

# Snowflake Foundation Experiments 1-10 Overview

This series of experiments introduces you to the user interface and capabilities of Snowflake, and is designed specifically for use with the Snowflake, free 30-day trial at <https://trial.snowflake.com>. When done with the experiment you will be ready to load your own data into Snowflake and use its more advanced capabilities.

## Target Audience

Database and Data Warehouse Administrators and Architects

## What you'll learn

The tasks in this series of experiments will walk you through the steps to:

- Create stages, databases, tables, views, and warehouses
- Load structured and semi-structured data
- Query data including joins between tables
- Clone objects
- Undo user errors
- Create roles and users, and grant them privileges
- Securely and easily share data with other accounts



**Remember that these experiments are for your benefit. Like TSA, if you see something, say something. We want to make sure that you have the best experience possible in this session and with these experiments. Thank you for active participation. 😊**

## Experiment 1: Snowflake Foundation

### 1.1 Steps to Prepare Your Experiment Environment

1.1.1 If not yet done, register for a Snowflake free 30-day trial at <https://trial.snowflake.com>. This is outlined in the Experiment 00-Getting-Started, as well. Remember that if you are in a China location you will have to be in VPN to another region, Hong Kong office or other to be able to successfully provision your Snowflake account.

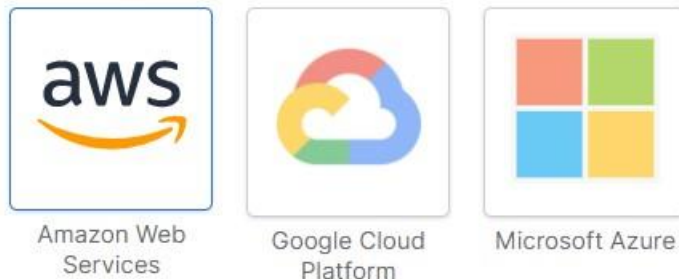
- We chose the following

- Snowflake edition – Enterprise
- Snowflake cloud provider – AWS
- Region – Northern Virginia – US EAST

Choose your Snowflake edition\*

- ☐ **Standard**  
A strong balance between features, level of support, and cost.
- ☒ **Enterprise**  
Standard plus 90-day time travel, multi-cluster warehouses, and materialized views.
- ☐ **Business Critical**  
Enterprise plus enhanced security, data protection, and database failover/fallback.

Choose your cloud provider\*



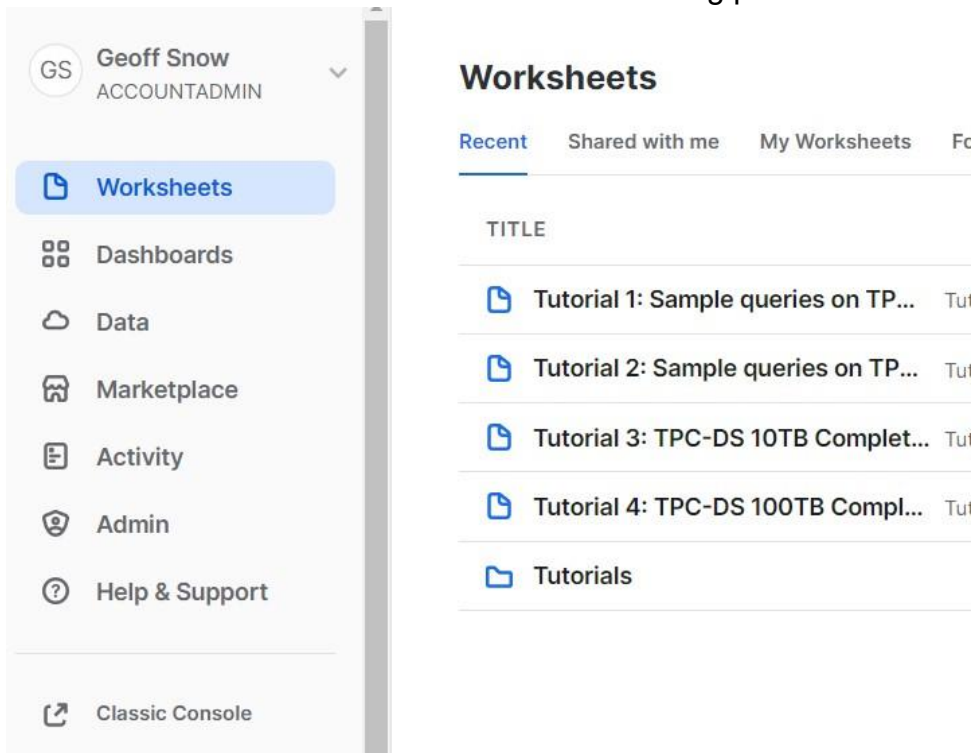
US East (Northern Virginia) ▼

- ☒ Check here to indicate that you have read and agree to the terms of the [Snowflake Self Service On Demand Terms](#).

**GET STARTED**

- After registering, you will receive an email with an activation link and your Snowflake account URL. Bookmark this URL for easy, future access. After activation, you will create a user name and password. Write down these credentials. If you forget your URL you can always login through <https://app.snowflake.com/>

- 1.1.2 Resize your browser windows so you can view this experiment guide PDF and your web browser side-by-side to more easily follow the experiment instructions. If possible, use a secondary display dedicated to the experiment guide.
- 1.1.3 Open your snowflake environment, remember this is SaaS so you'll be logging into the Snowflake Management console application. Optimistically you bookmarked that account link but you can navigate to the login from **snowflakecomputing.com**, as well. 1.1.4 Select Classic Console in the lower left hand dialog pane view



1.1.5 We'll select Worksheets from the navigation to do a little initial exploration

1.1.6 To use a database, we'll enter the SQL command

```
use database snowflake_sample_data;
```

2023-07-17 10:07am + PREVIEW

ACCOUNTADMIN • COMPUTE\_WH Share

SNOWFLAKE\_SAMPLE\_DATA.TPCDS\_SF100TCL Settings Latest Version

```

1 use database SNOWFLAKE_SAMPLE_DATA;
2
3 use schema tpcds_sf100tcl;
4
5 select cc_name, cc_manager from call_center;
6

```

Results Chart

status
1 Statement executed successfully.

Query Details

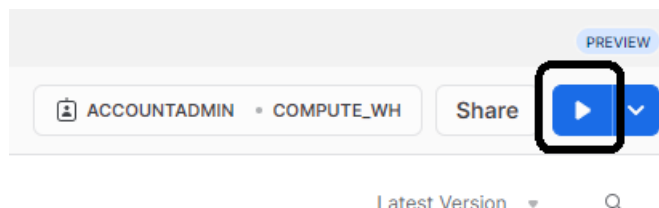
Query duration 86ms

Rows 1

Query ID [01adbe59-0001-3413-0...](#)

status

1.1.7 To execute the command we highlight the line of SQL and select the **Run** Arrow button



1.1.8 This allows us to see the query results and the dynamic query performance details.

Query Details

Query duration 86ms

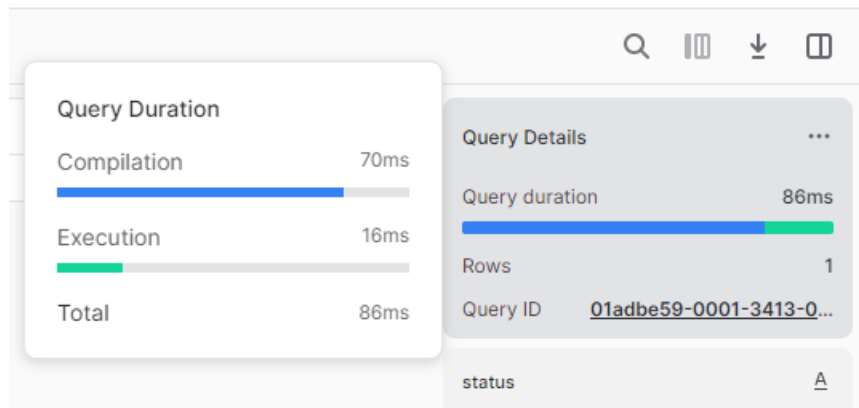
Rows 1

Query ID [01adbe59-0001-3413-0...](#)

status

1.1.9 Selecting **Run** again in the dialog presented allows us to execute the same SQL command. This would allow us to identify the effect of the statement execution on

caching and other Snowflake optimizations. Note that we can hover the Query duration to see the breakdown of the query Compilation and Execution timing.



1.1.10 We can then select the schema for our worksheet session by entering the SQL command

```
use schema  
TPCDS_SF100TCL;
```

1.1.10 Highlight that SQL, and select Run to execute our choice of schema at that point we can run queries that don't have the database and schema qualifiers like

```
select cc_name,cc_manager from call_center;
```

1.1.11 Highlighting that SQL and running it shows us the results

SNOWFLAKE\_SAMPLE\_DATA.TPCDS\_SF100TCL Settings

```

1 use database SNOWFLAKE_SAMPLE_DATA;
2
3 use schema tpcds_sf100tcl;
4
5 select cc_name, cc_manager from call_center;
6

```

Results Chart

	CC_NAME	CC_MANAGER
1	NY Metro	Bob Belcher
2	Mid Atlantic	Felipe Perkins
3	Mid Atlantic	Mark Hightower
4	North Midwest	Larry Mccray
5	North Midwest	Larry Mccray
6	North Midwest	Larry Mccray
7	Pacific Northwest	Alden Snyder
8	California	Wayne Ray
9	California	Wayne Ray

Query Details

Query duration

Rows

Query ID [01adbe83-0001-3413](#)

CC\_NAME

North Midwest

Hawaii/Alaska

North Midwest\_1

+ 27 more

1.1.11 Next, we'll expand the Tables under the SNOWFLAKE\_SAMPLE\_DATA database and TPCDS\_SF100TCL schema. Select the CALL\_CENTER table.

Databases Worksheets

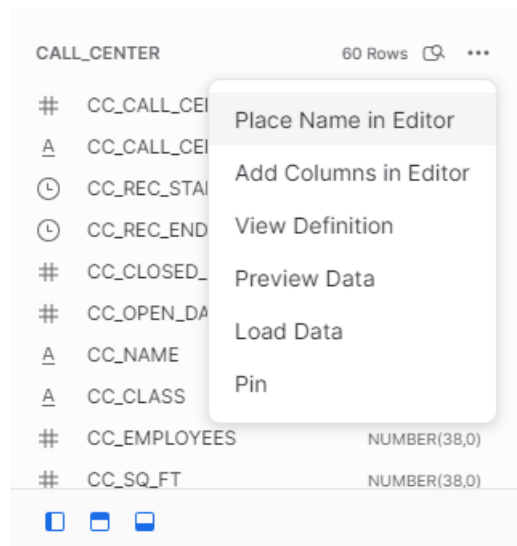
Pinned (0)

No pinned objects

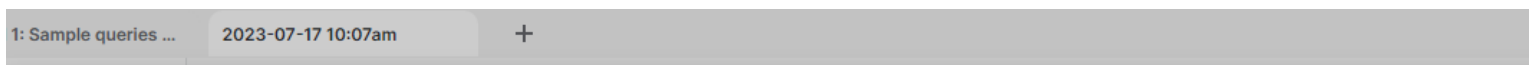
Search All Objects

- SNOWFLAKE
- SNOWFLAKE\_SAMPLE\_DATA
  - INFORMATION\_SCHEMA
  - TPCDS\_SF100TCL
    - Tables
      - CALL\_CENTER
      - CATALOG\_PAGE

1.1.12 The definition will come up in the pane below the Table selection. Select the ellipses ... next to the CALL\_CENTER table name and choose **Preview Data**



1.1.13 That displays the preview of the data in the CALL\_CENTER table



#### Data Preview

	CC_CALL_CENTER_SK	CC_CALL_CENTER_ID	CC_REC_START_DATE	CC_REC_END_DATE	CC_CLOSED_DATE_SK	C
1	1	AAAAAAAAABAAAAAA	1998-01-01	null	null	
2	2	AAAAAAAACAAAAAA	1998-01-01	2000-12-31	null	
3	3	AAAAAAAACAAAAAA	2001-01-01	null	null	
4	4	AAAAAAAEEAAAAAA	1998-01-01	2000-01-01	null	
5	5	AAAAAAAEEAAAAAA	2000-01-02	2001-12-31	null	
6	6	AAAAAAAEEAAAAAA	2002-01-01	null	null	
7	7	AAAAAAAHAAAAAAA	1998-01-01	null	null	
8	8	AAAAAAAIAAAAAAA	1998-01-01	2000-12-31	null	

1.1.14 Next we'll select Data -> Databases in the navigation. This displays the top-level details for the databases in our Trial Account.

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Worksheets

Dashboards

Apps

Data

Databases

Private Sharing

Provider Studio

Governance

Search

SNOWFLAKE

SNOWFLAKE\_SAMPLE\_DATA

Databases

2 Databases

NAME ↑

SNOWFLAKE

SNOWFLAKE\_SAMPLE\_DATA

1.1.15 You can also preview data by navigating through the search for data.

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Worksheets

Dashboards

Apps

Data

Databases

Private Sharing

Provider Studio

Governance

Marketplace

Activity

Search

SNOWFLAKE

SNOWFLAKE\_SAMPLE\_DATA

INFORMATION\_SCHEMA

TPCDS\_SF100TCL

Tables

CALL\_CENTER

CATALOG\_PAGE

CATALOG\_RETURNS

CATALOG\_SALES

CUSTOMER

CUSTOMER\_ADDRESS

CUSTOMER\_DEMOGRAP...

DATE\_DIM

HOUSEHOLD\_DEMOGRAP...

HOUSEHOLD\_DEMOGRAP...

SNOWFLAKE\_SAMPLE\_DATA / TPCDS\_SF100TCL / CALL\_CENTER

Table 1 year ago 60 18.5KB

Table Details Columns Data Preview Copy History

COMPUTE\_WH

60 Rows • Updated just now

	CC_CALL_CENTER_SK	CC_CALL_CENTER_ID	CC_REC_START_DATE	CC_REC_END_DATE
1	1	AAAAAAAAABAAAAAAA	1998-01-01	null
2	2	AAAAAAAAACAAAAAAA	1998-01-01	2000-12-31
3	3	AAAAAAAAADAAAAAAA	2001-01-01	null
4	4	AAAAAAAAAEAAAAAAA	1998-01-01	2000-01-01
5	5	AAAAAAAAAFAAAAAAA	2000-01-02	2001-12-31
6	6	AAAAAAAAAGAAAAAAA	2002-01-01	null
7	7	AAAAAAAAAHAAAAAAA	1998-01-01	null
8	8	AAAAAAAAAIAAAAAAA	1998-01-01	null
9	9	AAAAAAAAAJAAAAAAA	1998-01-01	null
10	10	AAAAAAAAAKAAAAAAA	1998-01-01	null

1.1.16 Select the SNOWFLAKE\_SAMPLE\_DATA under the Database column. Then select a Table column header and choose Sort by Ascending



## SNOWFLAKE\_SAMPLE\_DATA / TPCDS\_SF100TCL / CALL\_CENTER

Table 1 year ago 60 18.5KB

Table Details Columns **Data Preview** Copy History

• COMPUTE\_WH 60 Rows • Updated 1 minute ago

	CC_CALL_CENTER_SK	CC_CALL_CENTER_ID	CC_REC_START_DATE	CC_REC_END_DATE
1	1	AAAAAAAAABAAAAAA	1998-01-01	null
2	2	AAAAAAAACAAAAAA	1998-01-01	2000-12-31

We may have noticed that we have two CALL\_CENTER tables, in our the SNOWFLAKE\_SAMPLE\_DATA, and looking further that they're in different schemas (although the names are very similar). In our worksheet we've been using the TPCDS\_SF100TCL schema.

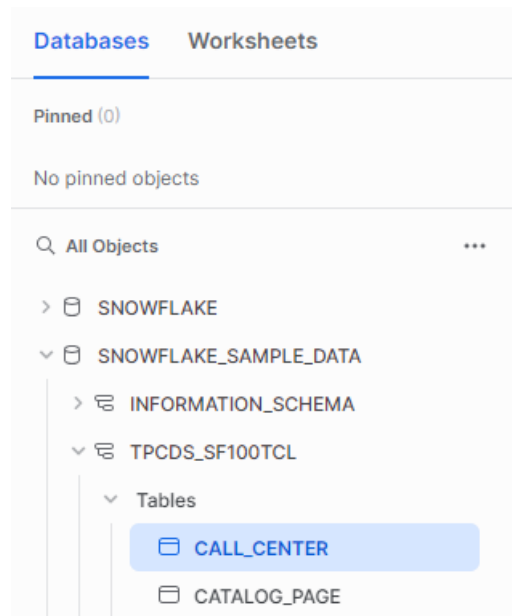
1.1.17 Notice that we have only 60 Rows in our CALL\_CENTER table, but there are tables with significantly more like CATALOG\_SALES with more than 14 billion rows. You'll also notice that we have those noted in G for Billions.



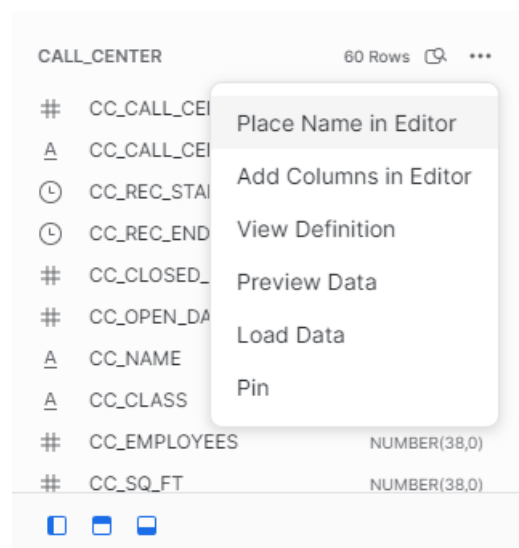
### Query execution

Queries will fail when there are syntax issues. That's a good thing, since when we break things we learn from that experience. When that occurs don't hesitate to correct and try again or ask for help.

1.1.18 Select the CALL\_CENTER Table Name for the TPCDS\_SF100TCL schema. This will show us the details of that table as shown.



1.1.19 Navigate back to the Worksheets view. From there, select the ellipses for **CALL\_CENTER** and choose **View Details**. The following view is shown noting the column details for the table.



1.1.20 Notice that there is a slider for Data Details in the Data Preview pane. Change the slide to **Data** from Details. Note the preview of the data in the **CALL\_CENTER** table.

Results **Data Preview**

Table: SNOWFLAKE\_SAMPLE\_DATA.TPCDS\_SF100TCL.CALL\_CENTER Data Details

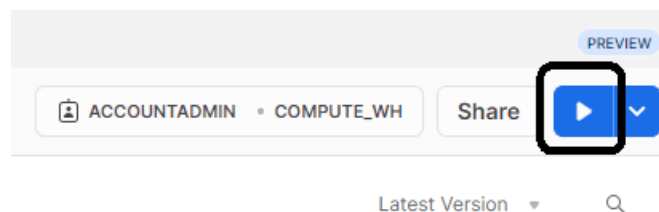
Filter result...

Row	CC_CALL_CENT	CC_CALL_CENT	CC_REC_START	CC_REC_END_D	CC_CLOSED_D
1	1	AAAAAAAAB...	1998-01-01		
2	2	AAAAAAA...	1998-01-01	2000-12-31	
3	3	AAAAAAA...	2001-01-01		
4	4	AAAAAAA...	1998-01-01	2000-01-01	
5	5	AAAAAAA...	2000-01-01	2001-12-31	

1.1.21 Now enter the following fully qualified SQL statement

```
select
cc_name,cc_manager from
"SNOWFLAKE_SAMPLE_DATA"."TPCDS
_SF100TCL"."CALL_CENTER";
```

1.1.22 Select/highlight the SQL and choose the Blue Triangle in the upper right hand corner to run the query.



### Don't ask me again

Since this is an experimental environment we normally suggest you run each query.

1.1.23 This shows us the output data from our query in the details pane.

SNOWFLAKE\_SAMPLE\_DATA.TPCDS\_SF100TCL Settings

```

1 use database SNOWFLAKE_SAMPLE_DATA;
2
3 use schema tpcds_sf100tcl;
4
5 select cc_name, cc_manager from call_center;
6

```

Results Chart

	CC_NAME	CC_MANAGER
1	NY Metro	Bob Belcher
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5	North Midwest	Larry Mccray
6	North Midwest	Larry Mccray
7	Pacific Northwest	Alden Snyder
8	California	Wayne Ray
9	California	Wayne Ray

Query Details

Query duration

Rows

Query ID [01adb83-0001-3413](#)

CC\_NAME

North Midwest

Hawaii/Alaska

North Midwest\_1

+ 27 more

1.1.24 Now we'll run another query from a different table to make use of the limit, which returns only the number of rows that we specify.

```

Select * from
  snowflake_sample_data.tpcds_sf100tcl.customer_demographics limit
  10

```

1.1.25 Notice that the returned details only show 10 of the nearly 2M rows in the CUSTOMER\_DEMOGRAPHICS table.

Query ID: SQL 1.02s 10 rows

Filter result...

Copy

Row	CD_DEMO_SK	CD_GENDER	CD_MARITAL_STATU	CD_EDUCATION_STA	CD_PURCHASE_EST
1	1425409	M	U	Unknown	1500
2	1425410	F	U	Unknown	1500
3	1425411	M	M	Primary	2000
4	1425412	F	M	Primary	2000
5	1425413	M	S	Primary	2000
6	1425414	F	S	Primary	2000

1.1.26 Now we'll use another command to show us a view of the table description, now as the Describe command or Desc for short. Enter the following SQL statement, highlight it and choose Run

```
DESC TABLE
"SNOWFLAKE_SAMPLE_DATA"."TPCDS_SF100TCL"."CALL_CENTER";
```

1.1.27 Notice this shows us yet another view of the CALL\_CENTER table details.

7 `DESC TABLE`  
8 `"SNOWFLAKE_SAMPLE_DATA"."TPCDS_SF100TCL"."CALL_CENTER";`  
9

→ Results Chart

	name	type	kind	null?	default	primary key	unique key
1	CC_CALL_CENTER_SK	NUMBER(38,0)	COLUMN	N	null	Y	N
2	CC_CALL_CENTER_ID	VARCHAR(16)	COLUMN	N	null	N	N
3	CC_REC_START_DATE	DATE	COLUMN	Y	null	N	N
4	CC_REC_END_DATE	DATE	COLUMN	Y	null	N	N
5	CC_CLOSED_DATE_SK	NUMBER(38,0)	COLUMN	Y	null	N	N
6	CC_OPEN_DATE_SK	NUMBER(38,0)	COLUMN	Y	null	N	N

1.1.28 Next we'll select the Activity -> Query History navigation. Notice that the queries we've been running will show here, including both successful and unsuccessful queries.

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ACCOUNTADMIN

Worksheets
Dashboards
Apps
Data
Marketplace
Activity
**Query History**
Copy History
Task History
Admin
Help & Support

### Query History

Status All
User SNOWFLAKECOURSE...
Last 14 days
Filters
29 Queries

SQL TEXT	QUERY ID	STATUS
with active_contracts as ( select disti...	01adc168-0001-347c-0000-0004469ea061	Success
DESC TABLE "SNOWFLAKE_SAMPLE_DATA"."TPC...	01adc167-0001-35b8-0000-0004469e81...	Success
select * from IDENTIFIER('"SNOWFLAKE_SA...	01adc167-0001-35b8-0000-0004469e81...	Success
select * from IDENTIFIER('"SNOWFLAKE_SA...	01adc13a-0001-347c-0000-0004469ea0...	Success
select * from IDENTIFIER('"SNOWFLAKE_SA...	01adc135-0001-3413-0000-0004469e70...	Success
SELECT system\$GET_NPS_FEEDBACK_TIMESTAM...	01adc133-0001-3689-0000-0004469e90...	Success
select * from IDENTIFIER('"SNOWFLAKE_SA...	01adbe93-0001-35b8-0000-0004469e8...	Success
select cc_name, cc_manager from call_ce...	01adbe83-0001-3413-0000-0004469e70...	Success

1.1.29 Choosing the SQL Text value from one of the entries shows us the SQL statement or command that was run.

[<](#) **Query - 01adc168-0001-347c-0000-0004469ea061**

COMPUTE\_WH SNOWFLAKECOURSEUPDATE

[Query Details](#) [Query Profile](#)

### Details

Status	Duration
Success	<div><div></div></div> 1.8s
Start Time	Query ID
7/20/2023, 10:36 AM	01adc168-0001-347c-0000-0004469ea061 <a href="#">📄</a>

### SQL Text

```
with active_contracts as (  
  select distinct contract_number  
  from SNOWFLAKE.ORGANIZATION_USAGE.CONTRACT_ITEMS  
  where (EXPIRATION_DATE is null or EXPIRATION_DATE >= current_date())  
  and START_DATE <= current_date()
```

1.1.30 Hovering the Query Duration value for the entry shows us the details of the statement execution as noted below.

## < Query - 01adc168-0001-347c-0000-0004469ea061

COMPUTE\_WH SNOWFLAKECOURSEUPDATE

Query Details Query Profile

### Details

Status

Success

Start Time

7/20/2023, 10:36 AM

End Time

7/20/2023, 10:36 AM

#### Query Duration

Compilation 488ms

Queued provisioning 18ms

Execution 1.3s

Total 1.8s

Duration

1.8s

Query ID

01adc168-0001-347c-0000-0004469ea061

Query Tag

1.1.31 Note that if we have a significant number of queries we may want to add a filter condition. Note that only select statements matching our entered filter are visible in our history, when we enter a filter condition.

1.1.32 Select the Admin -> Warehouses view from the navigation.

GN

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ACCOUNTADMIN

Worksheets

Dashboards

Apps

Data

Marketplace

Activity

Admin

Usage

Warehouses

## Warehouses

Q

Search Name

Type

All

Size

All

Status

All

1 Warehouse

NAME	SIZE	STATUS <span>↑</span>
<div>📁</div> COMPUTE_WH	XS	Started

1.1.33 Choose the COMPUTE\_WH under Warehouse Name. Note that this will show usage graph details for our warehouse.

<

COMPUTE\_WH

📁 Warehouse

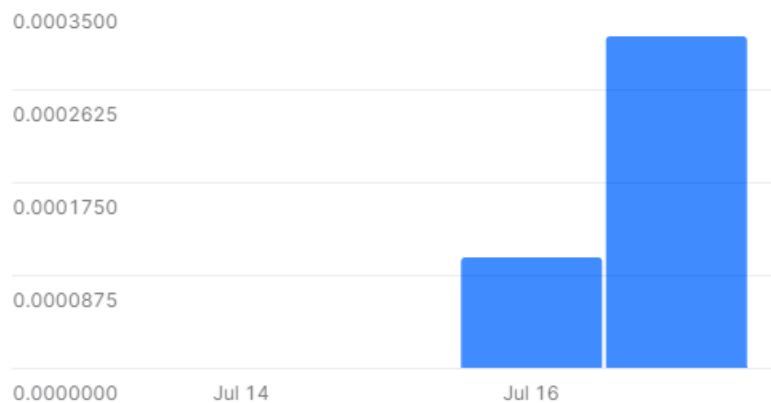
👤 ACCOUNTADMIN

🕒 3 days ago

### Warehouse Activity

🔗 Learn more

■ Running
■ Queued (Repairing)
■ Queued (Provisioning)
■ Queued





1.1.37 Lastly, we'll download the **foundation\_experiment\_scripts.sql** from the course GitHub experiments folder to your local machine. This file contains pre-written SQL commands and we will use this file later in our Snowflake Foundation experiment group.