

VIRTUAL HANDS-ON LAB

Embedded Analytics Applications Powered by Snowflake and Tableau

To participate in the virtual hands-on lab please begin a free trial or login to your Snowflake and Tableau Online accounts.

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HANDS-ON LAB SET UP

- Sign-in to your Snowflake free trial account.
 - URL looks something like: <u>https://XY12345.snowflakecomputing.com</u>
- If you have not already signed up for a free trial account, sign up here:
 - <u>https://trial.snowflake.com</u>
 - Please select the region closest to you and the Enterprise Edition
- Tableau Online Trial: <u>https://www.tableau.com/products/online/request-trial</u>
 - Please login to your Tableau Online Trial
- Install Tableau ODBC Drivers for Snowflake (if you are using Tableau Desktop)
 - <u>https://sfc-repo.snowflakecomputing.com/odbc/index.html</u>
- Download files from On24 resource section
 - SQL script .sql file Required
 - Embedded Portal zip Required

MEET TODAY'S HANDS-ON LAB LEADERS



David Spezia Sales Engineer



Bailey Ferrari Solutions Engineer

WHAT WE'LL COVER TODAY

- > Get JSON data from IoT enabled bikes and ingest the data into Snowflake
- > Integrate tables and views in Snowflake
- > Integrate and deliver multi-tenant tables and views in Snowflake
- > Use Tableau and enable end users and analysts to ask your data questions.
- > Explore the data with Tableau
- > Visualize data with Tableau in an Embedded Portal
- > Showcase your data in the Snowflake Data Marketplace to further promote your data capabilities across all Snowflake customers.
- > Q&A



Let's dive in...

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Section I Tableau DEMO

Tableau Online



- **Tableau Creators** are granted access to the sharing platform of their choice, either Tableau Online or Tableau Server.
- Your sharing platform enables you to provide analytics to your colleagues or your customers directly through the browser or on-the-go with mobile applications.
- Tableau Online is fully hosted in the cloud.

Your Application



- Any existing application or portal
- Typically HTML*, CSS, and JavaScript
- Use the Tableau <u>JavaScript API</u> to integrate Tableau visualizations into your own web applications.

*Requires HTML 5 or later

Examples



Restaurant Follow sales, labor and location-specific trends from the InterBurger fast food chain.



Discover insights ranging from executive overviews to point-of-sale metrics with The Notch.







Finance Access executive summaries and security performance trends from IW Capital Group.



Healthcare

Analyze care indicators, treatment analyses and HR metrics for the OURx healthcare provider.

- Embedded.Tableau.com
- Interworks "Live Demos" Portal
- Decisive Data Embedded Plus Data
- XeoMatrix Portal

Section II Prepare Your Lab Environment

If you haven't already, please download the SQL document linked here in your On24 screen if you plan on following along the steps using your own Snowflake environment

Than	ks for joining	the webinar! He	re are some qui	ck tips:		<
•	No need to d	dial in - use your s	peakers or head	phones to listen to	o the audio	
•	If you have is	ssues with the slic	des or audio, plea	ase try refreshing	your browser	
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	Please down	nload the SQL doc	cument here to fo	llow along with th	e hands-on	
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8	[Blog] Weath	her Source Offer	s New Coronav	rirus Data Set Fo	or Free On Snow	flak
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Ask u						
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Sign into Your Snowflake Account



Log	in	to	Snowflake	
-----	----	----	-----------	--

User Name

Password

Log

Paste the SQL

COVID-	19 V Tableau VHOL IoT	Big Data Dave	+	•		
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0.54		Open Tutorials				
351		Load Script				
353		Eoad Script				
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355						
356	Role	Loading and Query				
357 USE ROLE ACCOUNTADMIN;		World Pop Scratch Pad				
358		Hond Fop boldton Fdd				
359Create Database, Schema, Warehouse,		Credits by User				
360	create or replace database TABLEAU_IOT					
361		Citi Journeys				
362	create or replace schema IOT;	Partitions - 2.7				
363						
364	create or replace warehouse TABLEAU_WH	Table Access Logs				
300	WAREHOUSE_SIZE = MEDIUM	Tableau)/UO				
367	AUTO SUSPEND - 60	Tableau VHOL				
368	AUTO RESUME = TRUE	Data Sharing Summit 19				
369	MTN CLUSTER COUNT = 1	31				
370	MAX CLUSTER COUNT = 1	Playground				
371	SCALING POLICY = 'STANDARD':	Design (1991)				
372		Dynamic SQL				
373	alter warehouse TABLEAU_WH SET WAREHOU	View More				
374						
075	Tetranal Otran					

CODE

--Easy OPEN COPY PASTE

--OR Upload Workshop.SQL

Database

Databases	Shares Data Marketplace	Warehouses Work	sheets History	Account Organization
Databases				Last refreshed 9:26:31 AM
+ Create Clone	🕞 Drop 🏳 Transfe			
Search Databases	47 databases			
Database	Create Database			hent
TABLEAU_VHOL_DATABASE	Name*			_
TABLEAU_IOT				
ADOBE_IDS_LOG	Comment			
WEATHER				
CITIBIKE_RESET	Show SQL	Ca	ancel Fini	ish
CITIBIKE		9/14/2020, 8:22 AM	DBA_CITIBIKE	
WUNDERMAN	WTD_DOD.PM2_DO	9/11/2020, 2:35 PM	ACCOUNTADMIN	
WEATHERSOURCE_PARTNE	R WEATHERSOURCE	9/11/2020, 2:15 PM	ACCOUNTADMIN	
SAFEGRAPH_SHARE	VF92750.SAFEGRA	9/11/2020, 2:02 PM	ACCOUNTADMIN	
STARSCHEMA_COVID19	STARSCHEMA.COV	9/11/2020, 1:28 PM	ACCOUNTADMIN	
TABLE_ACCESS_LOGS_PRP	R	9/10/2020, 12:50 PM	ACCOUNTADMIN	

CODE

--Role USE ROLE ACCOUNTADMIN;

--Create Database, Schema, Warehouse, Stage and File Format

create or replace database TABLEAU_VHOL_DATABASE;

create or replace schema TABLEAU VHOL SCHEMA;

Warehouse

※ [Create Warehou	se	
Warehous	Name*		.ast refreshed
Manage you	Size	X-Large (16 credits / hour)	
(+) Create.		Learn more about virtual warehouse sizes here	
Status	Maximum Clusters	2	Auto Suspe.
Suspended		Multi-cluster warehouses improve the query throughput for high concurrency workloads.	1 minute
Suspended	Minimum Clusters	1	1 minute
Suspended		The number of active clusters will vary between the specified minimum and maximum values, based on number of concurrent users/queries.	1 minute
Suspended	Scaling Policy	Standard 🗸	2 minutes
Suspended		The policy used to automatically start up and shut down clusters.	5 minutes
Suspended	Auto Suspend	10 minutes	5 minutes
Suspended		The maximum idle time before the warehouse will be automatically suspended.	10 minutes
Suspended		🗹 Auto Resume	5 minutes
Suspended	Comment		5 minutes
Suspended			5 minutes
Suspended	Show SQL	Cancel Finish	10 minutes

CODE

create or replace warehouse TABLEAU_VHOL_WH WITH
 WAREHOUSE_SIZE = 'MEDIUM'
 WAREHOUSE_TYPE = 'STANDARD'
 AUTO_SUSPEND = 60
 AUTO_RESUME = TRUE
 MIN_CLUSTER_COUNT = 1
 MAX_CLUSTER_COUNT = 1
 SCALING POLICY = 'STANDARD';

alter warehouse TABLEAU_VHOL_WH SET WAREHOUSE_SIZE =
'LARGE';

alter warehouse TABLEAU_VHOL_WH SET WAREHOUSE_SIZE =
'MEDIUM';

+) Create [] Clone	🗷 Edit 🗔	Drop 🗔 Transfer Ownership			
Stage	Schema	Location	Creation Time *	Owner	Comm
ABLEAU_JSON	PUBLIC	Snowflake	8/30/19 12:07:02 PM	ACCOUNTADMIN	
Snowfla	eke Managed	Existing Amazon S3 Location	Existing Microsof	t Azure Location	
					- 1

CODE

```
--Internal Stage
create or replace STAGE VHOL_STAGE;
```

```
show stages;
```

```
--External Stage on S3
create or replace STAGE VHOL_STAGE
URL =
's3://snowflake-workshop-lab/citibike-trips';
```

```
show stages;
```

--Lists Files on the S3 Bucket list @VHOL STAGE/;

File Format

Tables Schema Name PUBLIC Format Type Compression Method Auto Column separator Row separator New Line Header lines to skip 0 Field optionally enclosed by Null String Null String Tim space before and after ?	atabases >	Name*	[9:27:44 AM
Create Format Type CSV Immet File Format Compression Method Auto ? Immet Column separator Comma ? ? Row separator New Line ? ? Header lines to skip 0 ? ? Field optionally enclosed by None ? ? Null String INN ? ?	Tables V	Schema Name	PUBLIC	~	
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			Trim space before and after ?		

CODE

--File Format create or replace FILE FORMAT CSV TYPE = 'CSV' COMPRESSION = 'AUTO' FIELD_DELIMITER = ',' RECORD_DELIMITER = '\n' SKIP_HEADER = 0 FIELD_OPTIONALLY_ENCLOSED_BY = '\042' TRIM_SPACE = FALSE ERROR_ON_COLUMN_COUNT_MISMATCH = FALSE ESCAPE = 'NONE' ESCAPE = 'NONE' ESCAPE_UNENCLOSED_FIELD = '\134' DATE_FORMAT = 'AUTO' TIMESTAMP_FORMAT = 'AUTO' NULL_IF = ('');

show File Formats;

Section III Trips Data

Trips Data

	result (8).tav ×	
	\$1 \$2 \$3 \$4 \$5 \$6 \$7 \$8 \$9 \$10 \$11 \$12 \$13 \$14 \$15 \$16	
	695 "2013-06-01 00:00:01.000" "2013-06-01 00:11:36.000" 444	"Broadway & W 24 St" 40,7423543 -73,98915076 434 "9 Ave & W 18 5
	693 "2013-06-01 00:00:08.000" "2013-06-01 00:11:41.000" 444	"Broadway & W 24 St" 40.7423543 -73.98915076 434 "9 Ave & W 18 S
	2059 "2013-06-01 00:00:44.000" "2013-06-01 00:35:03.000"	406 "Hicks St & Montague St" 40.69512845 -73.99595065 406 "Hicks
	123 "2013-06-01 00:01:04.000" "2013-06-01 00:03:07.000" 475	"E 15 St & Irving Pl" 40.73524276 -73.98758561 262 "Washington Par
	1521 "2013-06-01 00:01:22.000" "2013-06-01 00:26:43.000"	2008 "Little West St & 1 Pl" 40.70569254 -74.01677685 310 "State
	2028 "2013-06-01 00:01:47.000" "2013-06-01 00:35:35.000"	485 "W 37 St & 5 Ave" 40.75038009 -73.98338988 406 "Hicks St & Mor
	2057 "2013-06-01 00:02:33.000" "2013-06-01 00:36:50.000"	285 "Broadway & E 14 St" 40.73454567 -73.99074142 532 "S 5 Pl & S
	139929 "2013-06-01 00:02:39.000" "2013-06-02 14:54:48.000"	432 "E 7 St & Avenue A" 40.72621788 -73.98379855 402 "Broadway & E 2
	369 "2013-06-01 00:03:29.000" "2013-06-01 00:09:38.000" 509	"9 Ave & W 22 St" 40.7454973 -74.00197139 521 "8 Ave & W 31 St N"
11	512 "2013-06-01 00:03:36.000" "2013-06-01 00:12:08.000" 309	"Murray St & West St" 40.7149787 -74.013012 300 "Shevchenko Pl & E
	505 "2013-06-01 00:03:45.000" "2013-06-01 00:12:10.000" 309	"Murray St & West St" 40.7149787 -74.013012 347 "Greenwich St & W H
	1829 "2013-06-01 00:03:47.000" "2013-06-01 00:34:16.000"	265 "Stanton St & Chrystie St" 40.72229346 -73.99147535 436 "Hancod
	829 "2013-06-01 00:04:22.000" "2013-06-01 00:18:11.000" 404	"9 Ave & W 14 St" 40.7405826 -74.00550867 303 "Mercer St & Spring
	1316 "2013-06-01 00:04:28.000" "2013-06-01 00:26:24.000"	423 "W 54 St & 9 Ave" 40.76584941 -73.98690506 314 "Cadman Plaza V
	1456 "2013-06-01 00:04:41.000" "2013-06-01 00:28:57.000"	502 "Henry St & Grand St" 40.714215 -73.981346 532 "S 5 Pl & S 5 5
	386 "2013-06-01 00:05:13.000" "2013-06-01 00:11:39.000" 241	"DeKalb Ave & S Portland Ave" 40.68981035 -73.97493121 365 "Fultor
	924 "2013-06-01 00:05:21.000" "2013-06-01 00:20:45.000" 486	"Broadway & W 29 St" 40.7462009 -73.98855723 521 "8 Ave & W 31 5
	1233 "2013-06-01 00:06:44.000" "2013-06-01 00:27:17.000"	527 "E 33 St & 2 Ave" 40.744023 -73.976056 296 "Division St & Bowe
	833 "2013-06-01 00:07:29.000" "2013-06-01 00:21:22.000" 503	"E 20 St & Park Ave" 40.73827428 -73.98751968 503 "E 20 St & Park
	1818 "2013-06-01 00:08:10.000" "2013-06-01 00:38:28.000"	257 "Lispenard St & Broadway" 40.71939226 -74.00247214 500 "Broadw
	553 "2013-06-01 00:08:47.000" "2013-06-01 00:18:00.000" 489	"10 Ave & W 28 St" 40.75066386 -74.00176802 448 "W 37 St & 10 Ave"
	682 "2013-06-01 00:08:53.000" "2013-06-01 00:20:15.000" 486	"Broadway & W 29 St" 40.7462009 -73.98855723 521 "8 Ave & W 31 S
	899 "2013-06-01 00:09:25.000" "2013-06-01 00:24:24.000" 494	"W 26 St & 8 Ave" 40.74734825 -73.99723551 494 "W 26 St & 8 Ave"
	626 "2013-06-01 00:09:52.000" "2013-06-01 00:20:18.000" 380	"W 4 St & 7 Ave S" 40.73401143 -74.00293877 382 "University Pl & E
	219 "2013-06-01 00:10:28.000" "2013-06-01 00:14:07.000" 305	"E 58 St & 3 Ave" 40.76095756 -73.96724467 358 "Christopher St & (
	339 "2013-06-01 00:10:45.000" "2013-06-01 00:16:24.000" 480	"W 53 St & 10 Ave" 40.76669671 -73.99061728 432 "E 7 St & Avenue A'
	511 "2013-06-01 00:10:50.000" "2013-06-01 00:19:21.000" 223	"W 13 St & 7 Ave" 40.73781509 -73.99994661 345 "W 13 St & 6 Ave"
	97 "2013-06-01 00:11:00.000" "2013-06-01 00:12:37.000" 453	"W 22 St & 8 Ave" 40.74475148 -73.99915362 453 "W 22 St & 8 Ave"
	547 "2013-06-01 00:11:04.000" "2013-06-01 00:20:11.000" 432	"E 7 St & Avenue A" 40.72621788 -73.98379855 "" "" "" 17470
	198 "2013-06-01 00:11:10.000" "2013-06-01 00:14:28.000" 476	"E 31 St & 3 Ave" 40.74394314 -73.97966069 461 "E 20 St & 2 Ave"
	482 "2013-06-01 00:11:30.000" "2013-06-01 00:19:32.000" 151	"Cleveland Pl & Spring St" 40.722103787 -73.997249007 401 "Allen
	395 "2013-06-01 00:11:52.000" "2013-06-01 00:18:27.000" 312	"Allen St & Stanton St" 40.722055 -73.989111 410 "Suffolk St & Stant
34	424 "2013-06-01 00:11:53.000" "2013-06-01 00:18:57.000" 494	"W 26 St & 8 Ave" 40.74734825 -73.99723551 519 "Pershing Square No
	1077 "2013-06-01 00:12:28.000" "2013-06-01 00:30:25.000"	482 "W 15 St & 7 Ave" 40.73935542 -73.99931783 480 "W 53 St & 10 /
	689 "2013-06-01 00:12:33.000" "2013-06-01 00:24:02.000" 439	"E 4 St & 2 Ave" 40.7262807 -73.98978041 317 "E 6 St & Avenue B"
37	722 "2013-06-01 00:13:08.000" "2013-06-01 00:25:10.000" 453	"W 22 St & 8 Ave" 40.74475148 -73.99915362 380 "W 4 St & 7 Ave S"

CODE

trip duration in seconds start time timestamp EST stop time timestamp EST start station id start station name start station latitude start station longitude end station id end station name end station latitude end station longitude bike id membership type user type birth year gender as integer

QUERY FROM STAGE



CODE

--select over stage select \$1, \$2, \$3, \$4, \$5, \$6, \$7, \$8, \$9, \$10, \$11, \$12, \$13, \$14, \$15, \$16 from @VHOL_STAGE/trips_2013_0_0.csv.gz limit 100;

--select over stage with file format select \$1, \$2, \$3, \$4, \$5, \$6, \$7, \$8, \$9, \$10, \$11, \$12, \$13, \$14, \$15, \$16 from @VHOL_STAGE/trips_2013_0_0_0.csv.gz (file_format => CSV) limit 100;

CREATE TABLE



CODE

--create table create or replace table trips (tripduration integer, starttime timestamp, stoptime timestamp, start station id integer, start station name string, start station latitude float, start station longitude float, end station id integer, end station name string, end station latitude float, end station longitude float, bikeid integer, membership type string, usertype string, birth year integer, gender integer);

COPY INTO & SELECT



CODE

--copy data over for trips copy into trips from @VHOL STAGE file format=CSV;

--select select * from trips limit 20;

--fancy select select date_trunc('hour', starttime) as "date", count(*) as "num trips", avg(tripduration)/60 as "avg duration (mins)", avg(haversine(start_station_latitude, start_station_longitude, end_station_latitude, end_station_longitude)) as "avg distance (km)"

```
from trips
group by 1 order by 1;
```

```
--trips by day
select
dayname(starttime) as "day of week",
count(*) as "num trips"
from trips
group by 1 order by 2 desc;
```

--clone create table trips dev clone trips;

Section IV Weather & Stations Data

TABLE, STAGE, COPY



CODE

--variant table create table json_weather_data (v variant);

--weather stage
create stage nyc_weather
url = 's3://snowflake-workshop-lab/weather-nyc';

--list weather list @nyc weather;

```
--select over stage
select $1 from @nyc_weather/weather_0_0_0.json.gz
limit 10;
```

```
--copy into
copy into json_weather_data
from @nyc_weather
file format = (type=json);
```

--select select * from json weather data limit 10;

CREATE VIEW



CODE

--create view create view weather vw as select v:time::timestamp as observation time, v:city.id::int as city id, v:city.name::string as city name, v:city.country::string as country, v:city.coord.lat::float as city lat, v:city.coord.lon::float as city lon, v:clouds.all::int as clouds, (v:main.temp::float)-273.15 as temp avg, (v:main.temp min::float)-273.15 as temp min, (v:main.temp max::float)-273.15 as temp max, v:weather[0].main::string as weather, v:weather[0].description::string as weather desc, v:weather[0].icon::string as weather icon, v:wind.deg::float as wind dir, v:wind.speed::float as wind speed from json weather data where city id = 5128638;

--select * select * from weather vw limit 10;

SELECT & DROPS



CODE

```
--select
select weather as conditions
   ,count(*) as num_trips
from trips
left outer join weather_vw
   on date_trunc('hour', observation_time) =
date_trunc('hour', starttime)
where conditions is not null
group by 1 order by 2 desc;
```

```
--oh-no!
drop table json_weather_data;
```

```
--select
select * from json_weather_data limit 10;
```

```
--thank you!
undrop table json weather data;
```

```
--select
select * from json weather data limit 10;
```

STATIONS



CODE

create or replace table stations (
 station_id number(38,0),
 station_name varchar(100),
 station_latitude float,
 station_longitude float
);

insert into stations select distinct station_id, max(STATION_NAME), max(STATION_LATITUDE), max(STATION_LONGITUDE) from(select START_STATION_ID AS STATION_ID, START_STATION_NAME AS STATION_NAME, START_STATION_LATITUDE AS STATION_LATITUDE, START_STATION_LONGITUDE AS STATION_LONGITUDE from trips union all select END_STATION_ID AS STATION_NAME, END_STATION_LATITUDE AS STATION_LATITUDE, END_STATION_LATITUDE AS STATION_LATITUDE, END_STATION_LATITUDE AS STATION_LATITUDE, END_STATION_LATITUDE AS STATION_LATITUDE, END_STATION_LONGITUDE AS STATION_LONGITUDE from trips)

group by station_id
order by station id asc;

select * from stations;

Section V Secure: Tenants, Views, Data Sharing and Data Marketplace

TENANTS

CODE

```
create or replace table tenant (
    tenant_id number,
    tenant_description string,
    tenant_account string
);
```

--add tenant for your account
insert into tenant values (
 1, 'My Account', current_account()
);

--select select * from tenant;

--map tenant to subscribed station beacons create table tenant_stations (tenant_id number, station_id number

```
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```

TENANTS MAPPING



CODE

--values insert into tenant stations values

TENANTS TESTING



CODE

```
--select *
select * from tenant_stations;
```

```
--select
set tenant_sv = '1';
```

```
select * from trips
join tenant_stations
    on trips.start_station_id =
tenant_stations.station_id
join tenant
    on tenant_stations.tenant_id = tenant.tenant_id
where
       tenant.tenant_id = $tenant_sv
limit 100;
```

```
--select bogus
set tenant_sv = '0';
```

```
select * from trips
join tenant_stations
    on trips.start_station_id =
tenant_stations.station_id
join tenant
    on tenant_stations.tenant_id = tenant.tenant_id
where
    tenant.tenant_id = $tenant_sv
limit 100;
```

```
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```

TENANTS SECURE VIEW



CODE

```
--secure view
```

create or replace secure view trips_secure as
(select tripduration, starttime, stoptime,
start_station_id, bikeid, tenant.tenant_id from
trips
join tenant stations

on trips.start_station_id =
tenant_stations.station_id
join tenant

on tenant_stations.tenant_id = tenant.tenant_id
where

tenant.tenant_account = current_account());

--current account?
select current_account();

--select secure view select * from trips secure limit 100;

TENANTS SECURE VIEW TESTING



CODE

--create a reader account for your tenant CREATE MANAGED ACCOUNT BIG_IMPORTANT_CLIENT admin_name='USER', admin_password='P@ssword123', type=reader, COMMENT='Testing';

--add tenant for your big important client via a reader account insert into tenant values (

1, 'Big Important Client, Wink Wink', 'locator
from above'

--simulate your tenant
alter session set simulated_data_sharing_consumer =
'locator from above';

--select secure view as your tenant select * from trips secure limit 100;

--unsimulate your tenant alter session unset simulated data sharing consumer;

--are you sure? select * from trips secure limit 100;

SECURE SHARING



CODE

--create share and share to reader account CREATE OR REPLACE SHARE TABLEAU_EMBEDDED_SHARE COMMENT='Creating my Share to Share with my Reader'; GRANT USAGE ON DATABASE TABLEAU_VHOL_DATABASE TO SHARE TABLEAU_EMBEDDED_SHARE; GRANT USAGE ON SCHEMA TABLEAU_VHOL_DATABASE.TABLEAU_VHOL_SCHEMA TO SHARE TABLEAU_EMBEDDED_SHARE; GRANT SELECT ON VIEW TABLEAU_VHOL_DATABASE.TABLEAU_VHOL_SCHEMA.TRIPS_SECU RE TO SHARE TABLEAU_EMBEDDED_SHARE;

DESC SHARE TABLEAU EMBEDDED SHARE;

ALTER SHARE TABLEAU_EMBEDDED_SHARE ADD ACCOUNTS = locator_from_above;

SHOW SHARES LIKE 'TABLEAU EMBEDDED SHARE';

Section VI Snowflake Data Marketplace Tour

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Preview UI



Discover new external data

Drive business insights, instantly, with data from the world's best data and software providers on the Snowflake Data Marketplace.

Explore the Snowflake Data Marketplace \rightarrow

Now, on the new Snowflake Experience

Data Maketplace



cover			
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y Requests	Womply	S&P Global Market Intelligence	Exchange Data International

Marketplace Listing (UI)



CODE

CREATE LISTING identifier("FOO_VZNRANLMZR") IN DATA EXCHANGE "SE SANDBOX"

ALTER LISTING identifier("FOO_VZNRANLMZR") SET is_with_anyshare = true

ALTER LISTING identifier("FOO_VZNRANLMZR") SET METADATA =

\$\${"categories":{},"description":"Hmmm...","link":"h
ttps://www.google.com","usage":[{"title":"Test","des
cription":"Ing","query":"Select * f...

Section VII Query Snowflake with Tableau

Connect to Data

Q Search	?	\triangle	BF
		1	New ▼
Connect to Data Greate a new data source from scratch or choose an existing data source to start from. <u>Learn more</u>			

On This Site	Files	Connectors	Dashboard Starters	
Amazon Aurora fo	or MySQL		Google BigQuery	PostgreSQL
Amazon EMR Had	loop Hive		Google Cloud SQL	Presto
Amazon Redshift			Google Drive	Snowflake
Azure Synapse Ar	nalytics		Impala	Spark SQL
Box			MemSQL	Vertica
Cloudera Hadoop			Microsoft SQL Server	
Databricks			MongoDB BI Connector	
Denodo			MySQL	
Dropbox			OneDrive	
Exasol			Oracle	

- Use YOUR URL to YOUR account
- Role ACCOUNTADMIN
- Use YOUR username & password

"Live" Connection

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	Data Help						Bailey Ferrari 🔹
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Update Now

🖰 Data Source 🗄 CitiBike Trips Bikes Temp by Month Time Grayscale Map Hourly Activity Sheet 7 Sheet 8 Sheet 9 Sheet 10 Sheet 11 🛱 🛱 🖧 🥎

- A "live" connection in Tableau directly queries snowflake with every interaction
- Live connections allow for real-time data updates
- Snowflake can query tens of millions of records in sub-seconds

Web Edit

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TEST_CITIBIKE_WEATHER Day Of Year Observation Date Observation Month		
Parameters Abc Filter Name		
Data Source Trips Bikes Temp b	y Month Time Grayscale Ma	p Hourly Activity Sheet 7 Sheet 8 Sheet 9 Sheet 10 Sheet 11 Sheet 12 Sheet 13 🖳 🖽 04 <->

• To visualize the data, use Tableau Desktop or the Tableau Online web editor

Build your Dashboard

BANS Are Fun!

Trips

10.52M

Bikes

22.18K

Avg Duration

15.82

- Dashboard is a collection of worksheets.
- In general, it's a good idea to limit the number of views you include in your dashboard to **three** or **four**.
- If you add too many views, visual clarity and the big picture can get lost in the details.
- Don't bury the most important fact, your KPI, in a chart. Show it loud and proud as a Big A** Number (BAN)!

Section VIII Embedding Tableau

Key Features & API's

Tableau Embedding Playbook Forums

🗱 🔘



Authentication and Single Sign-On

User Management, Content Management & Display with the REST API

Multi-Tenancy and Row-Level Security

Embedding in Sharepoint, Salesforce, and Mobile Apps

Embedding Non-View Content

Development and Deployment Tableau Embedded Analytics Playbook

Embedding Tableau content allows you to add the power of interactive visualization to external applications. Common use cases of embedding are:

- · Tableau dashboards as components of line-of-business or vertical applications
- Embedding into internal knowledge bases and CRM systems
- Adding interactive visualizations to blog posts
- Embedding into custom mobile applications

The act of embedding a single dashboard or visualization into a single webpage is quite simple, but a well-engineered integration requires handling other things such as authentication, authorization, content management, and performance. Depending on your integration goals, you may require the use of a variety of features and techniques.

Below, you will find a summary of the key APIs and features that are used in embedded deployments. The rest of the playbook will then dive into the key embedding requirements, explain how to accomplish those requirements, and supply you with resources necessary to get up and running.

Key features and APIs:

JavaScript API - API for embedding and programmatically interacting with individual dashboards. Useful for customizing the user experience of interacting with a dashboard and integrating with the functionality of the embedding application.

REST API - API for querying and managing Tableau Server or Tableau Online content and users. Useful for integrating the user management of Tableau Server with the user management of the embedding application, managing Server content and permissions based on the state of your application, querying Server metadata so the correct information is displayed to your user, and automating the management of Tableau Server amongst many other applications.

Trusted Authentication/Trusted Tickets - Method for Single Sign-On for embedded views. If users of your application sign in, when they attempt to access Tableau content, trusted authentication will allow you to pass their credentials to Tableau Server so they do not see a Tableau Server signin page.

SAML, OpenID, Active Directory, Kerberos - For environments that already use one of these systems, they can be leveraged to achieve Single Sign-On (and to leverage database security in the case of Kerberos).

Salesforce Canvas Adapter - Application to enable Single Sign-On when embedding in Salesforce. Embedding Tableau views into Salesforce gives you the insight of Tableau dashboards where sales people are spending their time, filtered to the correct account/opportunity/etc. To enable the use of Here are some of the things that you can do with the **JavaScript API**:

- Dynamically load and resize visualizations.
- Filter the data displayed in visualizations with HTML controls in the page.
- Select marks in visualizations.
- Respond to events in visualizations.
- Export visualizations to an image or PDF file

Check out our Embedded Analytics Playbook for more info!

Our Goal



- Open the "dashboard_starter.html" file in the browser of your choice
- It should be primarily empty, with placeholder actions and filters
- Our goal is to populate this file!
 - Step 1: Embed the visualization
 Step 2: Use JavaScript to interact with the visualization

Embedding the Viz



- Once you've saved/published the workbook, grab the link that is automatically generated by Tableau Online
- You will be pasting this line into a js file referenced by the html of the application

embed_starter.js

//***Part 1 - Instantiate the Viz

```
var viz, sheet, workbook; //we need this to be semi-global so we can reference it via multiple functions
   function initViz()
       var containerDiv = document.getElementById("vizContainer"),
           options =
               height: "700px",
               width: "800px",
               hideTabs: true,
               hideToolbar: true,
               onFirstInteractive: function () //this function fires only once when the viz is first time rendered
                   console.log("Run this code when the viz has finished loading.");
                   workbook = viz.getWorkbook();
                   console.log(workbook);
                   sheet = viz.getWorkbook().getActiveSheet();
                   console.log(sheet.getName());
                   sheets = sheet.getWorksheets();
                   console.log(sheets);
                 for(var i =0; i < sheets.length; i++) {</pre>
                   sheetName = sheets[i].getName();
                   console.log(sheetName);
       viz = new tableau.Viz(containerDiv, url, options); // Create a viz object and embed it in the container div.
```

- Open the "embed_starter.js" file in the text editor of your choice
- First, we need to initialize the view
- Copy and paste your url into the line that says "YOUR URL HERE"

dashboard_starter.html

<!-- Custom styles for this template--> <link href="css/sb-admin-2.css" rel="stylesheet">

<!-- Custom scripts for this template--> <script type="text/javascript" src="https://online.tableau.com/javascripts/api/tableau-2.min.js"></script>

<!-- Separate JavaScript file used for embedding Tableau and JS API functions -->

</head>

<!-- Instantiate the Viz --> <body id="page-top" onload="initViz();">

<!-- Page Wrapper --> <div id="wrapper"> • Next, we need to reference the js file within the html

<script type="text/javascript" src="js/embed_starter.js"> </script>

• Finally, we want to render the viz on load, so we'll re-use the "initViz()" function

<body id="page-top" onload="initViz();">

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Open in Browser



- Step 1 is complete! We embedded the visualization successfully.
- You can now interact with the viz exactly like you'd interact with it in Tableau Online.
 - For example, existing dashboard actions will be fully functioning.

embed_starter.js



- Now we can use the Tableau JavaScript API to customize the look, feel, and functionality
- Let's start by adding export buttons.
- To find the functions, go to: <u>Tableau JavaScript API Help -> Samples</u>
- We'll be using:
 - viz.showExportPDFDialog();
 - viz.showExportCrossTabDialog();
 - viz.exportCrossTabToExcel();

dashboard_starter.html

<!-- Nav Item - Export Collapse Menu --->

- <a class="nav-link collapsed" href="#" data-toggle="collapse" data-targ
- <i class="fas fa-fw fa-download"></i>

Export

<i class</pre>

<i class</pre>

<i
/div>

div>

</1

 Rinse and repeat -- with the functions added to the js file, we can now reference them in our html file

onclick="exportToPDF();"

onclick="exportToCSV();"

onclick="downloadCrosstab();"

embed_starter.js

*Part 3 - Filter and Revert to Original State

function filterGender(filterName, value) {
 for(var i =0; i < sheets.length; i++) {
 sheets[i].applyFilterAsync(filterName, value, tableau.FilterUpdateType.REPLACE);
 }
}</pre>

function clearFilters(filterName) {
 for(var i =0; i < sheets.length; i++) {
 sheets[i].clearFilterAsync(filterName);
 }
}</pre>

function revertAll() {
 viz.revertAllAsync();

• Next, lets create a few filters. We'll start with **Gender**.

Apply Filter:

 sheets[i].applyFilterAsync(filterName, value, tableau.FilterUpdateType.REPLACE);

Clear Filter:

sheets[i].clearFilterAsync(filterName);

Revert to Original:

• viz.revertAllAsync();

embed_starter.js

//****Part 4 - Usertype Filter - Filter & Revert to Original State
function filterUsertype(filterName, value) {
 for(var i =0; i < sheets.length; i++) {
 sheets[i].applyFilterAsync(filterName, value, tableau.FilterUpdateType.REPLACE);
 }
}</pre>

function clearFilters(filterName) {
 for(var i =0; i < sheets.length; i++) {
 sheets[i].clearFilterAsync(filterName);</pre>

function revertAll() {
 viz.revertAllAsync();

• And another for **Usertype**.

Apply Filter:

 sheets[i].applyFilterAsync(filterName, value, tableau.FilterUpdateType.REPLACE);

Clear Filter:

sheets[i].clearFilterAsync(filterName);

Revert to Original:

• viz.revertAllAsync();

dashboard_starter.html

<div id="collapseUtilities" class="collapse" aria-labelledby="headingUtilities" data-parent="#accordionSidebar"</pre>

- <div class="bg-white py-2 collapse-inner rounded">
- <h6 class="collapse-header">Gender Filters:</h6>
- Unknown
- Male
- Female
 </div>

</div

(li>

<div id="collapsePages" class="collapse" aria-labelledby="headingPages" data-parent="#accordionSidebar">
 <div class="bg-white py-2 collapse-inner rounded">

- <h6 class="collapse-header">Usertype Filters:</h6>
- Customer

Subscriber
</div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div</table>

</div

• Rinse and repeat -- with the functions added to the js file, we can now reference them in our html file

Open in Browser

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			Avg. Temp	Avg F	53 °F		
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			Avg. Temp	Min F	44°F		
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• Step 2 is complete! Test your buttons and filters!

Section IX Conclusion

Conclusion

- Embedding and Platforming Data Applications on Snowflake & Tableau is Easy to get started and Analytically Powerful
 - Creating Tables & Ingesting CSV and JSON
 - Creating Multi-Tenant Shares and Views
 - Data Marketplaces Internal, Private and External
- Read the "Definitive Guide to Maximizing Your Free Trial" document at: <u>https://www.snowflake.com/test-driving-snowflake-the-definitive-guide-to-maximizing-your-free-trial/</u>
- Attend a Snowflake virtual or in-person event to learn more about our capabilities and how customers use us: <u>https://www.snowflake.com/about/events/</u>
- Read the "Best Practices for Using Tableau with Snowflake" Whitepaper: <u>https://resources.snowflake.com/ebooks/best-practices-for-using-tableau-with-snowflake</u>



Any questions?

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THANK YOU

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