**CMF - PostgreSQL   
Info-Gathering**

**of Azure Database for PostgreSQL - Single Server /  
On-Premises / Azure VM / Other Cloud PostgreSQL workload to Azure Database for PostgreSQL - Flexible Server​** **- User Guide**

A person sitting at a table using a computer with a woman looking over his shoulder.

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**Disclaimer:** These scripts are intended for use of Info Gather Assessment utility and do not interact with the user databases or gather any sensitive information (e.g. passwords, PI data etc.). These scripts are provided as-is to merely capture metadata information ONLY. While every effort has been made to ensure accuracy and reliability of the scripts, it is recommended to review and test them in a non-production environment before deploying them in a production environment. It is important to note that these scripts should be modified with the consultation of Microsoft.

**Document Summary**

|  |  |
| --- | --- |
| **Document Item** | **Current Value** |
| Document Title | CMF - PostgreSQL Info-Gathering of Azure Database for PostgreSQL – Single Server / On-Premises / Azure VM / Other Cloud PostgreSQL workload to Azure Database for PostgreSQL - Flexible Server - User Guide |
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**Revision History**

This section represents the change history of the document. Revisions of the document must be tracked by identifying a new version number, the date it was modified, the person making the change, and the reason for the change.

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# **Objective**

This document provides the procedure/steps to execute the Automation script (**CMF-PostgreSQL-Windows.ps1, CMF-PostgreSQL-Linux.ps1, CMF-PostgreSQL-CLI-Windows.ps1, CMF-PostgreSQL-CLI-Linux.ps1**) which gathers the PostgreSQL instance details from Azure, Windows, and Linux environment.

**Note**: The Automation Scripts does not fetch/access any of the user database data. The values present in the Screenshots are demo values. Please change the values as Appropriate.

# **Roles and Responsibilities**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Task | Responsible | Accountable | Consulted | Informed |
| Info-Gather | Customer/CMF | PM | CMF | PM/CMF |

# **Pre-requisites for PostgreSQL Server Info gathering script execution**

## **Operating System Requirements**

* Supported Operating System
* Windows - Windows 10, Windows Server 2012, Windows Server 2012 R2 and above
* Linux - RHEL v7 & above, Ubuntu v7 & above

## **Software requirements**

* Azure CLI (To gather Azure Database for PostgreSQL Single Server metadata)
* PostgreSQL Client 11 and above
* PowerShell 5.1 and above.

# **Procedure**

## **PostgreSQL Info-Gathering on Windows Server**

### Azure Database for PostgreSQL - Single Server Info-Gathering (**CMF-PostgreSQL-CLI-Windows.ps1**)

#### Scripts Folder

* Unzip the **PostgreSQL-Info-Gather** zip file received by CMF Team

#### Preparing the INPUT CSV File - Azure\_Subscription.csv

* In order to support the Info Gathering process, INPUT CSV FILE (**Azure\_Subscription.csv)** should be provided with Azure Subscription data.
* Each column will represent an Azure Subscription detail for Azure PostgreSQL Single Server Info Gathering

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#### Script execution **(CMF-PostgreSQL-CLI-Windows.ps1)**

* Open windows Command prompt as **Administrator**
* Change the working directory/folder to the folder **PostgreSQL-Info-Gather** where the scripts are present.
* Enter the following command on windows command prompt to execute the info-gather script.

**powershell.exe -ExecutionPolicy Bypass -File .\CMF-PostgreSQL-CLI-Windows.ps1**

#### Create support folders (Logs, Output, Downloads etc)

* After triggering the automation all the support folders (Logs, Output, Download etc.) will be created automatically by the automation script in the PostgreSQL-Info-Gather folder

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#### Validate Azure CLI

* Automation script validates if the Azure CLI application is installed. If it is not installed, you will have to install it manually via a link provided on the output screen.

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* Once Azure CLI Installation is complete, ensure the installation path is added to the environmental variables. Kindly close the Command Prompt and validate Azure CLI by re-running the automation script again.

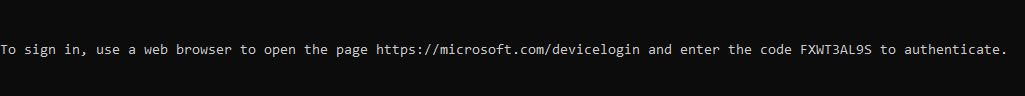
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* PowerShell version and Azure CLI are validated successfully.

#### Azure Portal authentication

* Automation requires the Azure portal authentication. Use the provided URL and code to authenticate

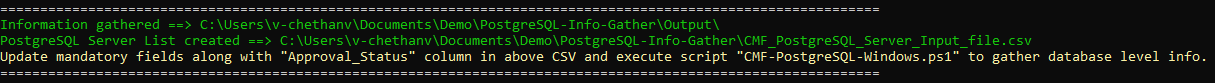


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#### Export Info-Gathering details and generating JSON files

* Once Azure portal authentication is successful, Automation gathers Azure PostgreSQL Single Server details to update them in csv files. Also, Azure CLI’s PostgreSQL commands output will be exported to JSON file.
* The JSON files can be found in the Folder Output 🡪 Single



#### Azure PostgreSQL Single Server JSON output

* The Following JSON output file will be generated and contains the list of all Azure PostgreSQL Single Server from the given Azure subscription(s).

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#### Azure PostgreSQL Single Server CSV output

* CSV files will be generated for all the PostgreSQL Single Server/Instance(s) from the given Azure subscription. Azure CLI’s output is as follows, A screenshot of a computer

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#### Automation Script Transcript Log

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**Note:** For the Automation, transcript will be generated in text format as shown above

### PostgreSQL Server Info-Gathering (**CMF-PostgreSQL-Windows.ps1**)

#### Preparing the INPUT CSV File - (CMF-PostgreSQL\_Server\_Input\_file.csv)

* To support the Info Gathering process, INPUT CSV FILE   
  (**CMF-PostgreSQL\_Server\_Input\_file.csv**) should be provided with PostgreSQL Server details.
* Provide the Mandatory fields highlighted in red color as shown below.

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#### Script execution (**CMF-PostgreSQL-Windows.ps1**)

* Open windows Command prompt as **Administrator**
* Change the working directory/folder to the folder **PostgreSQL-Info-Gather** where the scripts are present.
* Enter the following command in the windows command prompt.

**Powershell.exe -ExecutionPolicy Bypass -File .\CMF-PostgreSQL-Windows.ps1**

* To securely store password and use it for info-gathering process, enter option ‘0’.

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* Provide the password for the username for each server when prompted.

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Description automatically generated**

* To perform PostgreSQL server Information gathering, enter option ‘1’.

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**Note:** After triggering the automation all the support folders (Logs, Output, Downloads etc.)   
will be created automatically by the automation script, psql path is validated, and it will ask user to proceed with the execution of the script

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* The script then validates the list of Hosts to proceed with execution. Continue by Entering “Y” and provide your Project Name. You’ll get below the Final Status of the Script Execution.

**Note:** Ensure you add the location of psql.exe to your Path environment variables

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#### Export Info-Gathering details and generating output log files

* Output log files are generated for each PostgreSQL Server as shown in the below Output Folder.

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### A screenshot of a computer Description automatically generatedAutomation Script Transcript Log

**Note:** For the Automation, transcript will be generated in text format as shown above

**Note:**

* Output files generated using CMF-PostgreSQL-CLI-Windows.ps1 and the log files generated by CMF-PostgreSQL-Windows.ps1 will be in the same Output and Logs folder.
* Please share compressed Output & Logs folder with CMF Team.

## **PostgreSQL Server Info-Gathering on Linux Server**

### Azure Database for PostgreSQL - Single Server Info-Gathering (**CMF-PostgreSQL-CLI-Linux.ps1**)

#### Scripts Folder

* Unzip the **PostgreSQL-Info-Gather** zip file received by CMF Team

**Commands:** unzip PostgreSQL-Info-Gather.zip

cd PostgreSQL-Info-Gather /

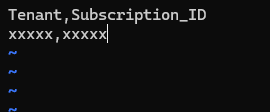
ls -lrt

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Description automatically generated

#### Preparing the INPUT CSV File - Azure\_Subscription.csv

* To support the Info Gathering process, INPUT CSV FILE (**Azure\_Subscription.csv)** should be provided with Azure Subscription data.
* Each column will represent an Azure Subscription detail for Azure PostgreSQL Single Server Info Gathering

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#### Script execution (**CMF-PostgreSQL-CLI-Linux.ps1**)

* Open Terminal window
* Change the working directory/folder to the folder **PostgreSQL-Info-Gather** where the scripts are present.
* Enter the following command in the terminal to execute the info-gather script.

**pwsh ./CMF-PostgreSQL-CLI-Linux.ps1**

#### Create support folders (Logs, Output, Downloads etc)

* After triggering the automation all the support folders (Logs, Output, Download etc.) will be created automatically by the automation script in the PostgreSQL-Info-Gather folder

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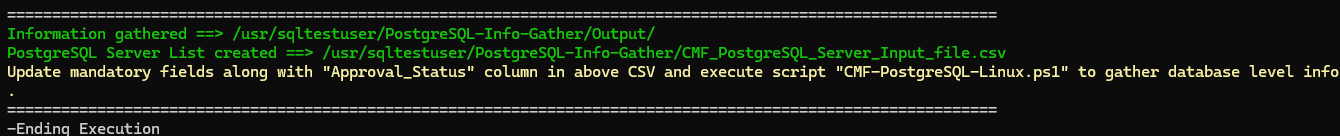
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* PowerShell version and Azure CLI are validated.
* Automation script validates if the Azure CLI application is installed. If it is not installed, you will have to install it manually via a link provided on the output screen.
* Automation requires the Azure portal authentication
* Copy the device login URL and code to authenticate

****

#### Export Info-Gathering details and generating JSON files

* Once Azure portal authentication is successful, Automation gathers Azure PostgreSQL Single Server details to update them in csv files. Also, Azure CLI’s PostgreSQL commands output will be exported to JSON file.
* The JSON files can be found in the Folder Output 🡪 Single

****

#### Azure PostgreSQL Single Server JSON output

* The Following JSON output file will be generated and contains the list of all Azure PostgreSQL Single Server from the given Azure subscription.



#### Azure PostgreSQL Single Server CSV output

* CSV files will be generated for all the PostgreSQL Single Server/Instance(s) from the given Azure subscription. Azure CLI’s output are as follows,

A computer screen shot of a computer program

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#### Automation Script Transcript Log



**Note:** For the Automation, transcript will be generated in text format as shown above

### PostgreSQL Server Info-Gathering (**CMF-PostgreSQL-Linux.ps1**)

#### Scripts Folder

* Unzip the **PostgreSQL-Info-Gather** zip file received by CMF Team

**Commands:** unzip PostgreSQL-Info-Gather.zip

cd PostgreSQL-Info-Gather /

ls -lrt

A computer screen shot of a blue screen

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#### Preparing the INPUT CSV File - (**CMF-PostgreSQL\_Server\_Input\_file.csv**)

* To support the Info Gathering process, INPUT CSV FILE   
  (**CMF-PostgreSQL\_Server\_Input\_file.csv**) should be provided with PostgreSQL Server details.

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* Provide the Mandatory fields highlighted in red color.

#### Script execution (**CMF-PostgreSQL-Linux.ps1**)

* Open terminal window,
* Enter the following command to execute the script.

pwsh ./CMF-PostgreSQL-Linux.ps1

* To perform PostgreSQL server Information gathering, enter option ‘1’.

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Description automatically generated**

**Note:** After triggering the automation all the support folders (Logs, Output, Downloads etc.) will be created automatically by the automation script, psql path is validated, and it will ask user to proceed with the execution of the script

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* The script then Validates the list of Hosts to proceed with execution. Continue by Entering “Y” and provide your Project Name. You’ll get below the Final Status of the Script Execution.

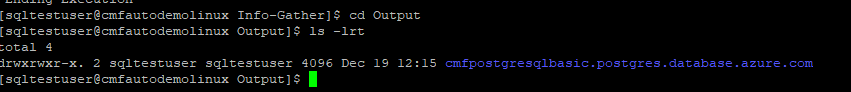
**Note:** Ensure you add the location of psql.exe to your Path environment variables

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### Export Info-Gathering details and generating output log files

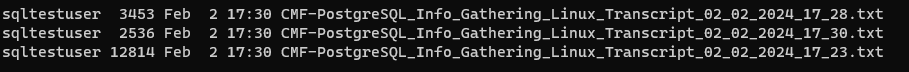
* Output log files are generated for each PostgreSQL Server as shown in the below Output Folder.



**A computer screen with many colorful text

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### Automation Script Transcript Logs



**Note:** For the Automation, transcript will be generated in text format as shown above

**Note:**

* Output files generated using CMF-PostgreSQL-CLI-Linux.ps1 and the log files generated by CMF-PostgreSQL-Linux.ps1 will be in the same Output and Logs folder.
* Please share compressed Output & Logs folder with CMF Team.

## **PostgreSQL Server Info-Gathering using Azure Cloud Shell**

* Click on the icon shown below to open the Azure cloud shell

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* Click on “Show advanced settings”

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* Choose your preferred region, you can either use existing or create a new resource group for creating the storage account and file share and then click “Create storage”

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* Choose PowerShell as the Shell.

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* Upload the PostgreSQL-Info-Gather.zip file.

### Scripts Folder

* Unzip the **PostgreSQL-Info-Gather** zip file received by CMF Team

**Commands:** unzip PostgreSQL-Info-Gather.zip

ls -lrt

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### Preparing the INPUT File (Azure\_Subscription.csv)

* To support the Info Gathering process, INPUT CSV FILE  
  (**Azure\_Subscription.csv**) should be provided with appropriate details.
* Open the Cloud Shell editor to edit the csv file.

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* In **Azure\_Subscription.csv** file, provide the Tenant and Subscription ID.
* A screenshot of a computer

  Description automatically generatedSave and close the editor.

### Script execution (**CMF-PostgreSQL-Linux.ps1**)

* Enter the following command to execute the script.

**./CMF-PostgreSQL-CLI-Linux.ps1**

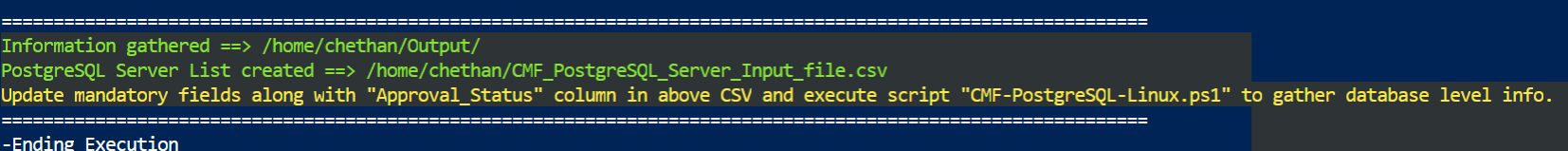
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* Copy the device login URL and code to authenticate
* Output is as shown below.



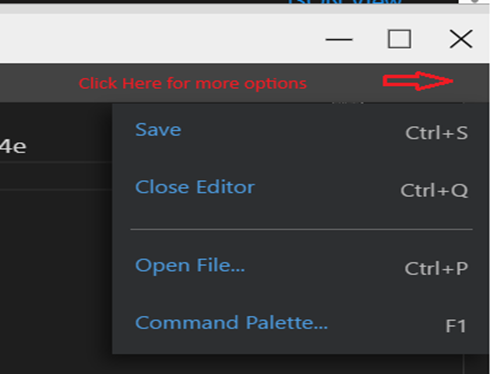
* Open the Cloud Shell editor to edit the **CMF-PostgreSQL\_Server\_Input\_file.csv** file.

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* In CMF-PostgreSQL\_Server\_Input\_file.csv file, provide the password and Approval Status.

**Note:** Password can also be provided during script execution.

* Save and close the editor.

* Run the below script for PostgreSQL Server Info Gathering

./CMF-PostgreSQL-Linux.ps1

* To perform PostgreSQL server Information gathering, enter option ‘1’. A screenshot of a computer

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* Zip the Output and Logs folder, download and share it with the CMF Team using the commands below.

zip -r filename.zip ./Logs ./Output

* To download the zip files –

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# **Appendix**

## **Checking Error Logs**

* If script execution fails due to some errors, for example, “incorrect password” then you can check the detailed error log in **Output folder 🡪 Server\_name folder 🡪 ce\_postgresqlxxx.postgres.database.azure.com.log file.**

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## **Troubleshooting**

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* In the **CMF\_PostgreSQL\_Server\_Input\_file.csv** file, ensure that the “DB\_Name” column value is “postgres”.

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* Ensure that the scripts folder name does not contain any whitespaces. In the above example, the scripts folder name contains whitespaces “PostgreSQL-Info-Gather 1”.

A black screen with red text

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* Add the PostgreSQL server binary path in environment variables. Refer below link for steps.  
  [Adding psql (Postgres) as an environment variable in Windows](#_Adding_psql_(Postgres))

## **Input CSV File – Azure\_Subscription.csv**

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**Important Notes:**

* + - This script is based on the csv file named ‘Azure\_Subscription’ and the following columns in the Input csv file
    - INPUT CSV FILE name must be **Azure\_Subscription.csv**
    - **Column Name must be kept as shown below, change in names will result in errors**
    - **Values in the column must be correct, incorrect values will also result in errors**

|  |  |  |
| --- | --- | --- |
| **Seq.No** | **File** | **Note** |
| 1 |  | Sample: **Azure\_Subscription.csv** |

## **Input CSV File - CMF-PostgreSQL\_Server\_Input\_file.csv**

A screenshot of a computer program

Description automatically generated **Important Notes:**

* + - PostgreSQL Client is required to establish Connectivity to PostgreSQL Servers.
    - This script is based on the CSV file named ‘CMF-PostgreSQL\_Server\_Input\_file.csv’.
    - Column Name must be kept as shown below, change in names will result in errors
    - Values in the column must be correct, incorrect values will also result in errors
    - Tenant and Subscription\_ID columns are Optional.
    - Password field is optional but should be provided during script execution if omitted.

1. **Columns for Input File: CMF-PostgreSQL\_Server\_Input\_file.csv**

|  |  |
| --- | --- |
| **Column Name** | **Note** |
| **Host\_Name** | Provide the Host Name (Example : localhost) |
| **Port** | Provide the Port Number ( Example : 5432) |
| **VCore** | Provide the Number of VCore (Optional) |
| **Auth\_Type** | Provide the Authentication Type(Optional) |
| **User\_ID** | Provide the User\_Id |
| **Password** | Provide the Password |
| **DB\_Name** | Provide the Database Name (Example : postgres ) |
| **Tenant** | Provide the Tenant Id. (Optional) |
| **Subscription\_ID** | Provide the Subscription Id. (Optional) |
| **Approval\_Status** | Provide yes to fetch Information and No to cancel for the Host. |
| **SSL\_Mode** | Provide SSL\_Mode (Example : require) |

|  |  |  |
| --- | --- | --- |
| **Seq.No** | **File** | **Note** |
| 1 |  | Sample:  **CMF-PostgreSQL\_Server\_Input\_file.csv** |

1. **Internet access to the URLs below:**

|  |  |
| --- | --- |
| **URL** | **Note** |
| https://aka.ms/installazurecliwindows | Azure CLI (Windows) |
| https://learn.microsoft.com/en-us/cli/azure/install-azure-cli-linux?pivots=dnf | Azure CLI (Linux) |
| <https://aka.ms/PSWindows> | PowerShell (Windows) |

## **Without Internet access to the URLs**

Follow the instructions in the following sections to download all the software manually to a server where internet connectivity is enabled. Once all the software is downloaded, move all of it to the server where PostgreSQL Automation script will be executed and install all of them one by one.

## **Installing Azure CLI for Windows and Linux**

Windows - <https://aka.ms/installazurecliwindows>

Linux - https://learn.microsoft.com/en-us/cli/azure/install-azure-cli-linux

## **PowerShell Version & Execution policy**

Execute the below commands from windows PowerShell as Administrator.

To find the PowerShell Version

* **Get-Host**

Graphical user interface, text

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Set the PowerShell execution policy

* **Set-ExecutionPolicy Unrestricted -Scope CurrentUser**



## **PowerShell Installation on Linux**

* Register the Microsoft RedHat Repository

curl https://packages.microsoft.com/config/rhel/7/prod.repo | sudo tee /etc/yum.repos.d/microsoft.repo

* Install PowerShell

sudo yum install –assume yes powershell

* Start PowerShell

Pwsh

## **Adding psql (Postgres) as an environment variable in Windows**

* To add the PostgreSQL Client to your environment path, you'll need to modify the system's PATH environment variable to include the directory where the PostgreSQL Client is located. Below are the steps to add the psql client to the system env path,

1. After the installation, open Start menu, search for Environment variables and select “Edit the system Environment variables”

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1. In the System Properties window, click the “Environment variables”

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1. Next, in the Environment variables window, under “System variables” section, select Path and click “Edit”

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1. Click the “New” button and add the installation path or Browse to navigate and add the PostgreSQL Client installation directory path (e.g. C:\Program Files\PostgreSQL\16\bin or the path where PostgreSQL Client is installed) as shown below

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1. Click “OK” to close each window.

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## **Adding Azure CLI as an environment variable in Windows**

* To add the Azure CLI to your environment path, follow the steps below,

1. After installation, open the Start menu, search for "Environment Variables," and select "Edit the system environment variables."
2. In the System Properties window, click the "Environment Variables" button.
3. In the Environment Variables window, under the "System variables" section, find and select the "Path" variable, then click the "Edit" button.
4. Click the "New" button and add the path to the Azure CLI installation directory (e.g., C:\Program Files\Microsoft SDKs\Azure\CLI2\wbin).
5. Click "OK" to close each window.

* Verify by opening a new Command Prompt or PowerShell window and type “az” to verify that the Azure CLI is now accessible.