# Experiment 8: Roles Based Access Controls (RBAC)

## Overview

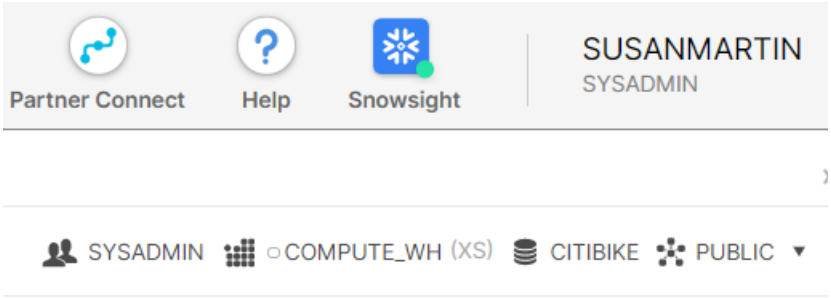
In this experiment we will show some aspects of Snowflake roles based access control (RBAC), including creating a new role and granting it specific permissions. We will also cover more around the ACCOUNTADMIN (aka Account Administrator) role. As you recall from our previous experiments in the Foundation group, data sharing creation and fail-safe usage viewing are not available as the SYSADMIN role.

To continue with the Citi Bike story, let's assume a junior DBA has joined Citi Bike and we want to create a new role for them with less privileges than the system-defined, default role of SYSADMIN. Let's now do that.

**Roles-Based Access Control (RBAC)**
Snowflake offers very powerful and granular RBAC which can control what objects and capabilities a role or user can access, and what level of access they have. For more detail, see the documentation at https://docs.snowflake.net/manuals/user-guide/security-access-control.html

## 8.1 Create New Role and Add User to it

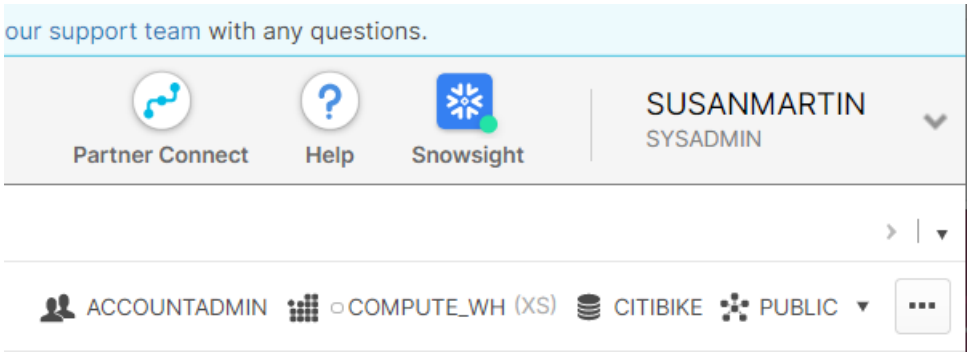
8.1.1 In the worksheet let's switch to the ACCOUNTADMIN role to create a new role.



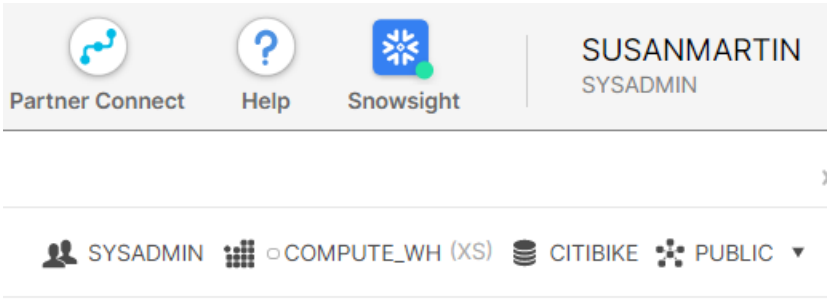

8.1.2 This role encapsulates the SYSADMIN and SECURITYADMIN system-defined roles. It is the
top-level role in the system and should be granted only to a limited/controlled number of users in your account. We've used the UI and SQL command line to switch roles, here we'll do this from the worksheet. In the worksheet, run:

```
use role accountadmin;
```

When done, notice at the the worksheet context has changedso now the role is ACCOUNTADMIN, although as noted in this view your role in the top level navigation might not change immediately

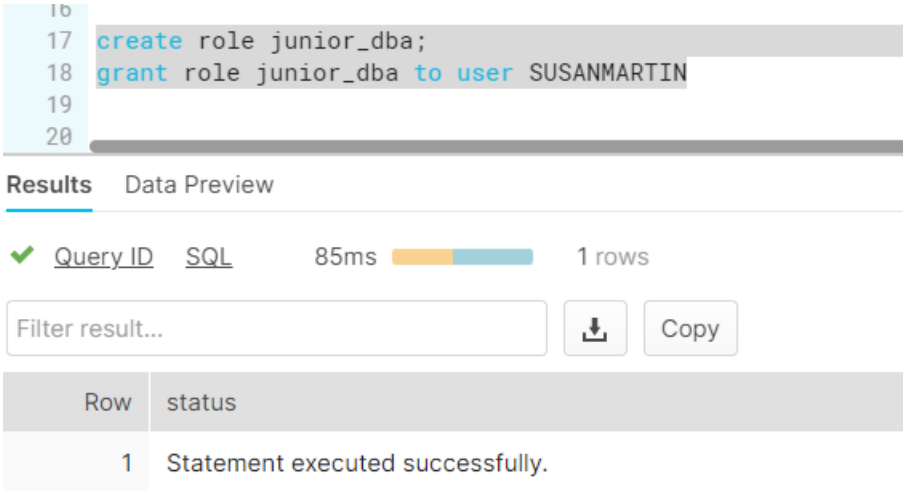



8.1.3 In order for any role to function, we need at least one user assigned to it. So let's create a new role called "junior_dba" and assign your user name to it. This is the user name you created when you first opened your 30-day free trial Snowflake account. This name also appears at the top right of the UI. In the screenshot below it is "SUSANMARTIN". Of course yours will be different. Make a note of your user name.




8.1.4 Let's now create the role and add a user to it with your unique user name:

```
create role junior_dba;
grant role junior_dba to user YOUR_USER_NAME_GOES HERE;
```

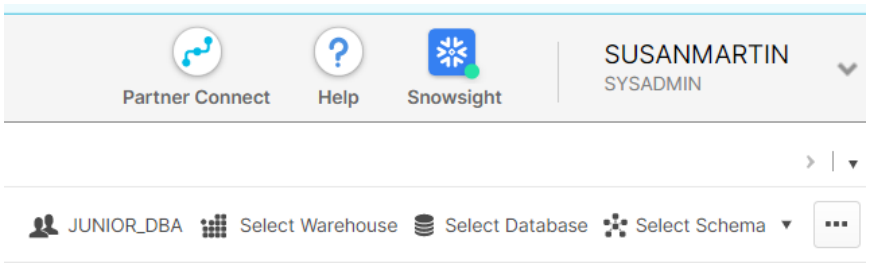



NOTE - if you tried to perform this operation while in a role like SYSADMIN, it would fail due to insufficient privileges as the SYSADMIN role by default cannot create new roles or users.

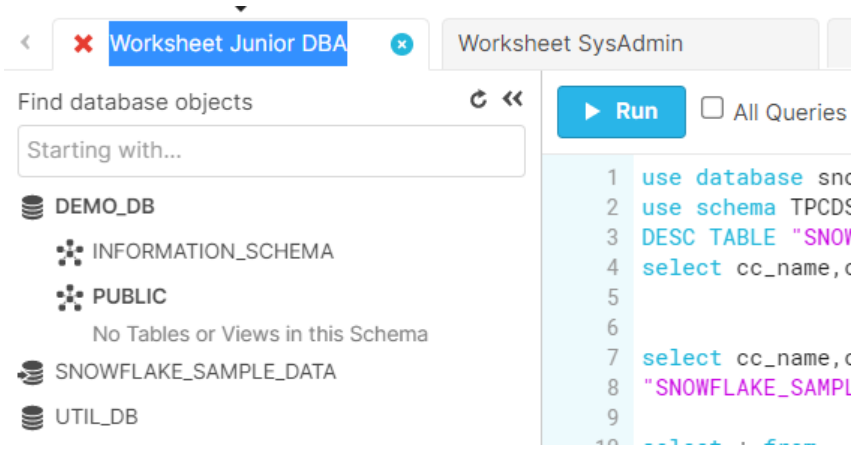
8.1.5 Change your worksheet context to the new junior_dba role

```
use role junior_dba;
```

At the top right of the worksheet, note that the context has changed to reflect the junior_dba role



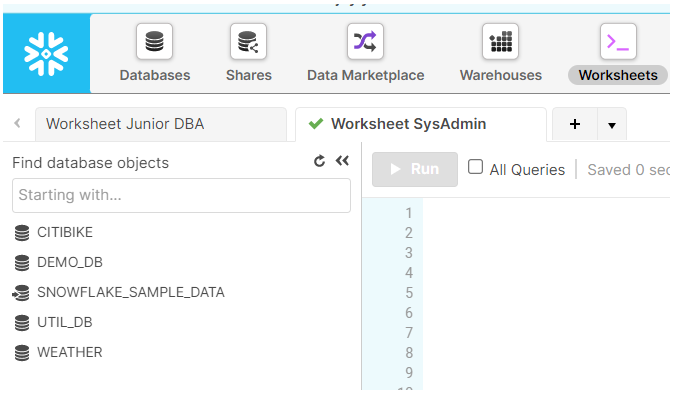

8.1.6 On the left side of the UI in the database object browser pane, notice that both the Citibike and Weather databases do not appear. This is because the junior_dba role does not have access to view them.



8.1.7 In our worksheet where we've assumed the junior_dba role enter the following SQL, highlight it and choose Run.


8.1.8 Notice that we were denied permission to create our junior_test database since our new role has no actual permissions currently.

8.1.9 Open another worksheet and it will default to users current role, in our case SYSADMIN. Note that we can see the additional databases we've created.

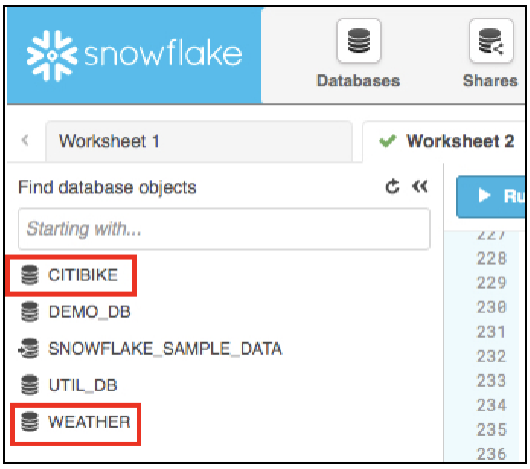



8.1.10 Let's switch back to the ACCOUNTADMIN role and grant the junior_dba the ability to view and use the CITIBIKE and WEATHER databases

```
use role accountadmin;
grant usage on database citibike to role junior_dba;
grant usage on database weather to role junior_dba;
```

8.1.11 Switch to the junior_dba role and at the left in the database object browser, note the Citibike and Weather databases now appear. Click the refresh icon if they do not appear.

```
use role junior_dba;
```

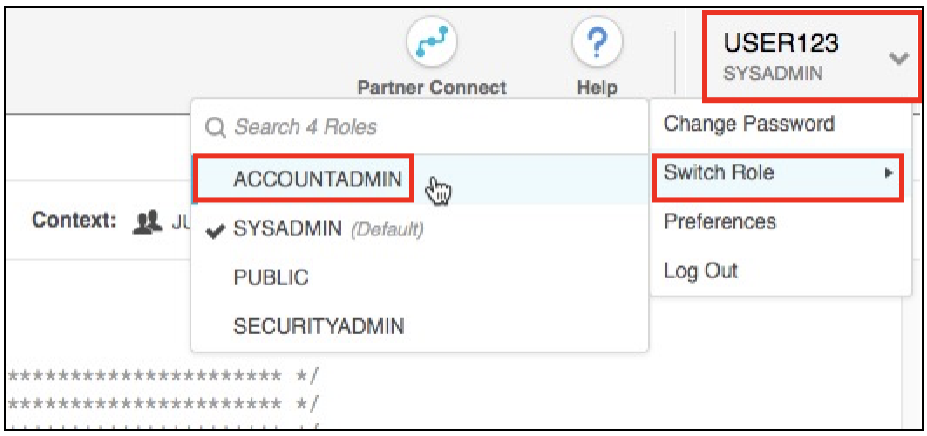



## 8.2 Account Administrator View

Let's change our security role for the session to ACCOUNTADMIN to see other parts of the UI only this role can see.

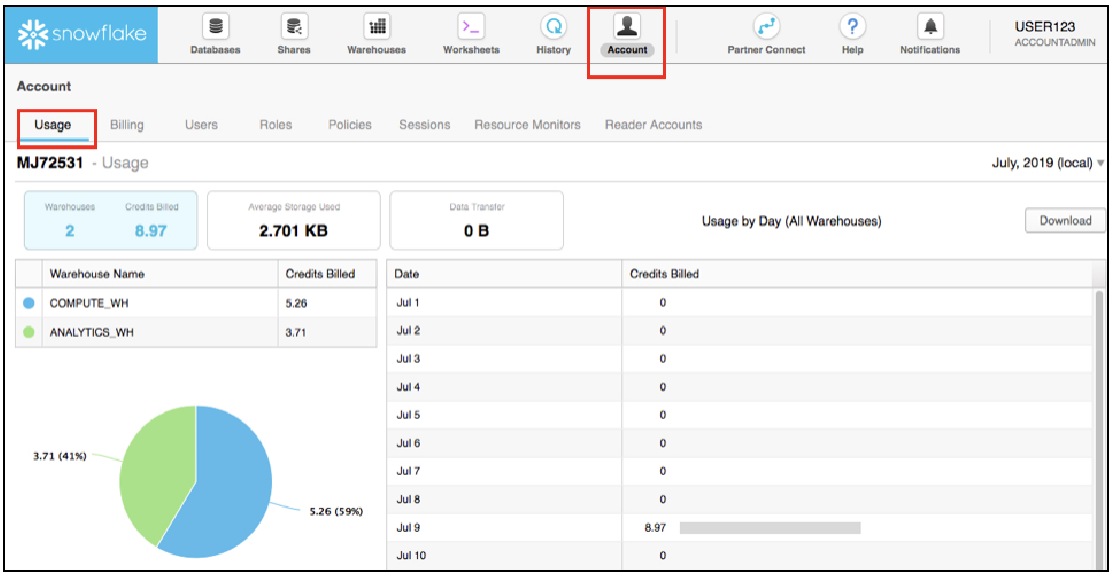
**Roles in User Preference vs Worksheet**
We just changed the security role for the session in the user preference menu at the top right of the UI. This changes what we can see in the UI. This is different then the worksheet context menu where we assign a role that is applied to the commands run on that specific worksheet. Also, session security role can simultaneously be different from the role used in a worksheet.

8.2.1 In the top right corner of the UI, click on your user name to show the User Preferences menu. Then go to Switch Role, then select the ACCOUNTADMIN role.




8.2.2 Notice at the very top of the UI you will now see a sixth tab called “Account” that you can only view in the ACCOUNTADMIN role.

Click on this Account tab. Then towards the top of this page click on “Usage” which by default already appearsI. Here you see detail on credits, storage, and daily usage.




8.2.3 To the right of “Usage” is “Billing” where you can add a credit card if you want to go beyond your free $400 worth of credits for this free trial. Further to the right is information on Users, Roles, and Resource Monitors. The latter set limits on your account's credit consumption so you can appropriately monitor and manage credit consumption.

NOTE - Stay in the ACCOUNTADMIN role for the next experiment.