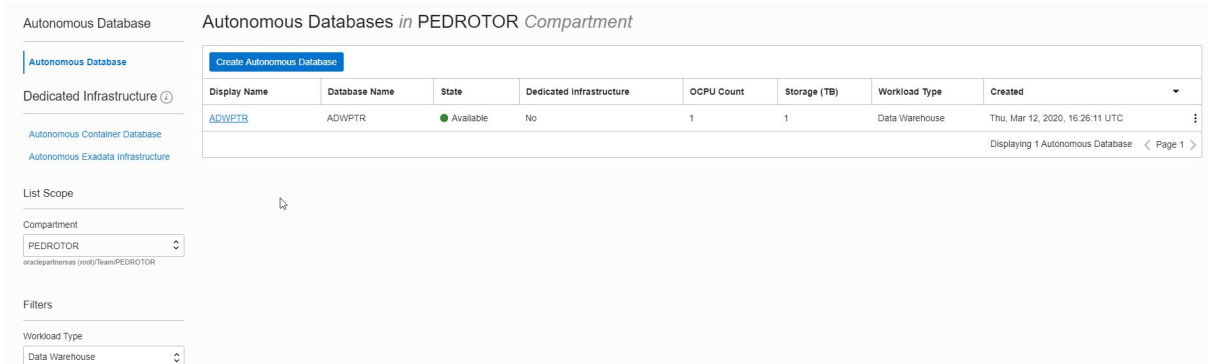


Prerequisites

This document assumes that an ADB, such as Autonomous Data Warehouse (ADW) or Autonomous Transaction Processing (ATP), or Autonomous JSON Database (AJD) was provisioned and Power BI Desktop is installed on a Windows machine (local, in Azure, or OCI).

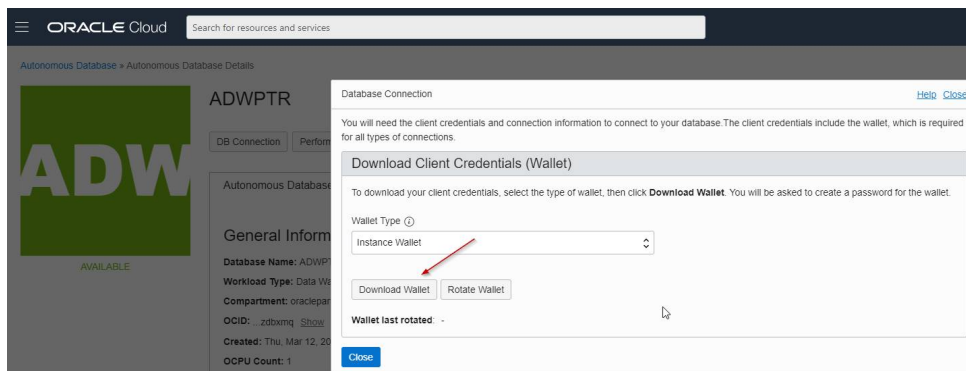


*Note: Please check here for the Oracle documentation to [provision ADW](#).

Power BI may use managed ODP.NET or unmanaged ODP.NET for its ADB connectivity. This tutorial was tested with Power BI's May 2021 version, which requires unmanaged ODP.NET for Oracle database connectivity. It is possible that Microsoft will update Power BI to use managed ODP.NET in a future version. This tutorial guides you on using either unmanaged or managed ODP.NET with Power BI.

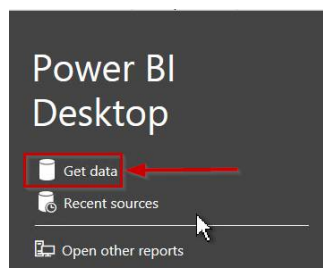
Installation and Setup Steps

1. Download the corresponding Oracle ADB credentials zip file to the system that has or will have Power BI Desktop installed. These credential files will be used to connect Power BI Desktop to ADB.

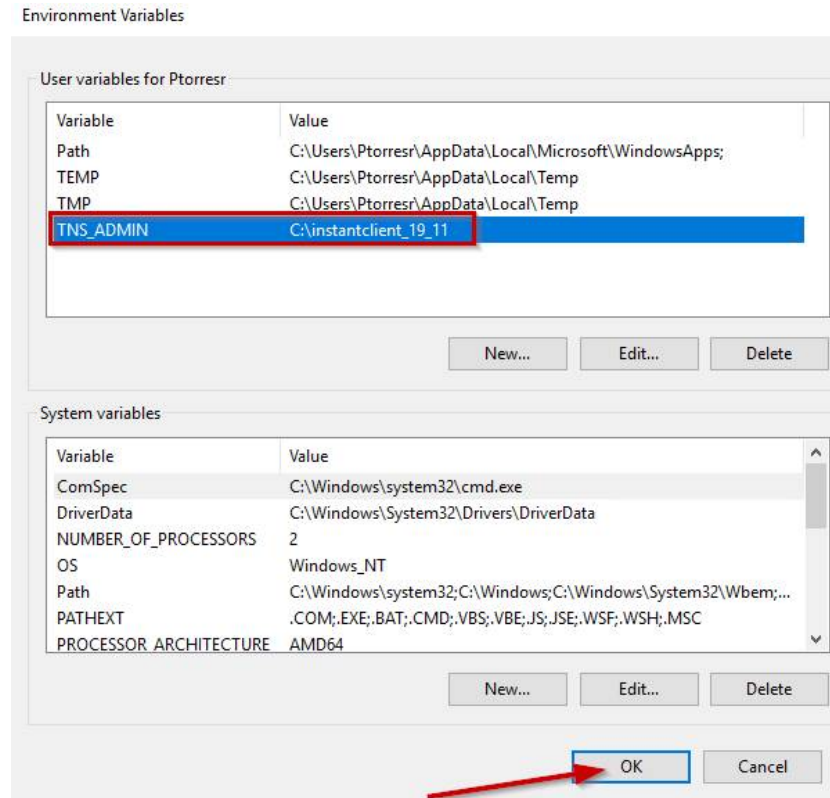


*Note: Also check Downloading Client Credentials (Wallets).

2. Open Power BI Desktop and create a project.



- In the Windows environment variables dialog, create the TNS_ADMIN variable. Set its value to the directory location where you unzipped the ADB wallet contents.



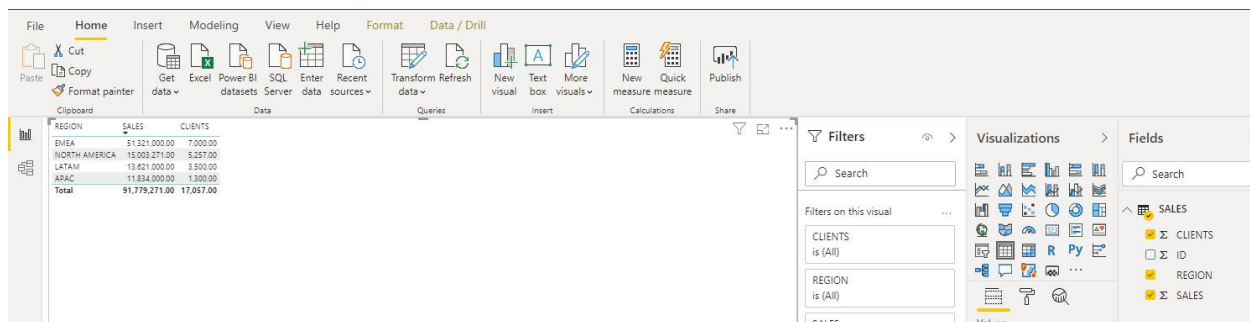
*Note: The tnsnames.ora net service names will be used to connect to ADB's.

If you are connecting to multiple ADBs from the same machine with a different wallet for each one, add the parameter MY_WALLET_DIRECTORY to the connect descriptor with each descriptor's specific wallet location. For example:

```
adwptr_high = (description=
(retry_count=20)(retry_delay=3)(address=(protocol=tcps)(port=1522)(host=adb.us-phoenix-
1.oraclecloud.com))(connect_data=(service_name=bk8ui2h_adwptr_high.adwc.oraclecloud.com))(security=(s
sl_server_cert_dn="CN=adwc.uscom-east-1.oraclecloud.com, OU=Oracle BMCS US, O=Oracle Corporation,
L=Redwood City, ST=California, C=US"))(MY_WALLET_DIRECTORY=C:\DATA\WALLET\Wallet_ADWPTR)))
```

```
adwbi_low = (description= (retry_count=20)(retry_delay=3)(address=(protocol=tcps)(port=1522)(host=adb.us-
phoenix-
1.oraclecloud.com))(connect_data=(service_name=bk8uqi2h_adwbi_low.adb.oraclecloud.com))(security=(ssl
_server_cert_dn="CN=adwc.uscom-east-1.oraclecloud.com, OU=Oracle BMCS US, O=Oracle Corporation,
L=Redwood City, ST=California, C=US"))(MY_WALLET_DIRECTORY=C:\DATA\WALLET\Wallet_ADWBI)))
```

- Open the TNSNAMES.ora file in the wallet directory to see which ADB net service names are available to connect to. Below you see three different ones: adwptr_high, adwptr_low, and adwptr_medium. Your ADB net service names will likely be named differently.



REGION	SALES	CLIENTS
EMEA	51,321,000.00	7,000.00
NORTH AMERICA	15,003,271.00	5,257.00
LATAM	13,621,000.00	3,500.00
APAC	11,834,000.00	1,300.00
Total	91,779,271.00	17,057.00

Performance Tuning for Large Data Retrievals

Typically, BI and ETL applications retrieve large data amounts from a source database for further processing. To speed up Oracle data retrieval via Power BI Desktop, the ODP.NET FetchSize can be increased from its default 128K value (131,072 bytes) to as large as int.MaxValue. The FetchSize determines the amount of data ODP.NET fetches into its internal cache upon each database round trip. It's possible to improve performance by an order of magnitude by significantly increasing FetchSize when retrieving large result sets.

Unmanaged ODP.NET Instructions

To increase the 32-bit or 64-bit unmanaged ODP.NET's FetchSize, launch the Windows Registry editor (regedit.exe) and go to the following Registry key:

HKEY_LOCAL_MACHINE\SOFTWARE\Oracle\ODP.NET\4.122.19.1

Add the String Value "FetchSize" and set it to a value larger than the default (131072), such as 4194304 (4 MB).

Restart Power BI Desktop and run your queries with the new setting.

Managed ODP.NET Instructions

To increase managed ODP.NET's FetchSize, modify the .NET machine.config file. Modifying the machine.config requires Windows Administrator privileges. This file is generally located in the following directory: **C:\WINDOWS\Microsoft.NET\Framework\v4.0.30319\Config**.

Add an <oracle.manageddataaccess.client> section in the machine.config file for managed ODP.NET. This section should be placed within the <configuration> section and after the <configSections> </configSections>. Here's an example setting the FetchSize to 4 MB:

```
<configuration>
<configSections>
...
</configSections>
```

```
<oracle.manageddataaccess.client>
```

```
<version number="*">
  <settings>
    <setting name="FetchSize" value="4194304" />
  </settings>
</version>
</oracle.manageddataaccess.client>
```

```
</configuration>
```

Once done, restart Power BI Desktop so that ODP.NET will use the new setting.