How to set up our BI computer

At Dynatrace Business Systems - BI, we spend a lot of our time working on BI projects. As such, we've settled on our favorite way to set up our computers to make working on BI projects as easy as possible.

Note that we are all working on PC (Dell Laptop) - If you are on a MacBook, some part of this may not apply to you.

This article won't cover how to use the different tools we are using. This article will reference other articles with 101.

SQL Query Runner

Query runner is useful when you want to access databases and return result from your SELECT SQL, if you want to build VIEWS that will be used in Visualization tool or for granting rights to new users.

We've gone for the open source DBeaver community. You can create connections to almost any existing databases such as Postgres, NetSuite, Snowflake, Redshift …

The are other alternatives that can be used:
- PgAdmin - Postgres only. Good for administration and development.
- Visual Studio Code with SQLTools PostgreSQL/Cockroach/Redshift Driver - Provide a complete integrated development platform. To set up the postgres driver use the following configuration (create connection using UI first, then update setting.json file):

```
{
        "pgOptions": {
            "ssl": {
                "rejectUnauthorized": false,
                "requestCert": false
            },
            "sslmode": "require"
        },
        "previewLimit": 50,
        "server": "<server-name>",
        "port": 5432,
        "driver": "PostgreSQL",
        "name": "<name of the connection i.e tkrumeich or default>",
        "password": "<password>",
        "username": "<username>",
        "database": "<database name>",
        "group": "<group name i.e: dev or stg"
}
```

Connections

Database	Comment
Heroku Postgres	To create the connection you will need the host name, port number, database name, username and password. ⚠️ Activate your VPN (Global Connect), selecting **Detroit** gateway.
NetSuite	To create the connection you will need to download the NQjc.jar file in a folder on your PC. The JDBC URL is : jdbc:ns://1115163-sb1.connect.api.netsuite.com:1708;ServerDataSource=NetSuite2.com;encrypted=1;NegociateSSLClose=false;CustomProperties=(AccountID=1115163_SB1;RoleID=1382));Unicode=true;characterEncoding=utf8 - replace 1115163-sb1 with the account id you need as well as the RoleID. In DBeaver, first create a driver using 'com.netsuite.jdbc.openaccess.OpenAccessDriver' as the Class Name, then create the connection using the new driver.

Heroku

Heroku is a platform as a service (PaaS) that enables us to run Postgres databases, bi-directional data transfer between Salesforce and Postgres, orchestrate PSQL and Python jobs as well as deploy Kafka.

You can either interact with Heroku using the dashboard or Heroku CLI.

Add On	Comment
Postgres	The database is fully managed by Heroku. No SuperUser access is granted. A maximum of 60 users (aka role) can be created. To create a new user, you will need to, first, create the user in Heroku either using the dashboard or Heroku CLI and then create the right using either DBeaver or PgAdmin. To connect 2 databases, the best approach is to use Data Link.
Connect	

DBeaver

After installing DBeaver, you may need to increase the application's default JVM memory in order to avoid raising a `java.lang.OutOfMemoryError` when exporting large datasets. To change this setting:

- Right click the DBeaver shortcut on your desktop and select 'Properties'
- Under the 'Shortcut' tab, append the following arguments to end of the 'Target' command, adjusting the MB size as needed (8096 MB ~ 8 GB given as example), separated by a space:
  - `-vmargs -Xmx8096m`
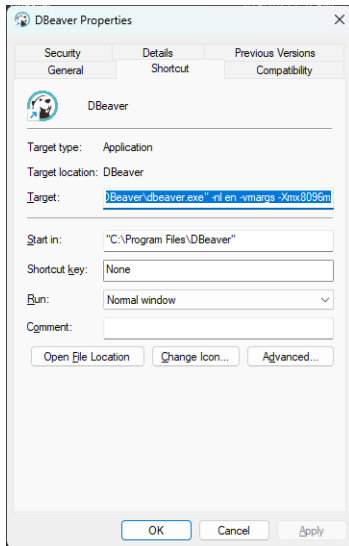
Power BI

PBI-Tools : Source Control and DevOps for Power BI.

ODBC

We use ODBC to connect Power BI Desktop to Heroku PostgreSQL. To setup the ODBC driver and connections:

- Download and run the latest -x64.zip MSI installer from the PostgreSQL: File Browser
- Open Windows **ODBC Data Sources (64 Bit)**
- Under the 'User DSN' tab, click 'Add'
- Select 'PostgreSQL Unicode(x64)' and click 'Finish'
- Set the new data source properties according to the specifics of the target Heroku PostgreSQL DB

Secret Server

Thycotic : Dynatrace used Thycotic to store privileged credentials in an encrypted, centralized vault and to share credential with other party. To request access to Dynatrace Secret Server, submit an EDE request (Request a Service > I need application access to a... > Internal Apps/Services> Secret Server).

Data Ingestion (ETL / ELT)

Dell Boomi: Primary solution used by Business System team to perform data integration. Key player are @ Amit Jain and @ Weronika Nosek .

Code Editor

Visual Studio Code: Preferred IDE (Integrated Development Environment) to use for Python, DBT Core either with Window or WSL.

Git / Bitbucket

Git is a version control system. We use git to keep track of all the changes made to files so that when required we can easily revert to an earlier version. Here is a interactive cheatsheet. Download and install Git (Standalone Installer 64-bits) on your laptop.

Sourctree is a free Git client that simplifies the use of Git.

Python

Related articles