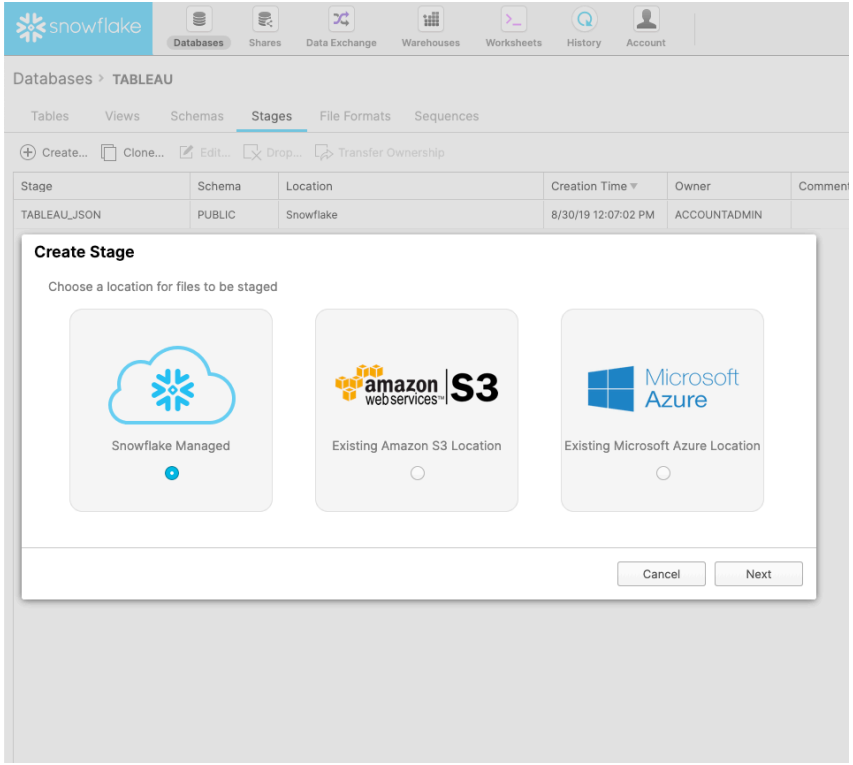
Header	“ts”, “pid”, “tid”, “sev”, “req”, “sess”, “site”, “user”, “k”, “v”
Summary	“elapsed:” net time in second to complete the entire query batch max(ts) – min(ts) “elapsed-compute-keys:” net time in seconds to compute and store cache keys “elapsed-sum:” gross time in seconds to complete entire query batch Σ elapsed query 1 to N “job-count:” integer number of jobs in the query batch complexity
Q	Queries

QPBS – Logical Structure

H	“ts”, “pid”, “tid”, “sev”, “req”, “sess”, “site”, “user”, “k”, “v”
S	“elapsed:”, “elapsed-compute-keys:”, “elapsed-sum:”, “job-count:”
Queries 1 to N	“cache-hit:” type of cache hit including none “elapsed:” time in seconds to run the query “owner-component:” whether data or quick filters own the query “owner-dashboard:” name of dashboard owner of the query “owner-worksheet:” name of sheet owner of the query (alpha first if mult) “protocol-id:” protocol server used to run the query “query-abstract:” XML abstraction of the query “query-compiled:” physical query in native DB syntax “query-id:” id of the query in the batch stating with 0 to N

Section III
Put JSON into Cloud Bucket

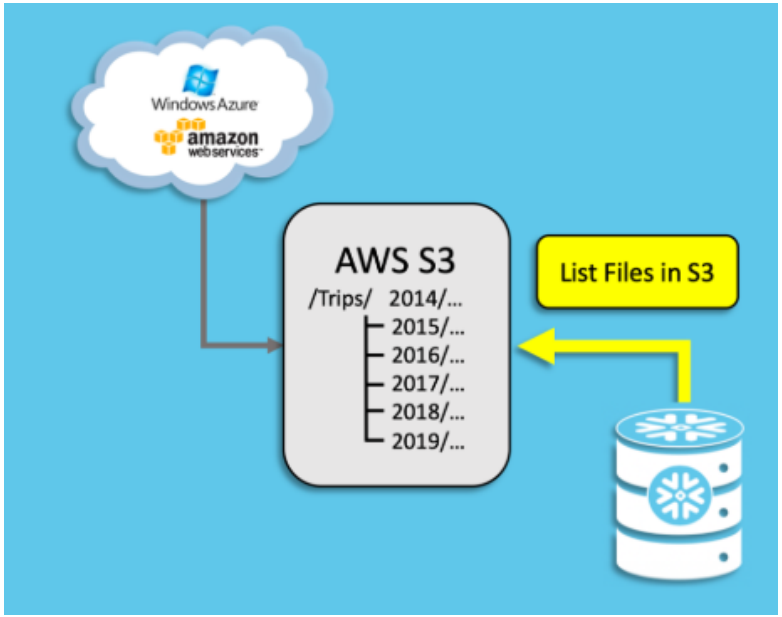
STAGE



PUT into Stage from SnowSQL

```
USE DATABASE TABLEAU;
USE SCHEMA TABLEAU;
Put
    file:///Path/Dir/VizQL_Lumberjack/SpecificTr
    ansactions.json @TABLEAU_JSON;
```

QUERY FROM STAGE



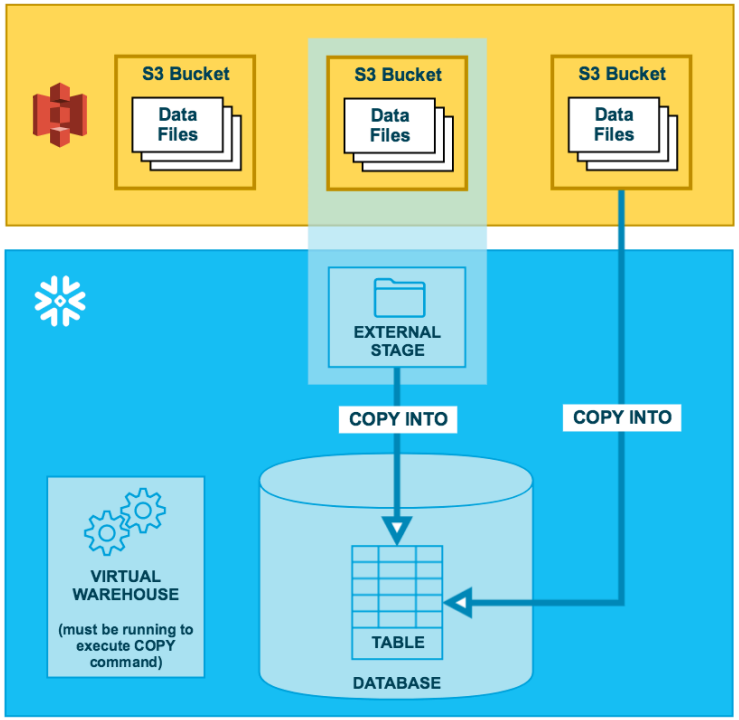
CODE

```
show stages;


ls @TABLEAU_JSON;


select $1 from
    @TABLEAU_JSON/nativeapi_vizqlserver_1
    -0_2019_09_28_00_00_00.json (file_format
    => json) limit 1;
```

EXTERNAL TABLE

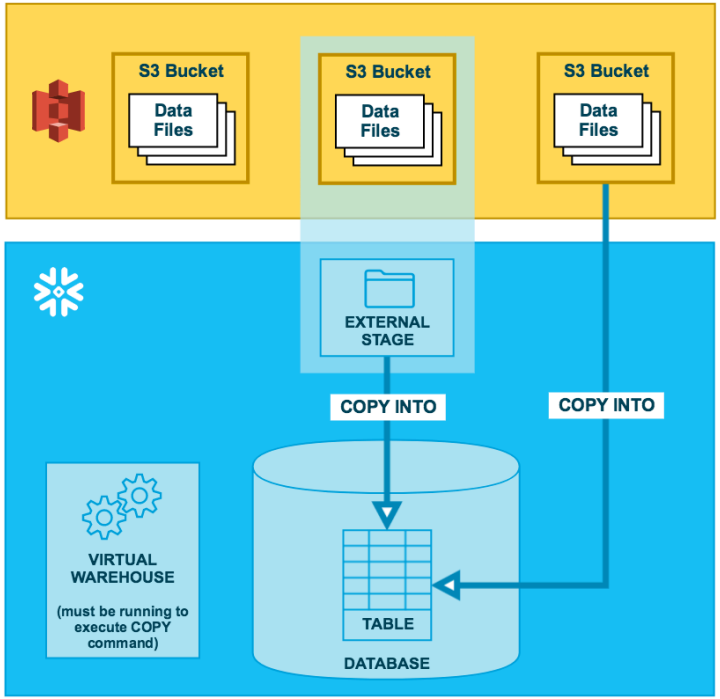


CODE

```
create or replace external table exttbl_Test(
    timestamp timestamp_ltz(9) as (current_timestamp),
    date date as to_date($1:ts::timestamp),
    time time as to_time($1:ts::timestamp),
    req string as ($1:req::string),
    sess string as ($1:sess::string),
    site string as ($1:site::string))
Auto_Refresh = False -- Would be True for SQS after PUT
Location = @TABLEAU_JSON/
File_Format = (type = json, File_Extension = 'json');
```

Section IV
COPY INTO Snowflake

COPY INTO



CODE

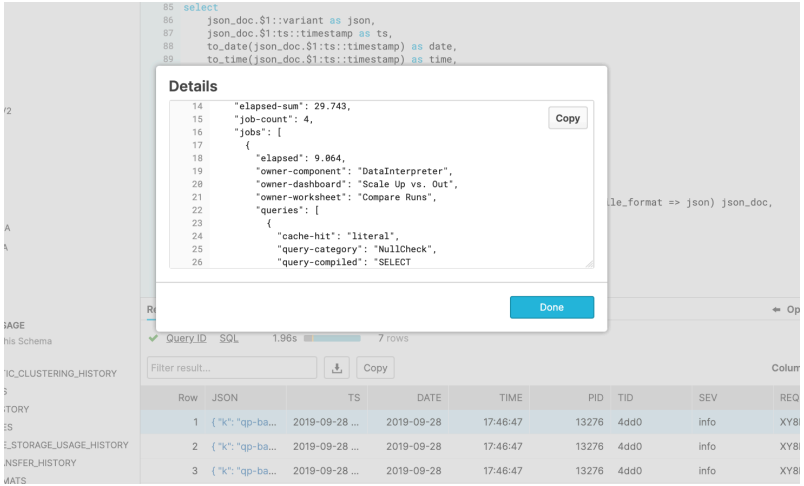
```
create or replace sequence counter start = 1
    increment = 1;


create or replace table stg_Logs (
    id_json number,
    log_json variant,
    dts_json timestamp_ltz(9)
);


copy into stg_Logs FROM (select
    counter.nextval, $1, current_timestamp from
    @TABLEAU_JSON/ (file_format => json))
    on_error = skip_file;
```

Section V
Prepare JSON for Analytics

OPTIONAL FLATTEN



CODE

```
from
    @TABLEAU_JSON/nativeapi_vizqlserver_1
    -0_2019_09_28_00_00_00.json (file_format
    => json) json_doc,

  lateral flatten(input =>
   parse_json(json_doc.$1:v:jobs)) jobs,

  lateral flatten(input =>
   parse_json(jobs.value:queries)) queries
```

OPTIONAL MV

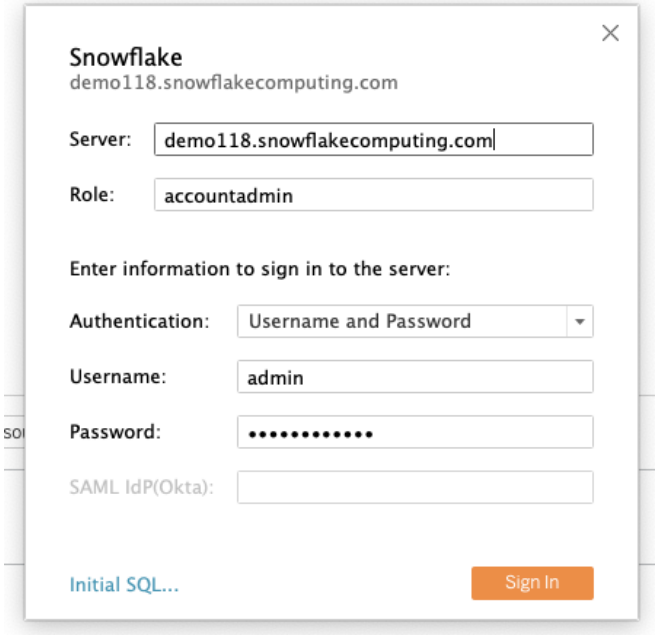
CODE

```
create or replace materialized view
    mv_Snowjack_Sessions
    (User, Session, Start_Time, End_Time,
    Queries)
as
    SELECT User, Sess as Session, MIN(TS) as
    Start_Time, MAX(TS) as End_Time,
    COUNT(query_subid) as Queries
    FROM tbl_Snowjack GROUP BY User,
    Sess;


select *,
    TIMESTAMPDIFF(seconds,Start_Time,End
    _Time) As Duration from
    mv_Snowjack_Sessions;
```

Section VI
Connect Tableau to Snowflake

Connection Window



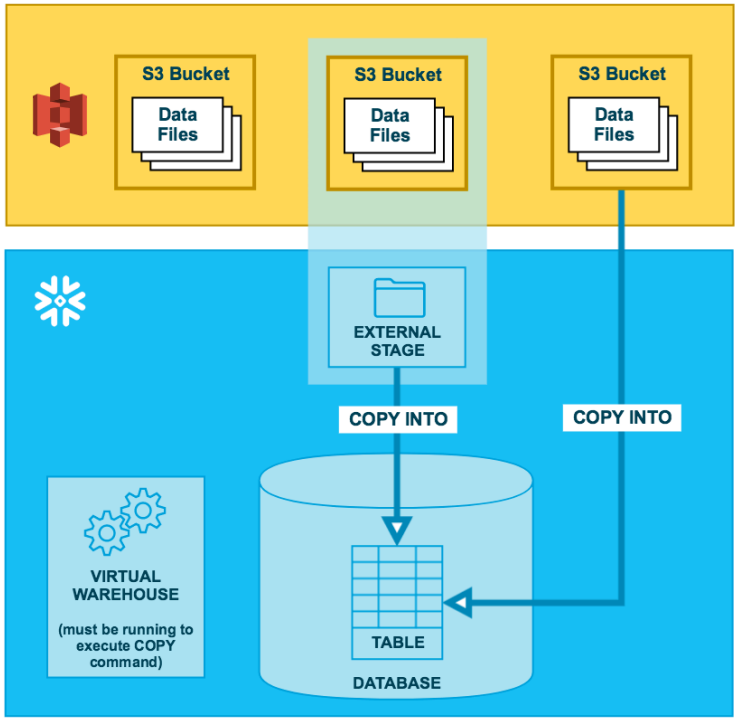
Custom SQL

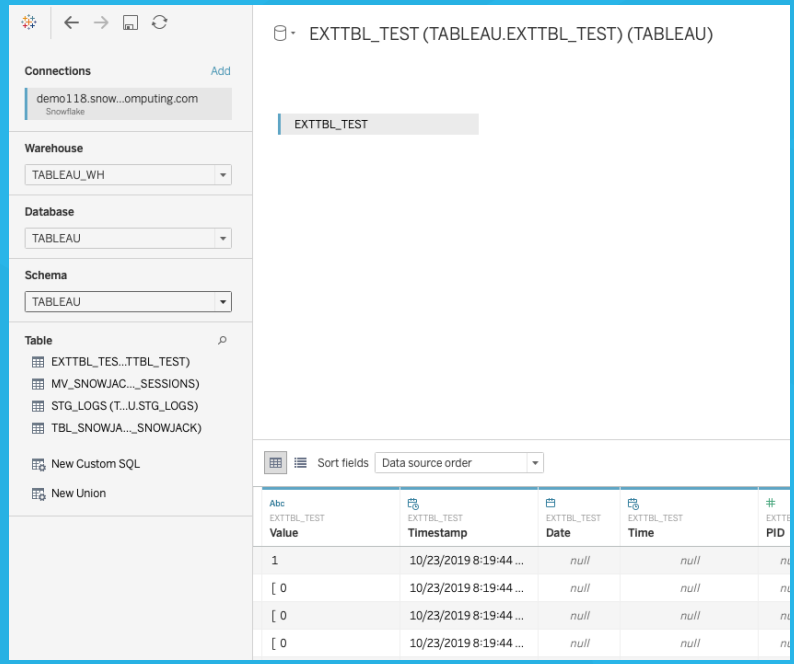
Tables

Views

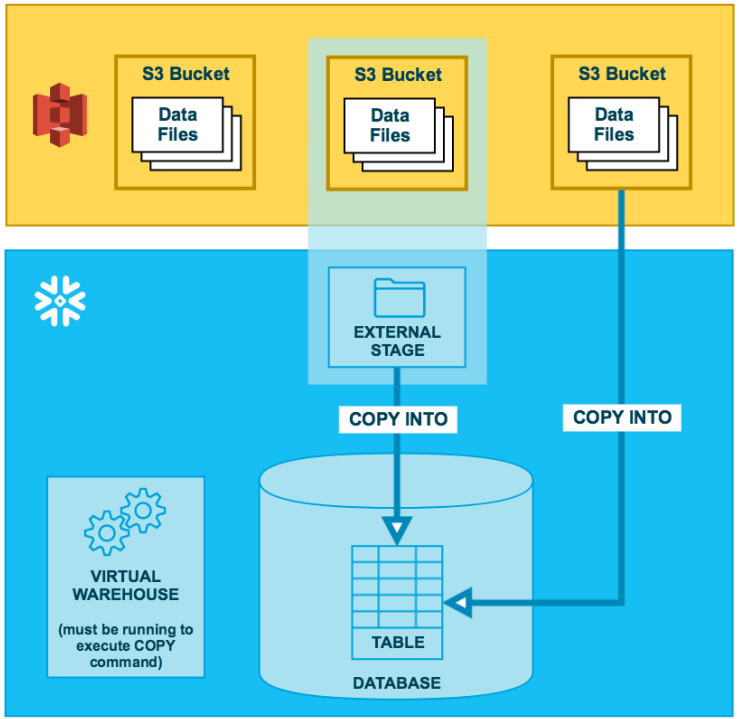
Section VII
Query Snowflake with Tableau

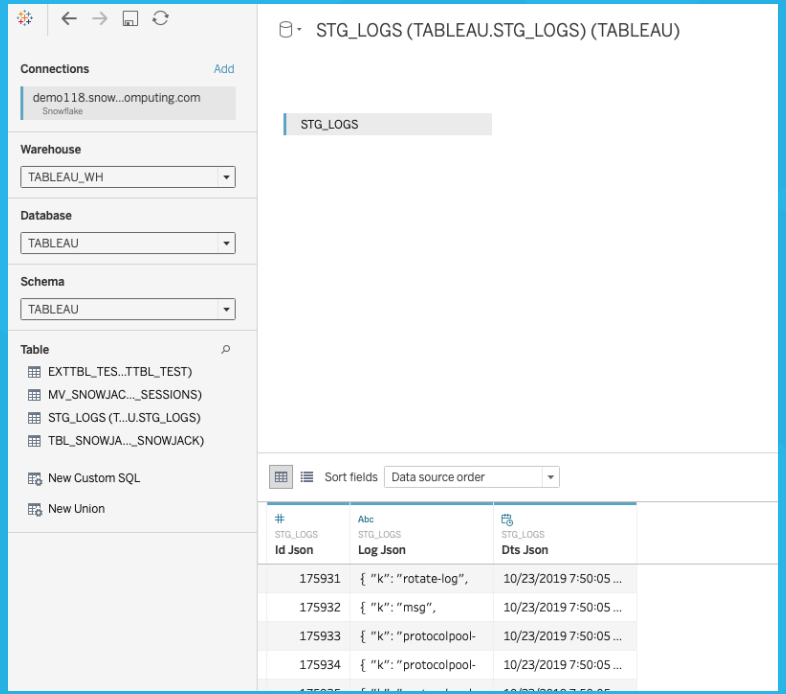
External Table



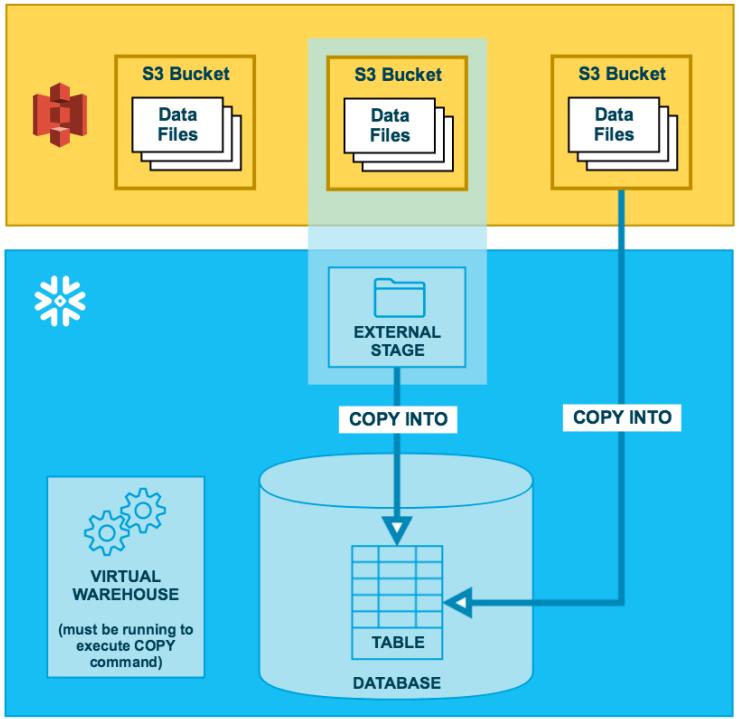


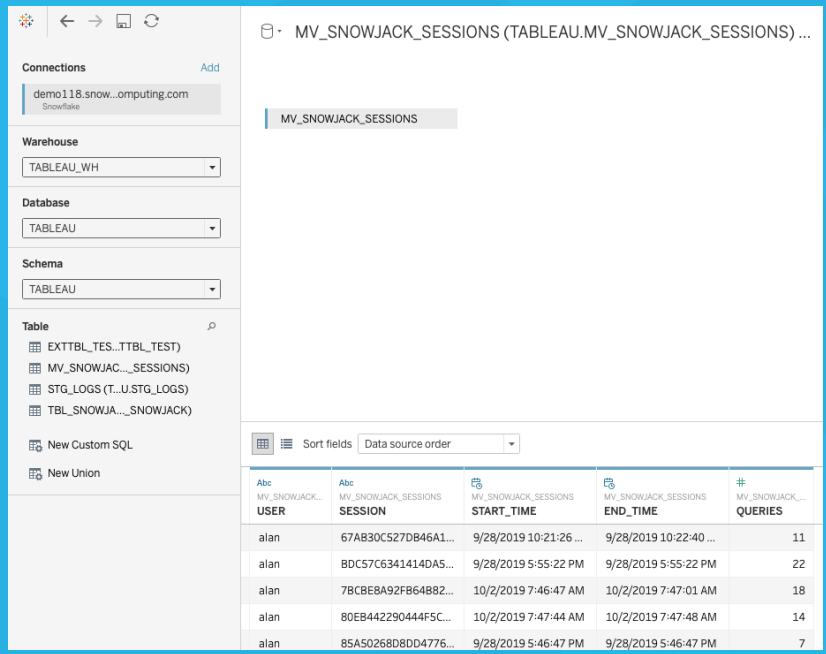
Table





Materialized View





Section VIII
Conclusion

Conclusion

- At the very top of the UI click on the “Partner Connect” icon to get access to trial/free ETL and Other tools to help you get more data into Snowflake and then analyze it.

- Read the “Definitive Guide to Maximizing Your Free Trial” document at: https://www.snowflake.com/test-driving-snowflake-the-definitive-guide-to-maximizing-your-free-trial/

- Attend a Snowflake virtual or in-person event to learn more about our capabilities and how customers use us: https://www.snowflake.com/about/events/

- Read the “Best Practices for Using Tableau with Snowflake” Whitepaper: https://resources.snowflake.com/ebooks/best-practices-for-using-tableau-with-snowflake

- See Us at our Tableau Conference Booth

THANK YOU

snowflake.com/contact