Microsoft

Workshop
Power Platform for Administrators

On-premise Data Gateway

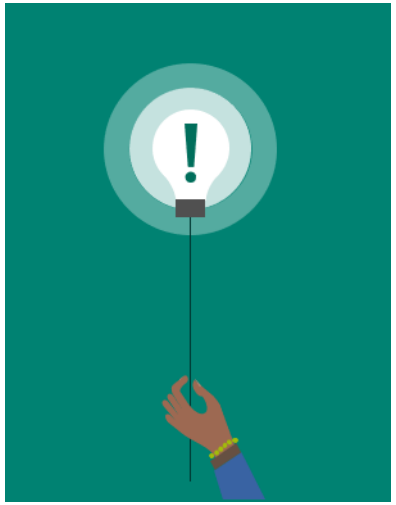
Learning Units covered in this Module

- Understand On-premises Data Gateway
- Data Gateway installation and configuration
- Managing Tenant Data Gateways
- Gateway Permission Access
- Data Gateway In/outbound
- Data Gateway Updates and Recovery

Objectives

After completing this Learning, you will

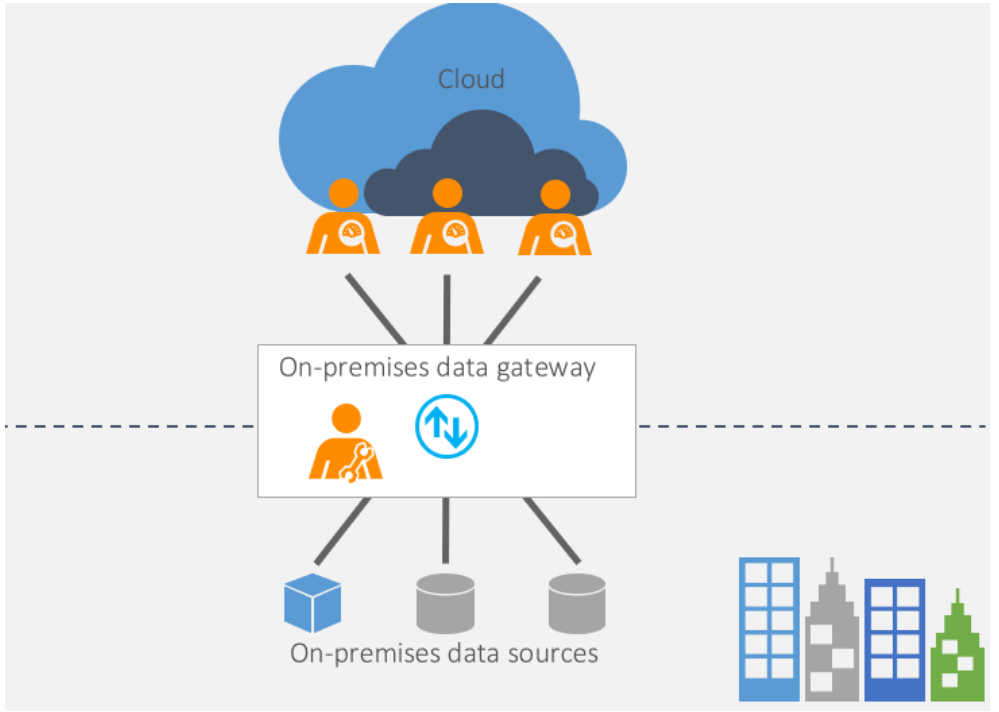
- Learn what On-Premise Data Gateway is and how it works
- How to install and configure the gateway
- How to manage gateways



Understand On-premises Data Gateway

What is On-Premise Data Gateway?

- Acts as a bridge to provide quick and secure data transfer between on-premises data and several Microsoft cloud services
- Includes Power BI, Power Apps, Power Automate, Azure Analysis Services, and Azure Logic Apps
- Organizations can keep databases and other data sources on their on-premises networks, yet securely use that on-premises data in cloud services.
- Users in your organization can access on-premises data to which they already have access authorization.
- Administrators will need to install and configure Gateway before users are able to connect on-premise data sources.



Three Types of Data Gateway

Sub-Heading

On-premises data gateway (standard)

- Allows multiple users to connect to multiple on-premises data sources
- Support all available gateway services like Power Apps and Power Automate
- Well-suited to complex scenarios in which multiple people access multiple data sources

On-premises data gateway (personal mode)

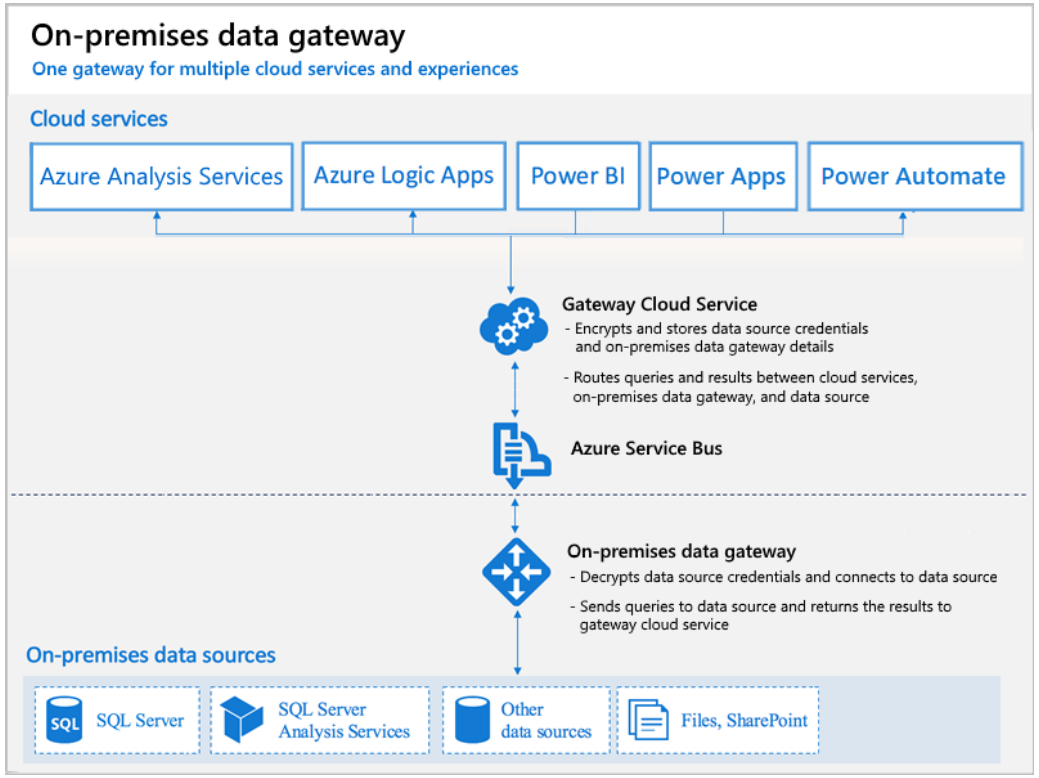
- Allows one user to connect to sources and can’t be shared with others.
- Can be used **only** with Power BI
- Well-suited to scenarios in which you’re the only person who creates reports, and you don't need to share any data sources with others

Virtual network data gateway

- Allows multiple users to connect to multiple data sources that are secured by virtual networks
- No installation is required because it's a Microsoft managed service.
- Well-suited to complex scenarios in which multiple people access multiple data sources

How the gateway works?

1. The cloud service creates a query and the encrypted credentials for the on-premises data source.
2. The query and credentials are sent to the gateway queue for processing.
3. The gateway cloud service analyzes the query and pushes the request to Azure Service Bus Messaging.
4. Azure Service Bus sends the pending requests to the gateway. Both the gateway and Power BI service are implemented to only accept TLS 1.2 traffic.
5. The gateway gets the query, decrypts the credentials, and connects to one or more data sources with those credentials.
6. The gateway sends the query to the data source to be run.
7. The results are sent from the data source back to the gateway and then to the cloud service.



Data Gateway Installation Facts

Install an on-premises data gateway

- Gateway is software that you install in an on-premises network.
- The gateway facilitates access to data in that network.
- As we explain in the overview, you can install a gateway either in personal mode, which applies to Power BI only, or in standard mode.
- We recommend **standard mode** as in that mode you can add a gateway to a cluster of gateways, which we recommend for high availability and performance.

Install an on-premises data gateway

Minimum requirements

- .NET Framework 4.6 (Gateway release August 2019 and earlier)
- .NET Framework 4.7.2 (Gateway release September 2019 and later)
- A 64-bit version of Windows 8 or a 64-bit version of Windows Server 2012 R2 with current TLS 1.2 and cipher suites
- 4 GB disk space for performance monitoring logs (in default configuration)

Recommended hardware

- An 8-core CPU
- 8 GB of memory
- A 64-bit version of Windows Server 2012 R2 or later
- Solid-state drive (SSD) storage for spooling

General Considerations for installation

- Server Core and Domain Controller installation not supported
- The user installing the gateway will be the admin of the gateway.
- If you're planning to use Windows authentication, the gateway computer must be member of the same Active Directory environment as the data sources.
- Don't install a gateway on a client machine, like a laptop, that might be turned off, asleep, or disconnected from the internet.
- To optimize performance, it is **not** recommended to use WLAN connection, and computer should also be dedicated for Data Gateway not having other applications running on the same machine.
- You can install up to two gateways on a single computer: one running in personal mode and the other running in standard mode. You can't have more than one gateway running in the same mode on the same computer.

Demonstration

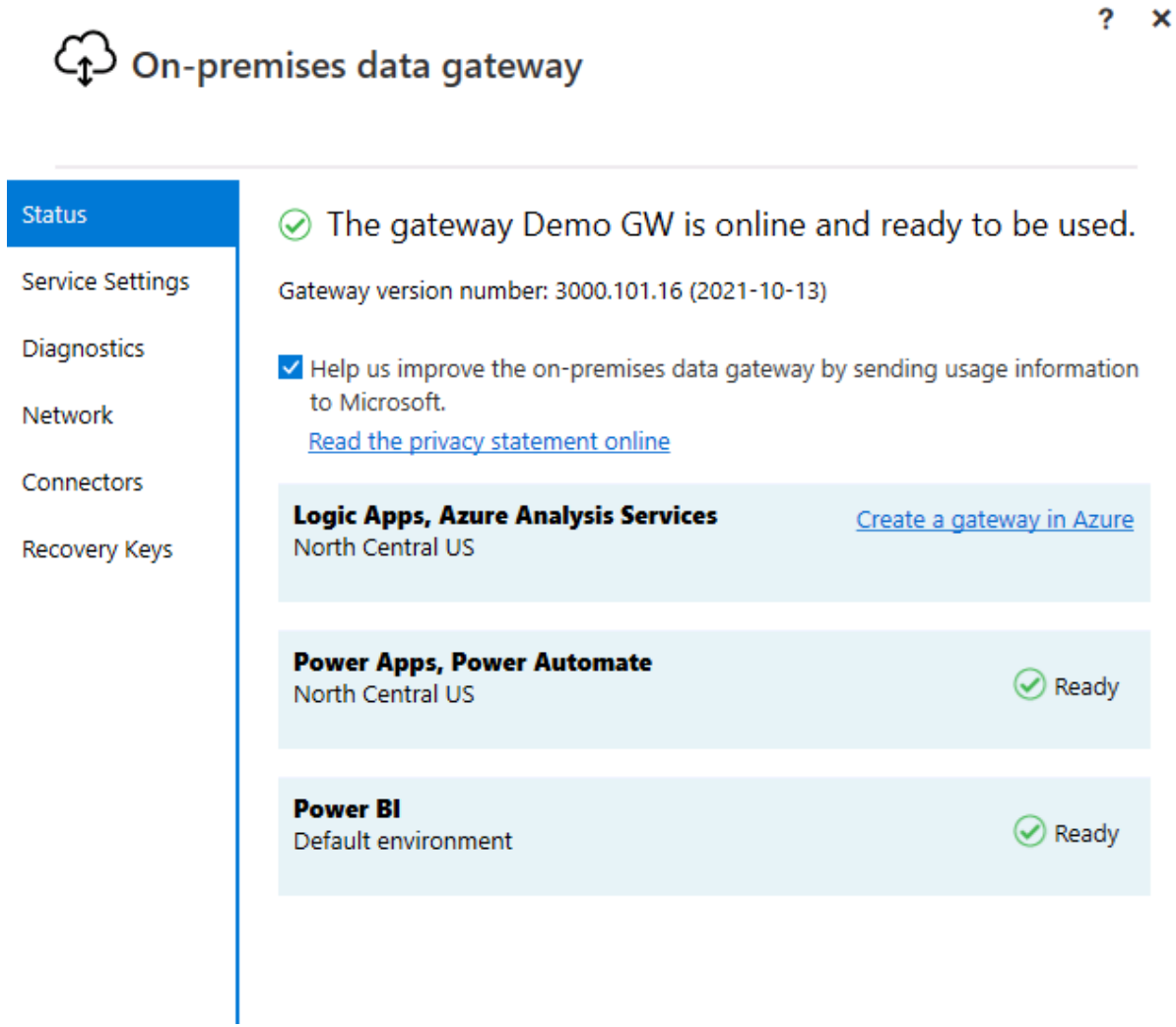
Install On-premise Data Gateway

Gateway Permission Access

Data Gateway App Features

Status

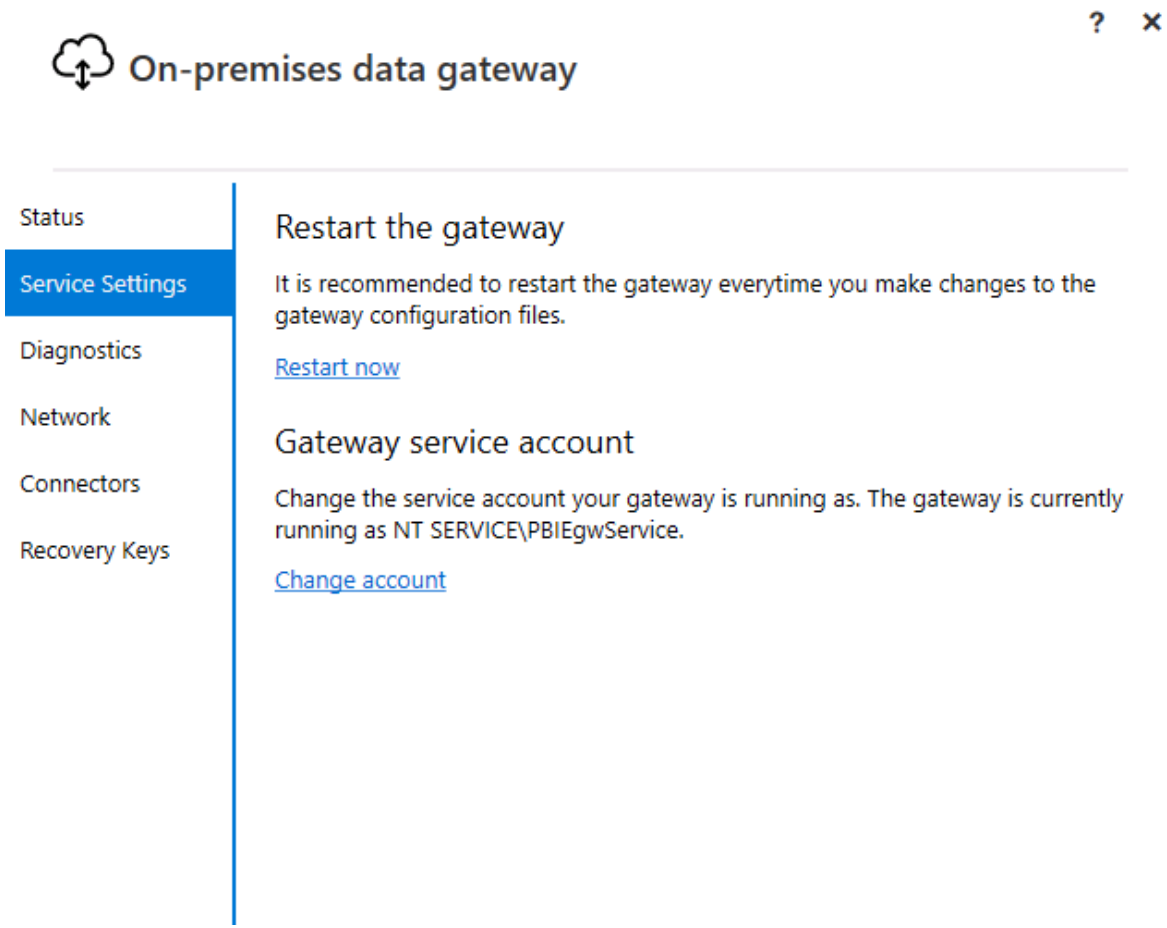
- Gateway status (online/offline)
- Version number of the gateway
- List of any apps currently associated with the gateway



Data Gateway App Features

Service Settings

Provides a way of restarting the gateway whenever a restart is needed



Gateway service account

- By default, configured to use **NT SERVICE\PBIEgwService** for the Windows service sign-in credential
- Possibility to change gateway service account to use Active Directory user account or managed service account

Data Gateway App Features

Diagnostics

Additional logging

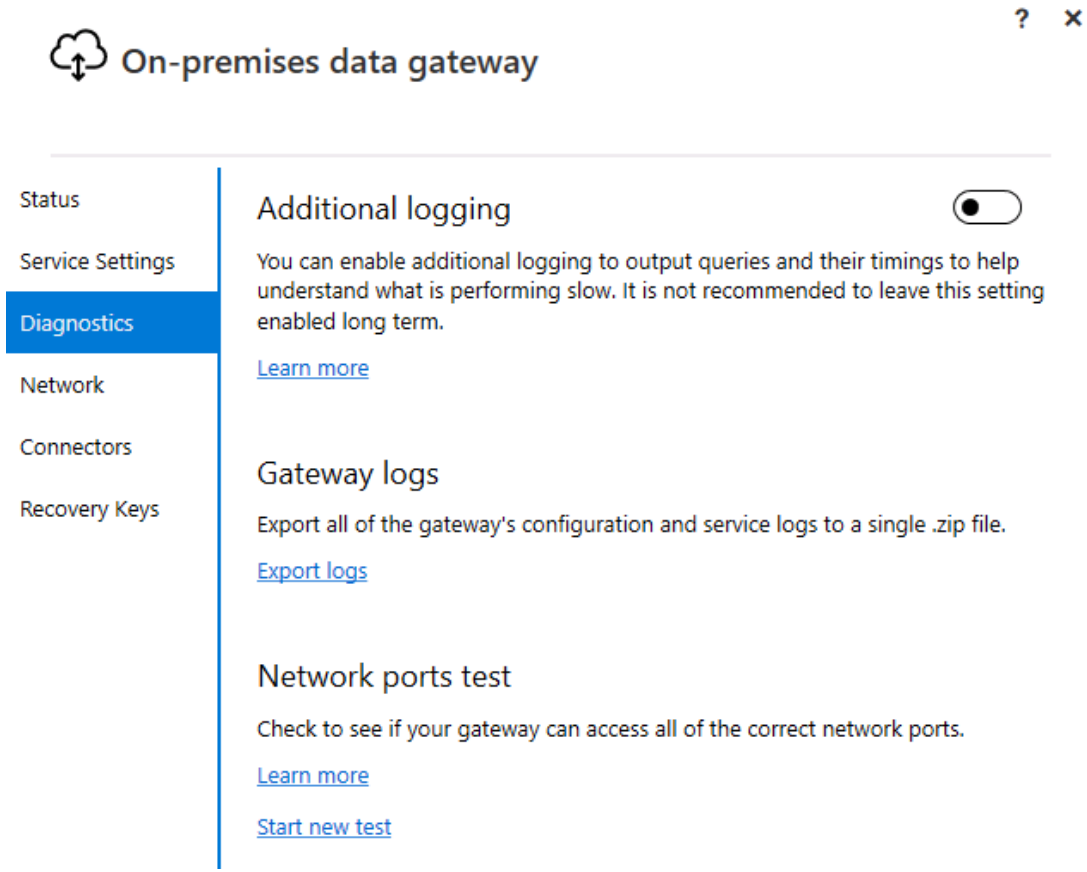
- Provides additional verbose information in the log file, which includes duration information. This information can be useful in figuring out why some responses through the gateway are slow
- Enabling this feature could **increase** the log size significantly depending on gateway usage. So, we recommend that you don't leave this setting enabled long term.

Gateway logs

- Provides a copy of all of the gateway logs in a single file in .zip format

Network ports test

- Checks if the gateway has access to all required ports.

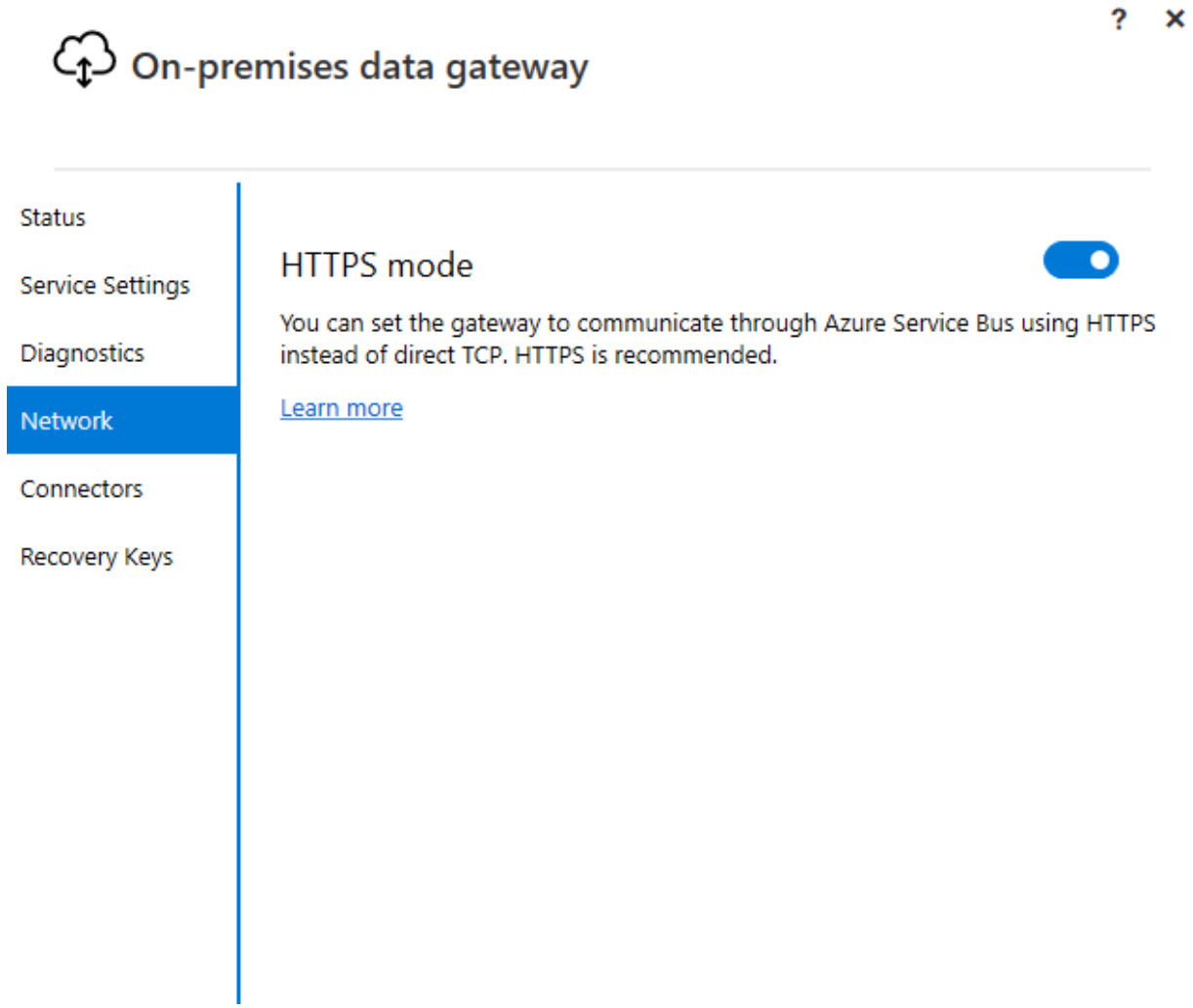


Data Gateway App Features

Network

HTTPS mode

- Forces the gateway to communicate with Azure Service Bus by using HTTPS instead of TCP when turned on.

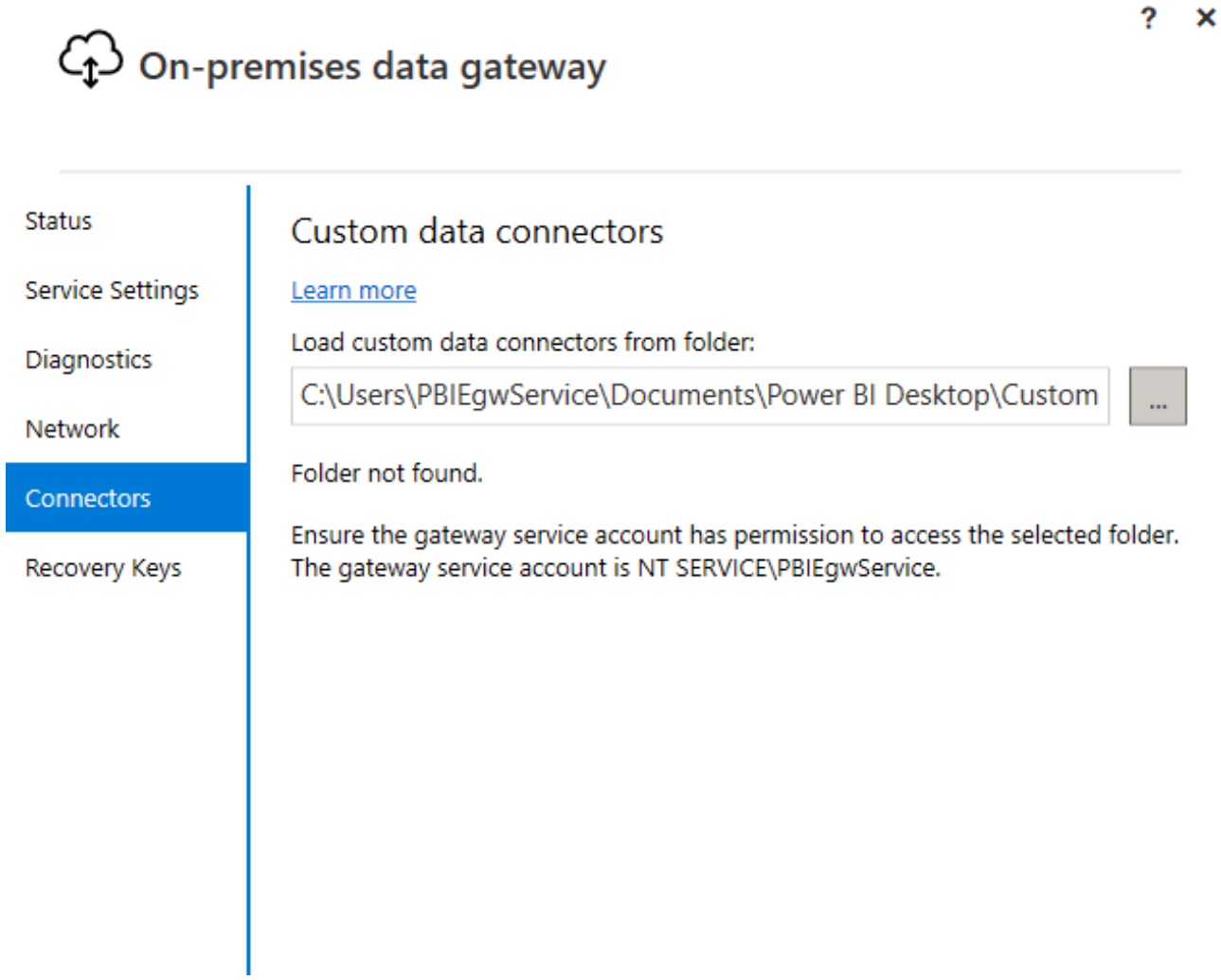


Data Gateway App Features

Custom Data Connectors

Custom data connectors

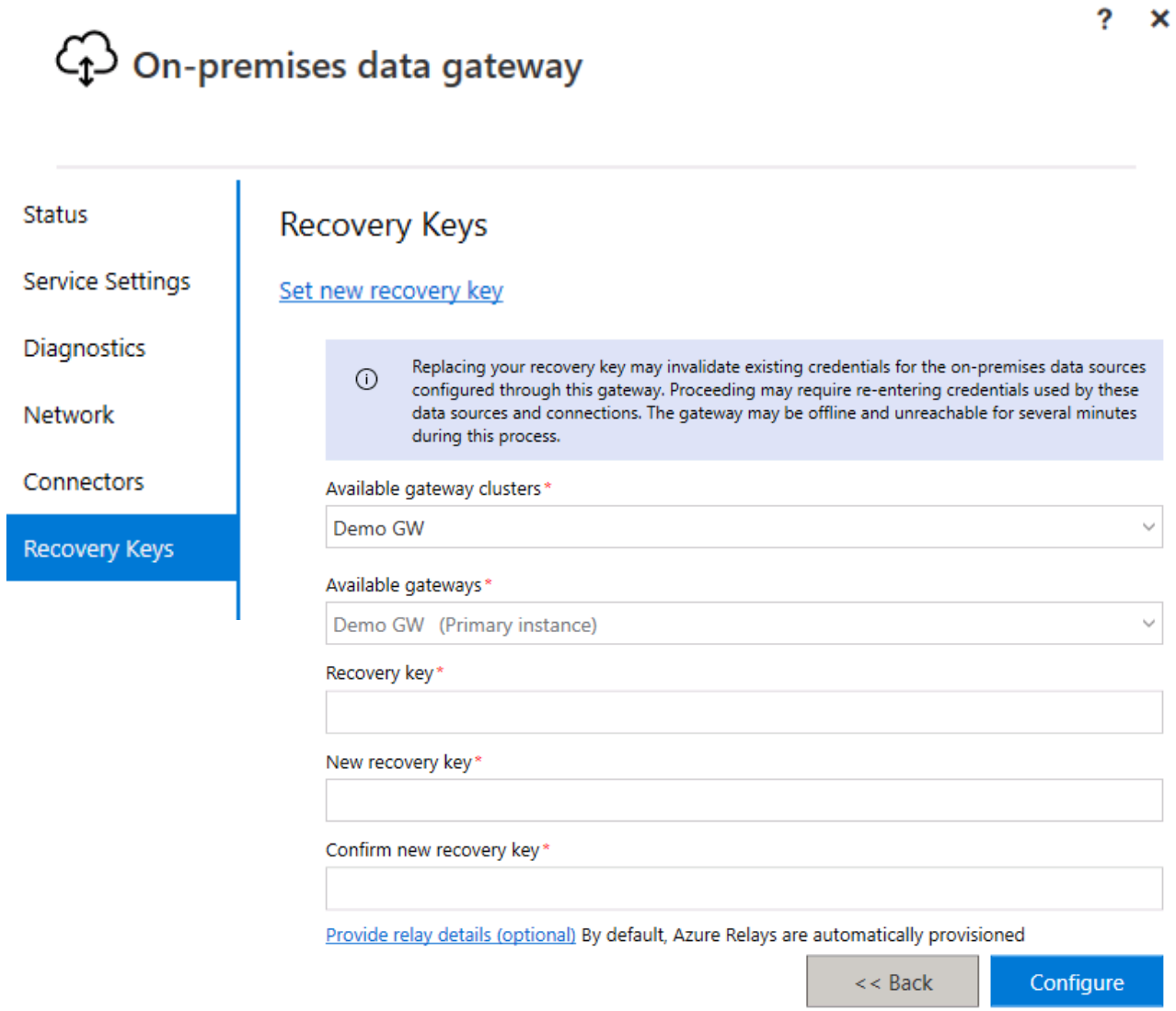
- You can connect to and access data from Power BI by using custom data connectors that you develop.



Data Gateway App Features

Recovery Keys

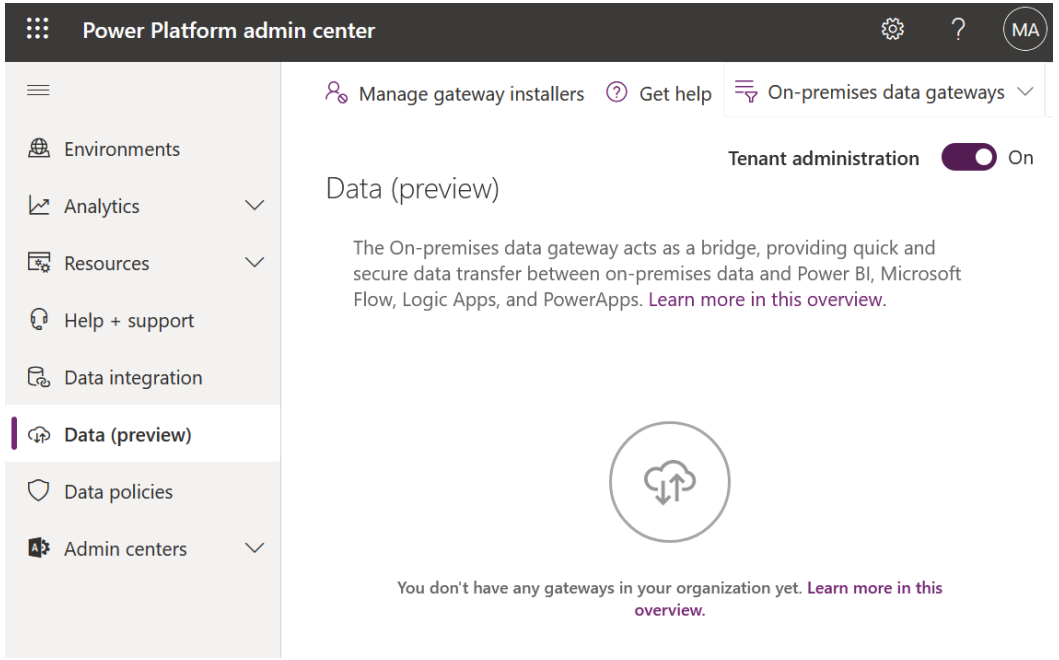
- Changes the recovery key you specified when installing the on-premises data gateway
- This feature does not appear until you have signed in.
- Not available in the on-premises data gateway (personal mode)



Managing Tenant Data Gateways

Manage Data Gateways in Power Platform Admin Center

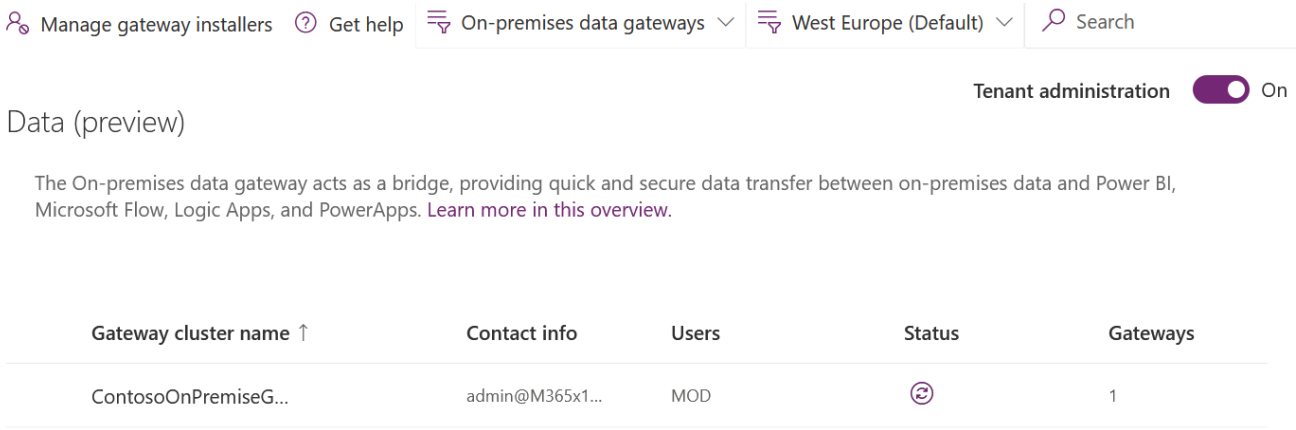
- Users having Global, Power Platform or Power BI Administrator role, or are Gateway administrators have access to data gateway management on the Power Platform admin center. However, there might be differences in the features available and the operations that can be performed by each of these roles.
- Global, Power Platform, and Power BI Administrators can use the Tenant administration setting to control the list of gateways exposed.



Manage Data Gateways in Power Platform Admin Center

All data page lists with on-premises data gateway clusters installed contains following information about gateway clusters:

- Name of the gateway cluster
- Admin contact information for the gateway cluster
- The list of gateway users
- See whether the gateway connection is online or offline
- Number of gateway members in the gateway cluster



Manage Data Gateway Users

Every installed Data Gateway has a default admin user account which is the account that created it and who can grant certain permissions to other users to use this data gateway.

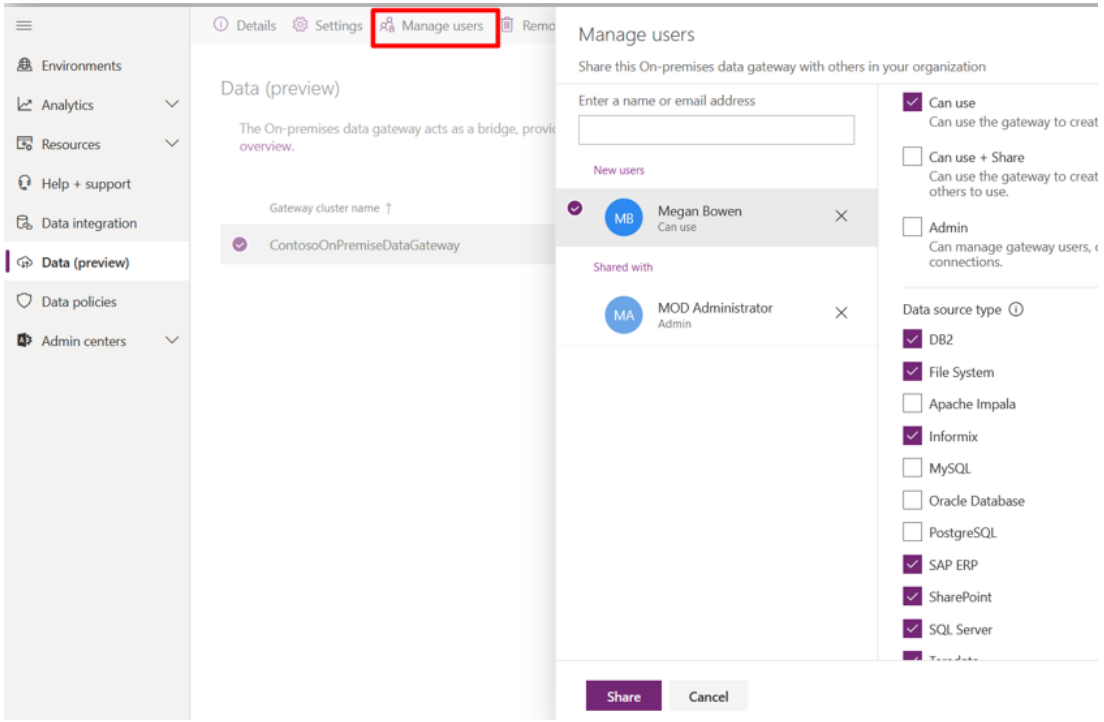
For **personal** gateways, this would show the owner of the personal gateway and cannot be changed due to the security scope of personal gateways.

For Data Gateway in **standard mode**, users can be added in any of these three categories (explained in more detail in next slide):

- Can Use
- Can Use + Share
- Admin

Manage Data Gateway Users

- **Can Use -** Can create connections on the gateway to create for Apps and Flows but cannot share the gateway
- Applies only to Power Apps and Power Automate
- **Can use + share –** Same as **Can Use** but can also share the gateway for others to use
- **Admin** - Can manage gateway users, configuration, associated data sources, and connections



NOTE:

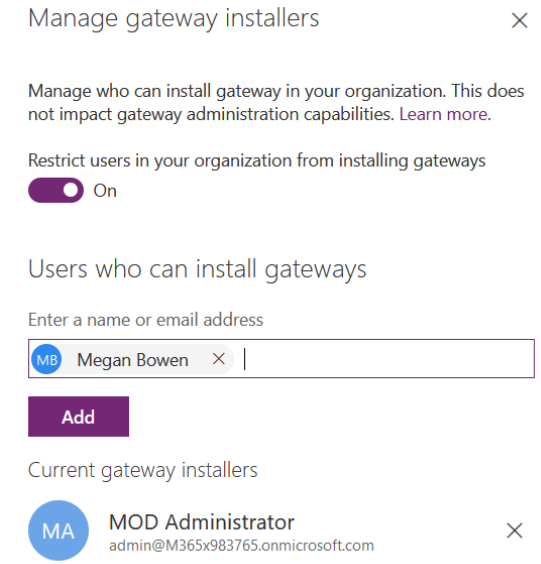
Can Use and **Can use + share** do not apply to custom connectors in Power Apps and Power Automate.

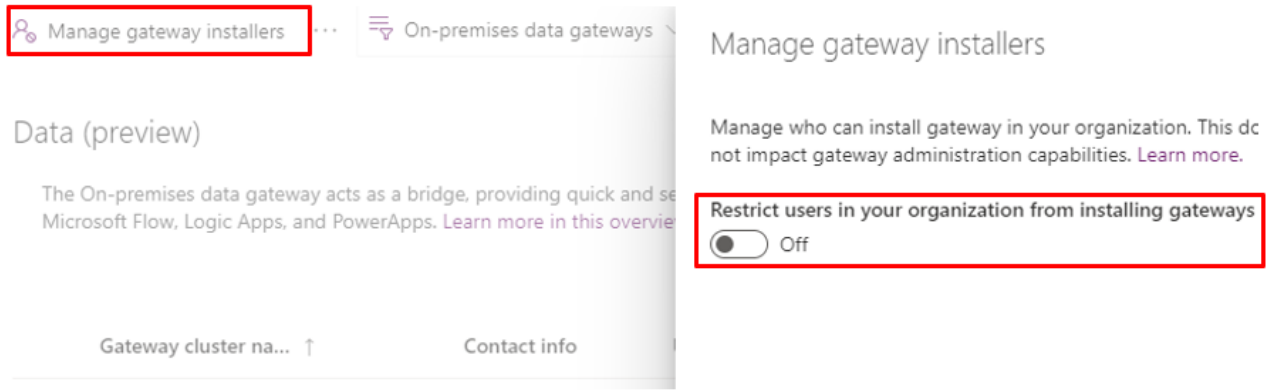
While sharing gateways for **Can use** and **Can use + share** permission levels, you can restrict the data source type that the user can connect over the gateway.

At least one data source type should be selected for the user to be successfully added.

Manage gateway installers

- Global, Power Platform, and Power BI Administrators can manage who can install the on-premises data gateway in your enterprise.
- This operation isn't available for gateway admins.
- This feature does not apply to personal data gateways.
- By default, data gateway installation is enabled for all users unless you restrict users in your organization from installing gateways.
- In admin center, you can enable **Restrict Users in your organization from installing gateways**, then add only allowed users to do so.





High-availability clusters for data gateway

- Gateway high-availability clusters helps to ensure that your organization can access on-premises data resources from supported cloud services.
- Gateway admins use such clusters to avoid single points of failure when accessing on-premises data resources.
- The gateway cloud service always uses the primary gateway in a cluster unless that gateway isn't available, in that case, service switches to the next available gateway in the cluster.
- After you create a cluster of two or more gateways, all gateway management operations like adding data sources and granting permissions apply to every gateway in the cluster.
- Make sure the gateway members in a cluster are running the same gateway version, as different versions could cause unexpected failures based on supported functionality.

Communication settings for Data Gateway

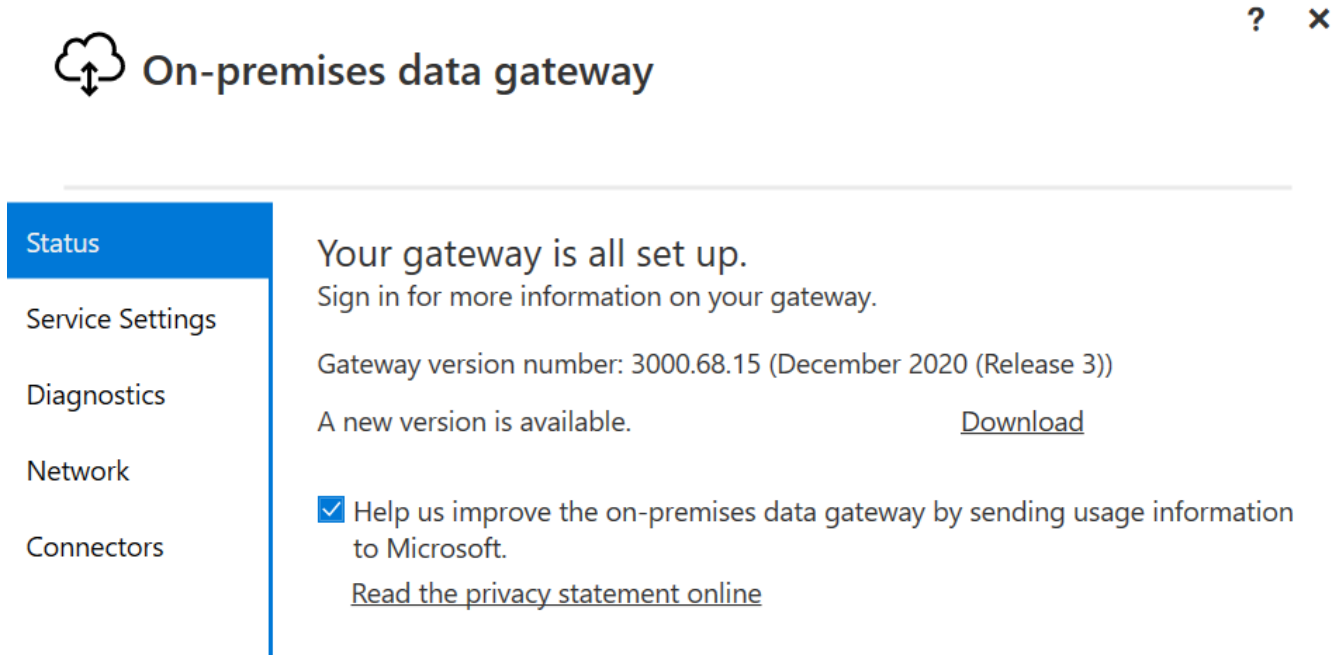
- Relies on **Azure Service Bus** for cloud connectivity.
- Correspondingly establishes outbound connections to its associated Azure region.
- If you registered for either a Power BI tenant or an Office 365 tenant, your Azure region defaults to the region of that service. Otherwise, your Azure region might be the one closest to you.
- If a firewall blocks outbound connections, configure the firewall to allow outbound connections from the gateway to its associated Azure region.
- The gateway communicates on the following outbound ports: TCP 443, 5671, 5672, and from 9350 through 9354.
- The gateway does **not** require inbound ports.
- The gateway communicates with Service Bus by using an IP address along with a fully qualified domain name (FQDN). If you force the gateway to communicate via HTTPS, it will strictly use FQDNs only and won't communicate by using IP addresses.

Update an on-premises data gateway

- We release an update every month, and each of these updates includes new features along with the latest Mashup Engine.
- If you're running a gateway cluster, we recommend that you update all nodes in the cluster at the same time.
- Download the latest standard mode gateway or personal mode gateway and run the installation program.

You can check your current version from the Gateway Status screen

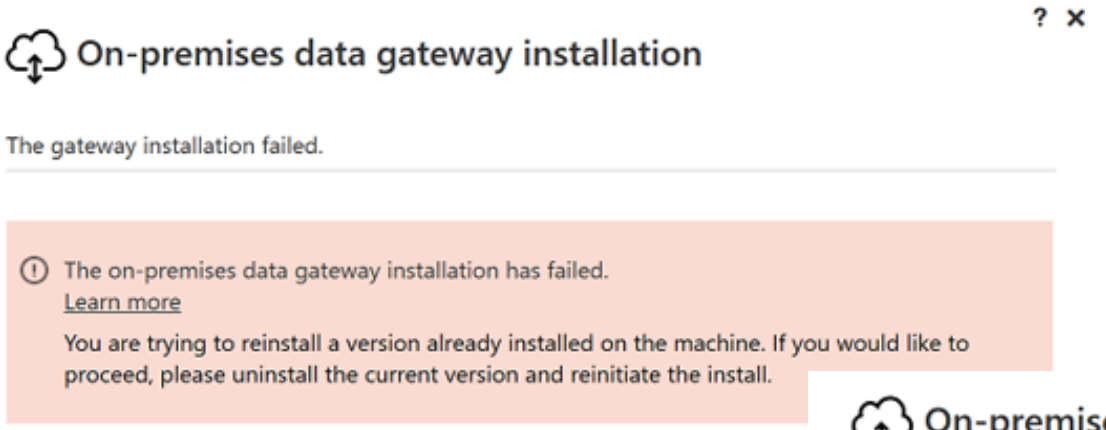
Note: Currently, Microsoft actively supports only the last six releases of the on-premises data gateway.

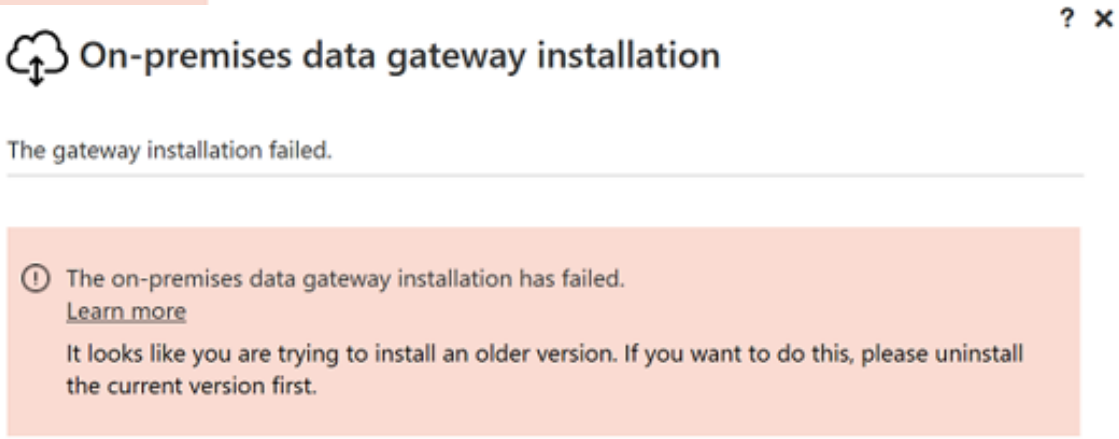


Update an on-premises data gateway

Download the latest gateway and run the installation program.

If the version you're trying to install isn't newer than the version already installed, you'll receive one of the following error messages.

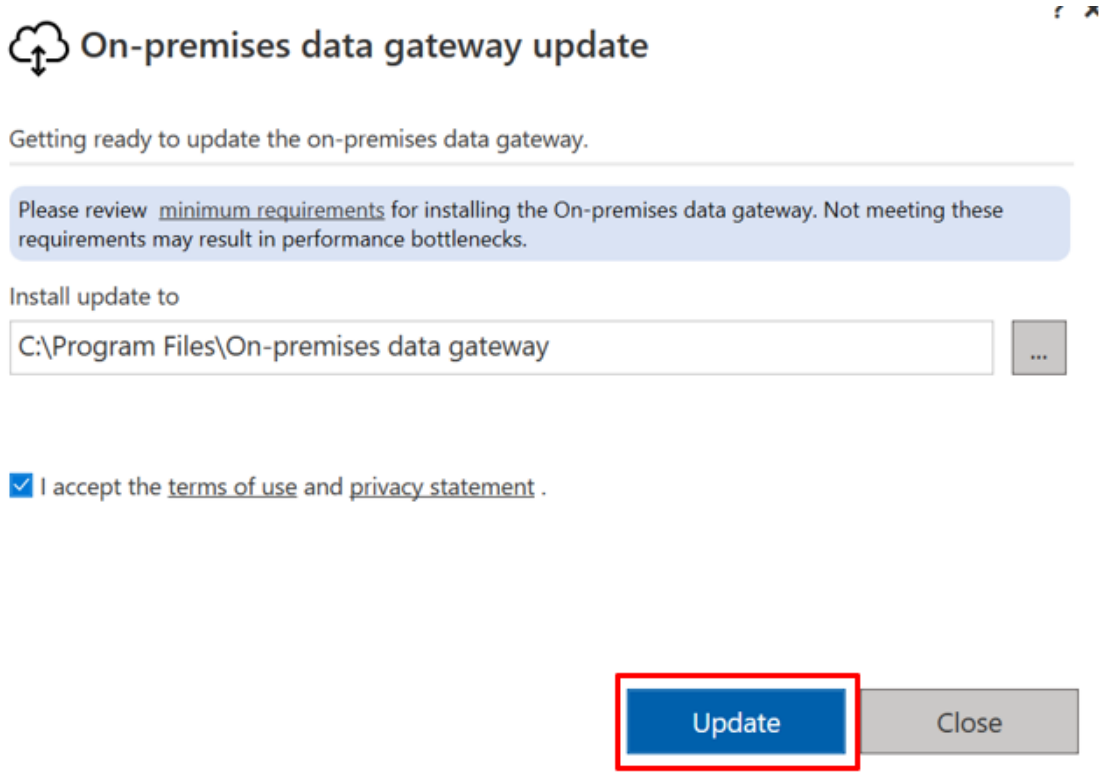


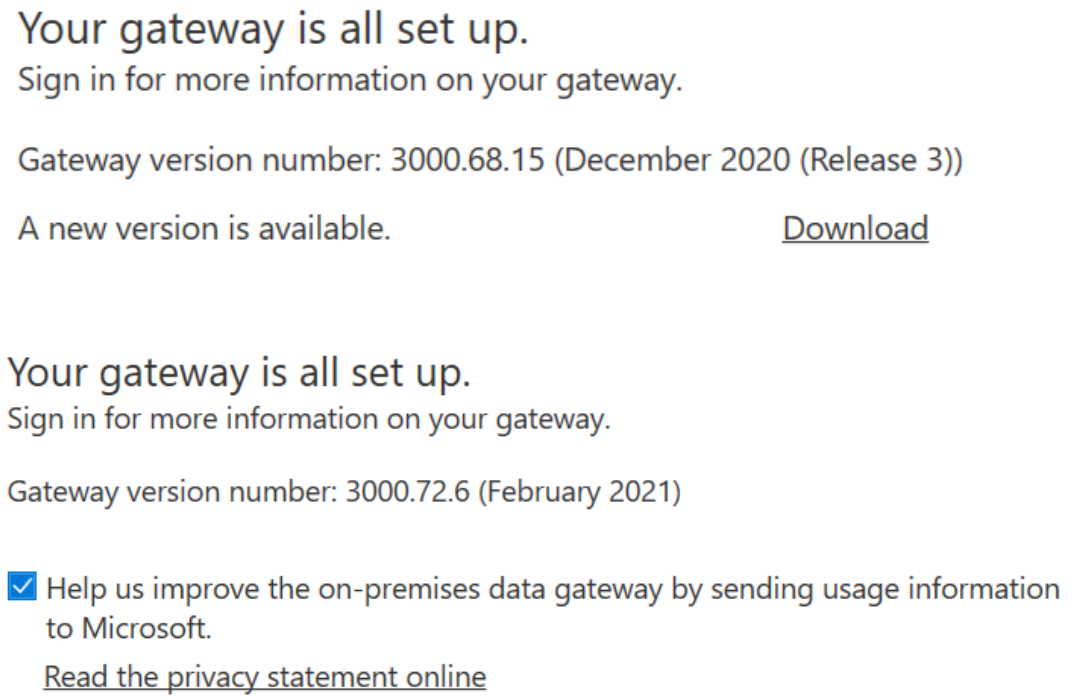


Update an on-premises data gateway

If you install a newer version, you'll be prompted to update.

After the installation finishes, see a new updated version of information from the **Status** screen of the Gateway.





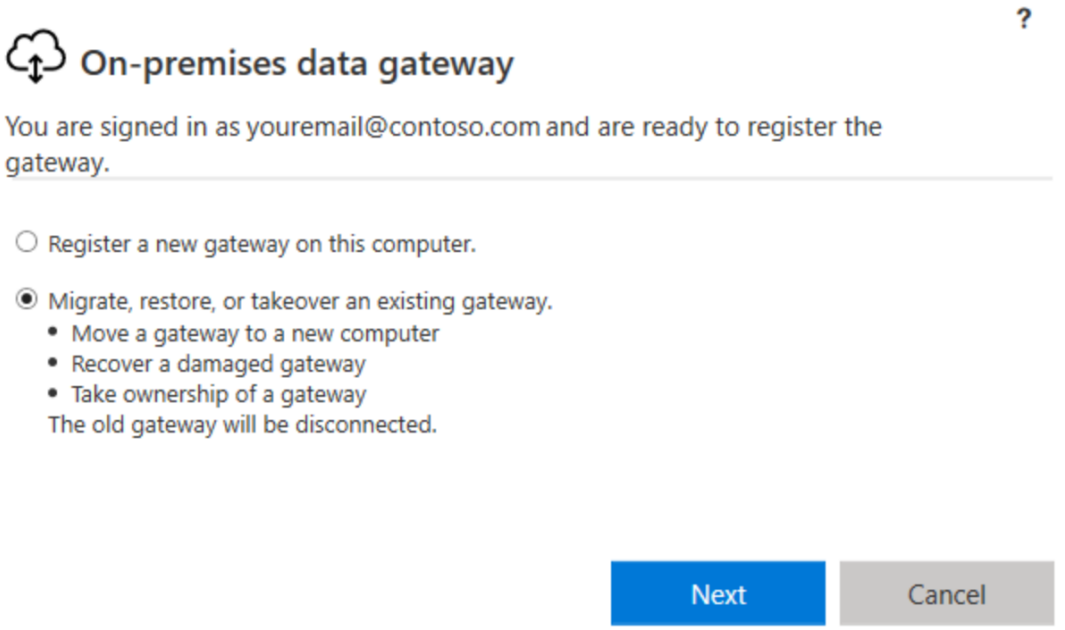
Migrate, restore, or take over a data gateway

If you're restoring the gateway on the computer that has the original gateway installation, you must first uninstall the gateway on that computer.

If you remove or delete a gateway cluster in any of the cloud services, you will not be able to restore it.

To restore or migrate:

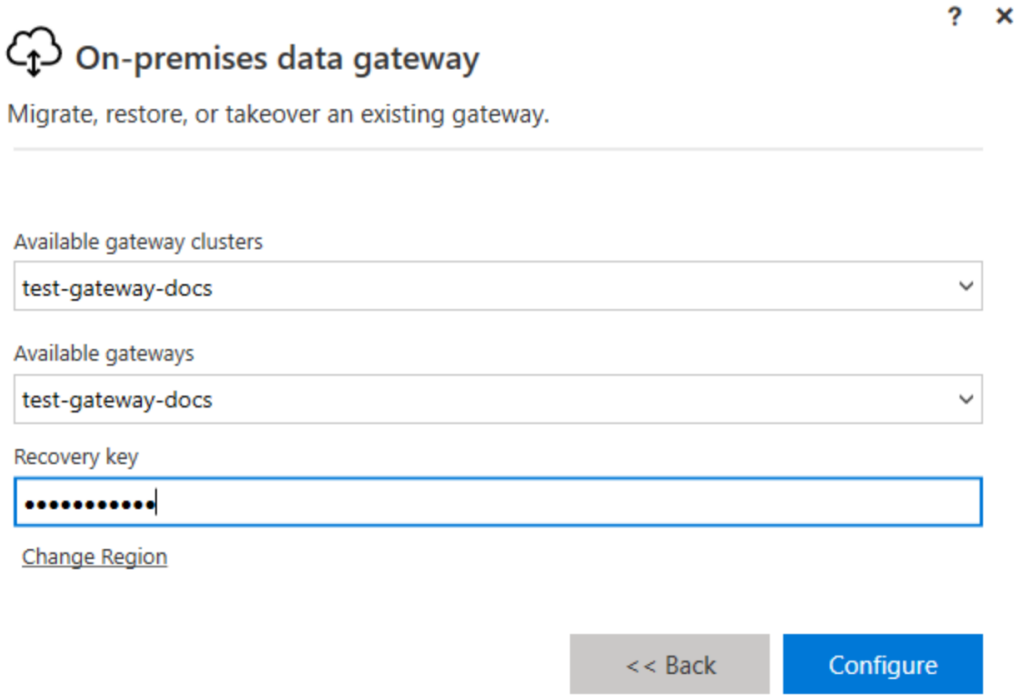
- Run the gateway installer on a computer where you want to migrate, restore, or take over an on-premises data gateway.
- After you've signed-in to your Office 365 account, register the gateway. Select Migrate, restore, or takeover an existing gateway > Next.



Migrate, restore, or take over a data gateway

Select from the available clusters and gateways then enter the recovery key for the selected gateway. You created and safely stored the recovery key when you originally installed the gateway -> Configure.

After the configuration finishes, the process of migrating, restoring, or taking over is complete.



Questions?

Install an on-premises data gateway

Build an app using On-premise data gateway