Connecting Microsoft Power BI Service to Oracle Autonomous Database using Microsoft Gateway

Pedro Torres

This step by step tutorial guides how to configure Microsoft Power BI cloud service (BI) connectivity to Oracle Autonomous Database (ADB) using Microsoft Gateway.



Pre-requisites

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 service is enabled and a Windows machine (local, in Azure, or OCI) have Data Gateway installed. The Windows machine is used to develop the Power BI app with Power BI Desktop. The app is then be deployed to the Power BI service.

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*Note: Please check here for the Oracle documentation to provision ADW.

Installation and Setup Steps

1. Download the corresponding Oracle ADB credentials zip file to the Windows machine. You will later deploy them and the app to the Power BI service. These credential files will be used to connect Power BI service to ADB.

	Search for resources and services	
Autonomous Database » Autonomous	Database Details	
	ADWPTR	Database Connection Help Close
	DB Connection Perform	You will need the client credentials and connection information to connect to your database. The client credentials include the wallet, which is required for all types of connections.
		Download Client Credentials (Wallet)
	Autonomous Database	To download your client credentials, select the type of wallet, then click Download Wallet. You will be asked to create a password for the wallet.
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*Note: Also check Downloading Client Credentials (Wallets).

2. Create Power BI Service in Azure https://powerbi.microsoft.com/en-us/landing/signin/

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3. Create the Windows instance (In this case, it was created in Oracle Cloud Infrastructure (OCI), but you can create it on-premises too.)



- 4. Install Microsoft Data Gateway on the Windows server:
 - Connect to the Power BI Service
 - Select Data Gateway
 - Download the software to install
 - Install in the Windows Server



Next, you need to sign in to register your gateway.

Sign in	Cancel
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C____On-premises data gateway

You are signed in as pedro.p.torres@oracle.com and are ready to register the gateway.

Register a new gateway on this computer.

O Migrate, restore, or takeover an existing gateway.

- Move a gateway to a new computer
- Recover a damaged gateway
- Take ownership of a gateway
 The old gateway will be disconnected.



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5. Register the Data Gateway



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Cancel

On-premises data gateway

Status	\oslash The gateway gateway is online \circ	and ready to be used.				
Service Settings	Gateway version number: 3000.89.6 (July 2021)					
Diagnostics	Help us improve the on-premises data gatew	ay by sending usage information				
Network	to Microsoft. <u>Read the privacy statement online</u>					
Connectors	Logic Apps, Azure Analysis Services	Create a gateway in Azure				
Recovery Keys	West US	<u>create à gateria j'in ruare</u>				
	Power Apps, Power Automate West US	Ready				
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6. Download Oracle Client (19c is the best recommendation) on the Windows instance. https://www.oracle.com/database/technologies/oracle19c-windows-downloads.html

Oracle Database 19c Client (19.3) for Microsoft Win	ndows x64 (64-bit)
Download	Description
₩NDOWS.X64_193000_client_home.zip	(64-bit) (924,022,453 bytes) (sha256sum - a7d5ba7d3dac84fcebc5ddb50aeed3125b52d94f26bab9924bdab6f6r)
₩INDOWS.X64_193000_client.zip	(64-bit) (1,043,502,535 bytes) (sha256sum - 3fa278fe33e0cd3bbed6c84f34b5698962c1feeb74cced1c9713435ebd)

7. Install Oracle Client on the Windows instance.

🅌 Oracle Database Client 19c Insta	er - Step 1 of 7 - 🗆 🗙
Select Installation Type	19° ORACLE Database
Select Installation Type	What type of Installation do you want?
Oracle Home User Selection	<u>●</u> <u>A</u> dministrator (1.5GB)
Specify Installation Location	Installs the management console, management tools, networking services, utilities and basic client software.
Perform Prerequisite Checks	O Runtime (1.1GB)
Summary	Installs tools for developing applications, networking services and basic client software.
Install Product	O Instant Client (350.0MB)
Ö Finish	Installs Instant Client Software
	○ <u>C</u> ustom
	Enables you to choose individual components to install.

Open a Windows command prompt *in administrator mode*.
 In the same command prompt with administrator privileges, navigate to the installation subdirectory, <installation directory>\ODP.NET\bin\4. Then, execute the following commands:

To configure unmanaged ODP.NET:

C:\app\client\opc\product\19.0.0\client_1\ODP.NET\bin\4>_

 $\label{eq:c:app} cient opc product 19.0.0 client_1 ODP.NET bin 4> Ora ProvCfg / action: gac / provider path: "Oracle.DataAccess.dll" of the second second$

C:\app\client\opc\product\19.0.0\client_1\ODP.NET\bin\4>OraProvCfg /action:config /product:odp /frameworkversion:v4.0.30319 /providerpath:"Oracle.DataAccess.dll"



9. Edit the Windows environment variables by adding the path value of the 64-bit Oracle Client directory (e.g. C:\app\client\opc\product\19.0.0\client_1\ODP.NET)

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

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TMP	C:\Users\opc\AppData\Local\Temp	%SystemRoot%\System32\Wbem	
TNS_ADMIN	C:\app\client\opc\product\19.0.0\client_1\network\admin	%SYSTEMROOT%\System32\WindowsPowerShell\v1.0\	Browse
-		%SYSTEMROOT%\System32\OpenSSH\	
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		C:\Program Files\Microsoft VS Code\bin	
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To ensure this directory path setting has precedence over existing Oracle Homes, move the setting up to the highest possible level in the directory order with the "Move Up" button.

10. Navigate to where you downloaded the Oracle ADB credentials on your Windows machine from step 1. Unzip the contents to a directory.

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*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=(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_ADWPTR)))

adwbi_low = (description= (retry_count=20)(retry_delay=3)(address=(protocol=tcps)(port=1522)(host=adb.usphoenix-

1.oraclecloud.com))(connect_data=(service_name=bk8uqvi2h_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)))

11. 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.



12. Enable the Data Gateway in the Power BI by selecting "Manage Gateways" from the Power Bi service menu.





13. Add the Data Gateway and new name

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14. Add the Data Source according to your database credentials information.

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15. Validate the connection.

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16. Connect to the Power BI service and create a Workspace.

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17. Add a new Data Flow from menu and define "New Tables".

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7 Get data	

18. Select the correct Data Source, in this case "Oracle Database"

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Templates	Salesforce	Dynamics 365 Sales	Dynamics 365 Sales	Dynamics 365 Sales			



19. Set the Connection String settings and Data Gateway just created. Then, select Next.

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20. Congratulations! Your Power BI service instance should now connect to ADB. Open in Navigator the tables that you need data to create your own Microsoft Power BI Service Document (.pbix) and load the data.

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21. Validate the data into the tables





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