**CMF - PostgreSQL Info-Gathering**

**of On-Premises / AZ cloud / Other Cloud**

**PostgreSQL workload to Azure Database for PostgreSQL - Flexible Server (PaaS)​** **- User Guide**

**For Script:**

**CMF-PostgreSQL-CLI-Windows.ps1**

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

**CMF-PostgreSQL-Windows.ps1**

**CMF-PostgreSQL-Linux.ps1**



**Disclaimer:** The following PowerShell scripts provided are intended for use as a Info Gather utility tool and do not directly interact with the user database server or store any sensitive information, including passwords. These scripts are provided as-is without any warranty, express or implied. While every effort has been made to ensure the 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 not be used to directly modify or interact with the database server without proper understanding and consideration of potential impacts on the server and data integrity. Furthermore, these scripts do not handle sensitive information such as passwords directly within the script. It is the responsibility of the user to ensure that any sensitive information, including passwords, is handled securely and in compliance with organizational security policies. By using these scripts, you acknowledge and agree that the authors and contributors shall not be liable for any damage or losses arising from the use of these scripts.

**Document Summary**

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|  |
| --- |
| **Pre-requisites** **Supported OS** Windows 10, Windows Server 2012, Windows Server 2012 R2 and above.  Linux RHEL v7 & above, Ubuntu v14 & above  **PowerShell (Install)** Windows - <https://learn.microsoft.com/en-us/powershell/scripting/install/installing-powershell-on-windows?view=powershell-7.4>  Linux - <https://learn.microsoft.com/en-us/powershell/scripting/install/install-rhel?view=powershell-7.4>  **Azure CLI** (Install Only for Azure Database for PostgreSQL Single Servers) Windows - <https://aka.ms/installazurecliwindows>  Linux - <https://learn.microsoft.com/en-us/cli/azure/install-azure-cli-linux/>  **PostgreSQL Client (Install)**  **Windows** - <https://www.postgresql.org/download/windows/>  **Linux** - <https://www.postgresql.org/download/linux/>  **Note: -** Add PATH in Environment Variables (Windows) Azure CLI (e.g. C:\Program Files\Microsoft SDKs\Azure\CLI2\wbin) PostgreSQL Client (e.g. C:\Program Files\PostgreSQL\16\bin) **Step1. Azure CLI Info Gathering (Only for Azure Database for PostgreSQL Single Servers)**  1. Download the package zip file named PostgreSQL-Info-Gather.zip 2. Extract the unzip PostgreSQL-Info-Gather.zip file. 3. Run **rename rename.txt rename.bat** and execute the rename.bat (Windows) 4. Run **sh ./rename-linux.txt** (Linux) 5. Open the Input file Azure\_Subscription.csv and provide the Tenant ID & Subscription ID 6. Execute **powershell.exe .\CMF-PostgreSQL-CLI-Windows.ps1** (Windows) 7. Execute **pwsh ./CMF-PostgreSQL-CLI-Linux.ps1** (Linux) 8. Once the execution is completed, you can check the output & Logs folder.  **Step2. Update CMF\_PostgreSQL\_Server\_Input\_file.csv (Mandatory)** "**Host\_Name**","Resource\_Group","**Port**","VCore","Auth\_Type","**User\_ID**","**Password**","**DB\_Name**","Tenant","Subscription\_ID","**Approval\_Status**","SSL\_Mode"  **Note: -** . Highlighted are **Mandatory Fields** . Update Mandatory fields manually in the case of On-premises / Azure VM / Other Cloud Servers. **Step3. PostgreSQL Server Info Gathering (Mandatory)**  1. Execute **powershell.exe .\CMF-PostgreSQL-Windows.ps1** (Windows) 2. Execute **pwsh ./CMF-PostgreSQL-Linux.ps1** (Linux) 3. Once the execution is completed, you can check the output & Logs folder.  **Step4. Only for On-Premises / Azure VM / Other Cloud Servers** . Refer document CMF-ON-Prem\_Server\_Info\_gather.docx from the zip folder and update details and share document.  Host-Name | Cores | Memory | Storage Size | Storage Type | OS type | OS version | IOPS. **Step5. Zip and share output, log folders (Mandatory for all servers)** Kindly follow the execution instructions mentioned in the attached documents. If there is/are any queries, please let us know, we will connect and check. |

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# 1 Executive Summary

## 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 values present in the Screenshots are demo values. Please change the values as Appropriate.

# Prerequisites 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

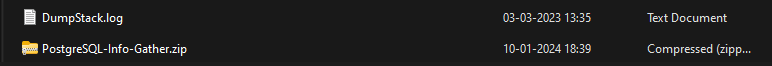
## Software requirements

* Azure CLI (To gather Azure Database for PostgreSQL single server)
* PostgreSQL Client 11 and above
* PowerShell 5.1 and above.

# Azure PostgreSQL Single Server Info-Gathering

## Scripts Folder

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



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## Renaming Scripts

* Execute the following command in PostgreSQL folder to rename the scripts from .txt to .ps1 on **Windows** Command Prompt.

rename rename.txt rename.bat

* Run rename.bat file

rename.bat

* Execute the following command in PostgreSQL folder to rename the scripts from .txt to .ps1 on **Linux** Terminal.

sh rename-linux.txt

## 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

* 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 **trigger** the   
  **CMF-PostgreSQL-Trigger.ps1** script.

**For Windows: powershell.exe -ExecutionPolicy RemoteSigned -File .\CMF-PostgreSQL-CLI-Windows.ps1**

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

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

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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

### Validate Azure CLI

* Automation script validates the Azure CLI. If not found, automation will initiate installation

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* Once Azure CLI Installation completes successfully and if you encounter the above error message 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

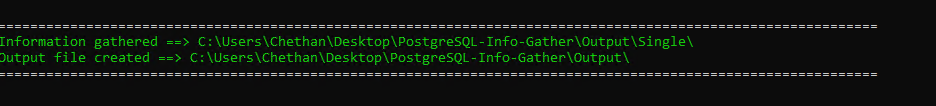
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* **Automation requires the Azure portal authentication**
* **For Linux:** Copy the device login URL and code to authenticate

****

### 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.

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### Azure PostgreSQL Single Server 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,

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**Note:** output files will be generated in csv format as above.

**Note: Please Share Compressed Output & Logs Folder to CMF Team.**

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### Automation Script Transcript Log

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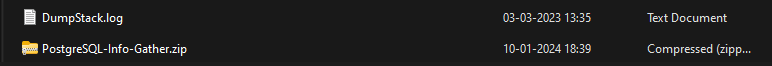
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**Note:** For the Automation, transcript will be generated in text format as above

# PostgreSQL Server Info-Gathering for Windows

## Scripts Folder

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



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Description automatically generated

## Renaming Scripts

* Execute the following command in PostgreSQL folder to rename the scripts from .txt to .ps1 in **Windows** Command Prompt.

rename rename.txt rename.bat

* Run rename.bat file as shown below

rename.bat

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

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

A screenshot of a computer

Description automatically generated

* Provide the Mandatory fields highlighted in red color.

## CMF-PostgreSQL-Windows – Script execution

* 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 at the windows command prompt.

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

* 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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Description automatically generated

* To perform Detailed PostgreSQL server Information gathering, Re-run the script and enter option ‘2’. (**Table Count Info is Gathered**)

CAUTION! :-

Please make sure this option is selected during OFF BUSINESS HOURS or LOW PEAK Period so as to avoid DATABASE PERFORMANCE

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* The script then Validates the list of Hosts to proceed with execution as shown below.

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* Next, enter “Y” and Project Name to proceed with Detailed PostgreSQL server Info-Gathering.

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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 generated

## Automation Script Transcript Log

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

**Note:** Please Share the Compressed Output and Logs Folder with the CMF Team.

# PostgreSQL Server Info-Gathering for Linux

## Scripts Folder

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

**Commands:** unzip filename.zip

cd PostgreSQL-Info-Gather /

ls -lrt

A screen shot of a computer

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## Renaming Scripts

* Execute the following command in PostgreSQL folder to rename the scripts from .txt to .ps1

sh rename-linux.txt

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

* In Order 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.

## CMF-PostgreSQL-Linux – Script execution

* + - Open Putty/Linux Terminal, connect to the server.

1. 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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**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

A screenshot of a computer

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* To perform Detailed PostgreSQL server Information gathering, Re-run the script and enter option ‘2’.

CAUTION! :-

Please make sure this option is selected during OFF BUSINESS HOURS or LOW PEAK Period so as to avoid DATABASE PERFORMANCE

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* The script then Validates the list of Hosts to proceed with execution as shown below.

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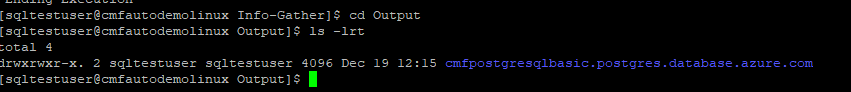
* Next, enter “Y” and Project Name to proceed with Detailed PostgreSQL server Info-Gathering.

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

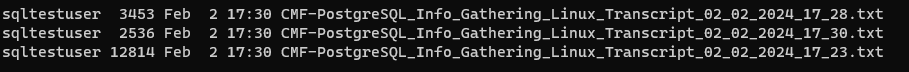
* Output log files are generated for each PostgreSQL Server as shown in the below Output Folder.



**A computer screen with many colorful text

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## Automation Script Transcript Log



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

**Note:** Please Share the Compressed Output and Logs Folder with the CMF Team.

# 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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## 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**

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**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.

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** |

## 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

* **Note:** Follow the instructions below 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 “Systemvariables” 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

A screenshot of a computer

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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.