



Install a data broker

BlueXP copy and sync

NetApp
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Install a data broker

Creating a new data broker in AWS

When you create a new data broker group, choose Amazon Web Services to deploy the data broker software on a new EC2 instance in a VPC. BlueXP copy and sync guides you through the installation process, but the requirements and steps are repeated on this page to help you prepare for installation.

You also have the option to install the data broker on an existing Linux host in the cloud or on your premises. [Learn more.](#)

Supported AWS regions

All regions are supported except for the China regions.

Root privileges

The data broker software automatically runs as root on the Linux host. Running as root is a requirement for data broker operations. For example, to mount shares.

Networking requirements

- The data broker needs an outbound internet connection so it can poll the BlueXP copy and sync service for tasks over port 443.

When BlueXP copy and sync deploys the data broker in AWS, it creates a security group that enables the required outbound communication. Note that you can configure the data broker to use a proxy server during the installation process.

If you need to limit outbound connectivity, see [the list of endpoints that the data broker contacts](#).

- NetApp recommends configuring the source, target, and data broker to use a Network Time Protocol (NTP) service. The time difference between the three components should not exceed 5 minutes.

Permissions required to deploy the data broker in AWS

The AWS user account that you use to deploy the data broker must have the permissions included in [this NetApp-provided policy](#).

Requirements to use your own IAM role with the AWS data broker

When BlueXP copy and sync deploys the data broker, it creates an IAM role for the data broker instance. You can deploy the data broker using your own IAM role, if you prefer. You might use this option if your organization has strict security policies.

The IAM role must meet the following requirements:

- The EC2 service must be allowed to assume the IAM role as a trusted entity.
- [The permissions defined in this JSON file](#) must be attached to the IAM role so the data broker can function properly.

Follow the steps below to specify the IAM role when deploying the data broker.

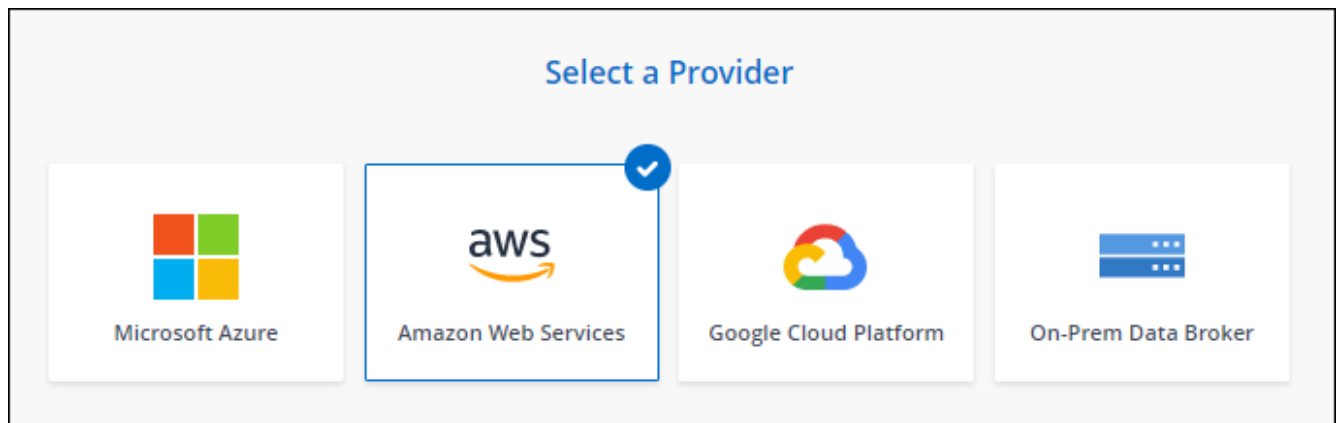
Creating the data broker

There are a few ways to create a new data broker. These steps describe how to install a data broker in AWS when creating a sync relationship.

Steps

1. Select **Create New Sync**.
2. On the **Define Sync Relationship** page, choose a source and target and select **Continue**.

Complete the steps until you reach the **Data Broker Group** page.
3. On the **Data Broker Group** page, select **Create Data Broker** and then select **Amazon Web Services**.



4. Enter a name for the data broker and select **Continue**.
5. Enter an AWS access key so BlueXP copy and sync can create the data broker in AWS on your behalf.

The keys aren't saved or used for any other purposes.

If you'd rather not provide access keys, select the link at the bottom of the page to use a CloudFormation template instead. When you use this option, you don't need to provide credentials because you are logging in directly to AWS.

The following video shows how to launch the data broker instance using a CloudFormation template:

► https://docs.netapp.com/us-en/bluexp-copy-sync//media/video_cloud_sync.mp4 (video)

6. If you entered an AWS access key, select a location for the instance, select a key pair, choose whether to enable a public IP address, and select an existing IAM role, or leave the field blank so BlueXP copy and sync creates the role for you. You also have the option of encrypting your data broker using a KMS key.

If you choose your own IAM role, [you'll need to provide the required permissions](#).

Basic Settings

Location

VPC

Select VPC ▼

Subnet

Select Subnet ▼

Connectivity

Key Pair

Select Key Pair ▼

Enable Public IP?

☒ Enable ☐ Disable

IAM Role (optional)

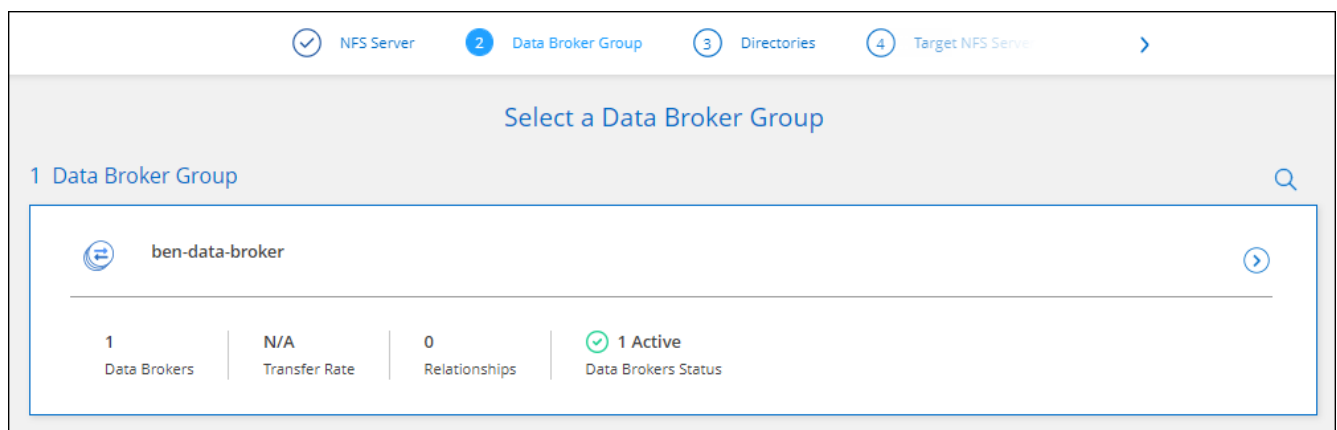
IAM Role (optional) ⓘ

KMS Key for EBS volume (optional)

Select KMS Key for EBS Encryption ▼

7. Specify a proxy configuration, if a proxy is required for internet access in the VPC.
8. After the data broker is available, select **Continue** in BlueXP copy and sync.

The following image shows a successfully deployed instance in AWS:



9. Complete the pages in the wizard to create the new sync relationship.

Result

You have deployed a data broker in AWS and created a new sync relationship. You can use this data broker group with additional sync relationships.

Details about the data broker instance

BlueXP copy and sync creates a data broker in AWS using the following configuration.

Node.js compatibility

v21.2.0

Instance type

m5n.xlarge when available in the region, otherwise m5.xlarge

vCPUs

4

RAM

16 GB

Operating system

Amazon Linux 2023

Disk size and type

10 GB GP2 SSD

Creating a new data broker in Azure

When you create a new data broker group, choose the Microsoft Azure to deploy the data broker software on a new virtual machine in a VNet. BlueXP copy and sync guides you through the installation process, but the requirements and steps are repeated on this page to help you prepare for installation.

You also have the option to install the data broker on an existing Linux host in the cloud or on your premises. [Learn more](#).

Supported Azure regions

All regions are supported except for the China, US Gov, and US DoD regions.

Root privileges

The data broker software automatically runs as root on the Linux host. Running as root is a requirement for data broker operations. For example, to mount shares.

Networking requirements

- The data broker needs an outbound internet connection so it can poll the BlueXP copy and sync service for tasks over port 443.

When BlueXP copy and sync deploys the data broker in Azure, it creates a security group that enables the required outbound communication.

If you need to limit outbound connectivity, see [the list of endpoints that the data broker contacts](#).

- NetApp recommends configuring the source, target, and data broker to use a Network Time Protocol (NTP) service. The time difference between the three components should not exceed 5 minutes.

Permissions required to deploy the data broker in Azure

Ensure that the Azure user account that you use to deploy the data broker has the following permissions:

```
{
  "Name": "Azure Data Broker",
  "Actions": [
    "Microsoft.Resources/subscriptions/read",

    "Microsoft.Resources/deployments/operationstatuses/read",
    "Microsoft.Resources/subscriptions/locations/read",
    "Microsoft.Network/networkInterfaces/read",
    "Microsoft.Network/virtualNetworks/subnets/read",

    "Microsoft.Resources/subscriptions/resourceGroups/write",

    "Microsoft.Resources/subscriptions/resourceGroups/delete",
    "Microsoft.Resources/deployments/write",
    "Microsoft.Resources/deployments/validate/action",

    "Microsoft.Resources/deployments/operationStatuses/read",
    "Microsoft.Resources/deployments/cancel/action",
    "Microsoft.Compute/virtualMachines/read",
    "Microsoft.Compute/virtualMachines/delete",
    "Microsoft.Compute/disks/delete",
    "Microsoft.Network/networkInterfaces/delete",
    "Microsoft.Network/publicIPAddresses/delete",

    "Microsoft.Network/networkSecurityGroups/securityRules/delete",

    "Microsoft.Resources/subscriptions/resourceGroups/write",
    "Microsoft.Compute/virtualMachines/delete",
    "Microsoft.Network/networkSecurityGroups/write",
    "Microsoft.Network/networkSecurityGroups/join/action",
    "Microsoft.Compute/disks/write",
    "Microsoft.Network/networkInterfaces/write",
    "Microsoft.Network/virtualNetworks/read",
    "Microsoft.Network/publicIPAddresses/write",
    "Microsoft.Compute/virtualMachines/write",
    "Microsoft.Compute/virtualMachines/extensions/write",
    "Microsoft.Resources/deployments/read",
    "Microsoft.Network/networkSecurityGroups/read",
    "Microsoft.Network/publicIPAddresses/read",
```

```

"Microsoft.Network/virtualNetworks/subnets/join/action",
    "Microsoft.Network/publicIPAddresses/join/action",
    "Microsoft.Network/networkInterfaces/join/action",
    "Microsoft.Storage/storageAccounts/read",

"Microsoft.EventGrid/systemTopics/eventSubscriptions/write",

"Microsoft.EventGrid/systemTopics/eventSubscriptions/read",

"Microsoft.EventGrid/systemTopics/eventSubscriptions/delete",

"Microsoft.EventGrid/systemTopics/eventSubscriptions/getFullUrl/action",

"Microsoft.EventGrid/systemTopics/eventSubscriptions/getDeliveryAttributes
/action",
    "Microsoft.EventGrid/systemTopics/read",
    "Microsoft.EventGrid/systemTopics/write",
    "Microsoft.EventGrid/systemTopics/delete",
    "Microsoft.EventGrid/eventSubscriptions/write",
    "Microsoft.Storage/storageAccounts/write"

"Microsoft.MarketplaceOrdering/offertypes/publishers/offers/plans/agreemen
ts/read"

"Microsoft.MarketplaceOrdering/offertypes/publishers/offers/plans/agreemen
ts/write"

"Microsoft.Network/networkSecurityGroups/securityRules/read",
    "Microsoft.Network/networkSecurityGroups/read",

```

```

],
"NotActions": [],
"AssignableScopes": [],
"Description": "Azure Data Broker",
"IsCustom": "true"
}

```

Note:

1. The following permissions are only required if you plan to enable the [Continuous Sync setting](#) on a sync relationship from Azure to another cloud storage location:
 - 'Microsoft.Storage/storageAccounts/read',
 - 'Microsoft.EventGrid/systemTopics/eventSubscriptions/write',

- 'Microsoft.EventGrid/systemTopics/eventSubscriptions/read',
- 'Microsoft.EventGrid/systemTopics/eventSubscriptions/delete',
- 'Microsoft.EventGrid/systemTopics/eventSubscriptions/getFullUrl/action',
- 'Microsoft.EventGrid/systemTopics/eventSubscriptions/getDeliveryAttributes/action',
- 'Microsoft.EventGrid/systemTopics/read',
- 'Microsoft.EventGrid/systemTopics/write',
- 'Microsoft.EventGrid/systemTopics/delete',
- 'Microsoft.EventGrid/eventSubscriptions/write',
- 'Microsoft.Storage/storageAccounts/write'

Additionally, the assignable scope must be set to subscription scope and **not** resource group scope if you plan to implement Continuous Sync in Azure.

2. The following permissions are only required if you plan to choose your own security for data broker creation:

- "Microsoft.Network/networkSecurityGroups/securityRules/read"
- "Microsoft.Network/networkSecurityGroups/read"

Authentication method

When you deploy the data broker, you'll need to choose an authentication method for the virtual machine: a password or an SSH public-private key pair.

For help with creating a key pair, refer to [Azure Documentation: Create and use an SSH public-private key pair for Linux VMs in Azure](#).

Creating the data broker

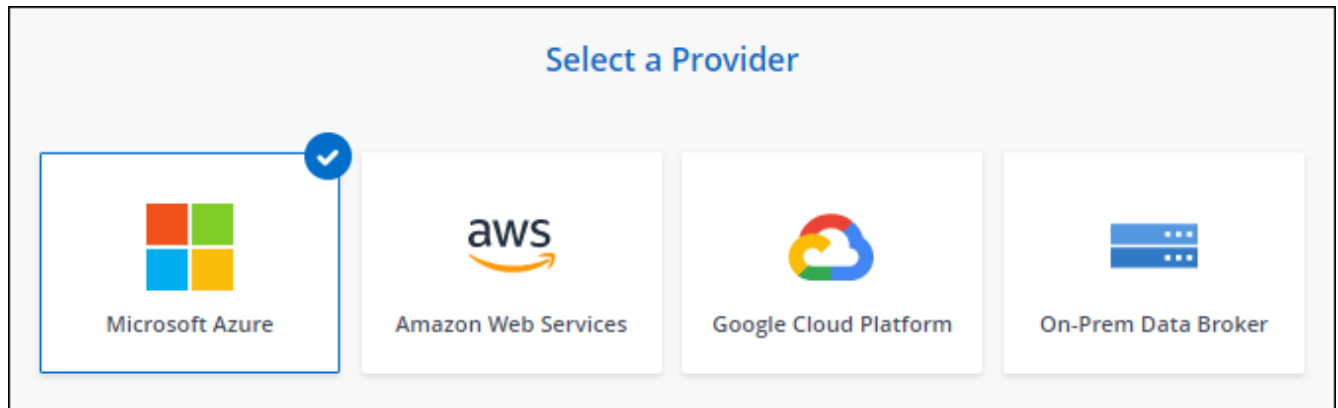
There are a few ways to create a new data broker. These steps describe how to install a data broker in Azure when you create a sync relationship.

Steps

1. Select **Create New Sync**.
2. On the **Define Sync Relationship** page, choose a source and target and select **Continue**.

Complete the steps until you reach the **Data Broker Group** page.

3. On the **Data Broker Group** page, select **Create Data Broker** and then select **Microsoft Azure**.



4. Enter a name for the data broker and select **Continue**.
5. If you're prompted, log in to your Microsoft account. If you're not prompted, select **Log in to Azure**.

The form is owned and hosted by Microsoft. Your credentials are not provided to NetApp.

6. Choose a location for the data broker and enter basic details about the virtual machine.



If you plan to implement a Continuous Sync relationship, you must assign a custom role to your data broker. This can also be done manually after the broker is created.

7. Specify a proxy configuration, if a proxy is required for internet access in the VNet.
8. Select **Continue**. If you would like to add S3 permissions to your data broker, enter your AWS access and secret keys.

9. Select **Continue** and keep the page open until the deployment is complete.

The process can take up to 7 minutes.

10. In BlueXP copy and sync, select **Continue** once the data broker is available.
11. Complete the pages in the wizard to create the new sync relationship.

Result

You have deployed a data broker in Azure and created a new sync relationship. You can use this data broker with additional sync relationships.

Getting a message about needing admin consent?

If Microsoft notifies you that admin approval is required because BlueXP copy and sync needs permission to access resources in your organization on your behalf, then you have two options:

1. Ask your AD admin to provide you with the following permission:

In Azure, go to **Admin Centers > Azure AD > Users and Groups > User Settings** and enable **Users can consent to apps accessing company data on their behalf**.

2. Ask your AD admin to consent on your behalf to **CloudSync-AzureDataBrokerCreator** using the following URL (this is the admin consent endpoint):

```
https://login.microsoftonline.com/{FILL HERE YOUR TENANT ID}/v2.0/adminconsent?client_id=8ee4ca3a-bafa-4831-97cc-5a38923cab85&redirect_uri=https://cloudsync.netapp.com&scope=https://management.azure.com/user_impersonationhttps://graph.microsoft.com/User.Read
```

As shown in the URL, our app URL is <https://cloudsync.netapp.com> and the application client ID is 8ee4ca3a-bafa-4831-97cc-5a38923cab85.

Details about the data broker VM

BlueXP copy and sync creates a data broker in Azure using the following configuration.

Node.js compatibility

v21.2.0

VM type

Standard DS4 v2

vCPUs

8

RAM

28 GB

Operating system

Rocky Linux 9.0

Disk size and type

64 GB Premium SSD

Creating a new data broker in Google Cloud

When you create a new data broker group, choose Google Cloud Platform to deploy the data broker software on a new virtual machine instance in a Google Cloud VPC. BlueXP copy and sync guides you through the installation process, but the requirements and steps are repeated on this page to help you prepare for installation.

You also have the option to install the data broker on an existing Linux host in the cloud or on your premises. [Learn more.](#)

Supported Google Cloud regions

All regions are supported.

Root privileges

The data broker software automatically runs as root on the Linux host. Running as root is a requirement for data broker operations. For example, to mount shares.

Networking requirements

- The data broker needs an outbound internet connection so it can poll the BlueXP copy and sync service for tasks over port 443.

When BlueXP copy and sync deploys the data broker in Google Cloud, it creates a security group that enables the required outbound communication.

If you need to limit outbound connectivity, see [the list of endpoints that the data broker contacts](#).

- NetApp recommends configuring the source, target, and data broker to use a Network Time Protocol (NTP) service. The time difference between the three components should not exceed 5 minutes.

Permissions required to deploy the data broker in Google Cloud

Ensure that the Google Cloud user who deploys the data broker has the following permissions:

```
- compute.networks.list
- compute.regions.list
- deploymentmanager.deployments.create
- deploymentmanager.deployments.delete
- deploymentmanager.operations.get
- iam.serviceAccounts.list
```

Permissions required for the service account

When you deploy the data broker, you need to select a service account that has the following permissions:

- `logging.logEntries.create`
- `resourcemanager.projects.get`
- `storage.buckets.get`
- `storage.buckets.list`
- `storage.objects.create`
- `storage.objects.delete`
- `storage.objects.get`
- `storage.objects.getIamPolicy`
- `storage.objects.list`
- `storage.objects.setIamPolicy`
- `storage.objects.update`
- `iam.serviceAccounts.signJwt`
- `pubsub.subscriptions.consume`
- `pubsub.subscriptions.create`
- `pubsub.subscriptions.delete`
- `pubsub.subscriptions.list`
- `pubsub.topics.attachSubscription`
- `pubsub.topics.create`
- `pubsub.topics.delete`
- `pubsub.topics.list`
- `pubsub.topics.setIamPolicy`
- `storage.buckets.update`
- `cloudkms.cryptoKeys.list`
- `cloudkms.keyRings.list`

Notes:

1. The "iam.serviceAccounts.signJwt" permission is required only if you're planning to set up the data broker to use an external HashiCorp vault.
2. The "pubsub.*" and "storage.buckets.update" permissions are required only if you plan to enable the Continuous Sync setting on a sync relationship from Google Cloud Storage to another cloud storage location. [Learn more about the Continuous Sync option.](#)
3. The "cloudkms.cryptoKeys.list" and "cloudkms.keyRings.list" permissions are required only if you plan to use a customer-managed KMS key on a target Google Cloud Storage bucket.

Creating the data broker

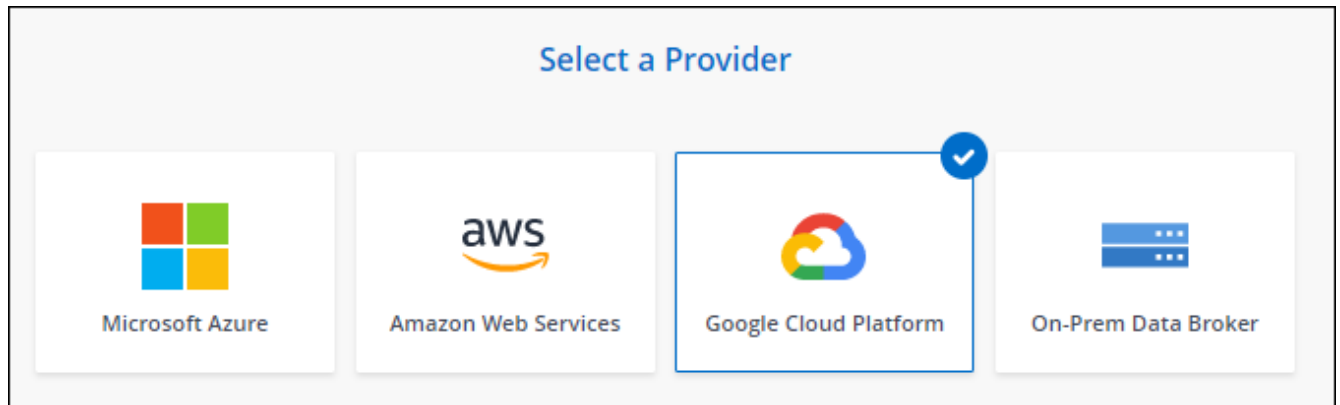
There are a few ways to create a new data broker. These steps describe how to install a data broker in Google Cloud when you create a sync relationship.

Steps

1. Select **Create New Sync**.
2. On the **Define Sync Relationship** page, choose a source and target and select **Continue**.

Complete the steps until you reach the **Data Broker Group** page.

3. On the **Data Broker Group** page, select **Create Data Broker** and then select **Google Cloud Platform**.



4. Enter a name for the data broker and select **Continue**.
5. If you're prompted, log in with your Google account.

The form is owned and hosted by Google. Your credentials are not provided to NetApp.

6. Select a project and service account and then choose a location for the data broker, including whether you want to enable or disable a public IP address.

If you don't enable a public IP address, then you'll need to define a proxy server in the next step.

Basic Settings

Project	Location
Project	Region
<div>OCCM-Dev</div>	<div>us-west1</div>
Service Account	Zone
<div>test</div>	<div>us-west1-a</div>
Select a Service Account that includes these permissions	VPC
	<div>default</div>
	Subnet
	<div>default</div>
	Public IP
	<div>Enable</div>

7. Specify a proxy configuration, if a proxy is required for internet access in the VPC.

If a proxy is required for internet access, then the proxy must be in Google Cloud and use the same service account as the data broker.

8. Once the data broker is available, select **Continue** in BlueXP copy and sync.

The instance takes approximately 5 to 10 minutes to deploy. You can monitor the progress from the BlueXP copy and sync service, which automatically refreshes when the instance is available.

9. Complete the pages in the wizard to create the new sync relationship.

Result

You've deployed a data broker in Google Cloud and created a new sync relationship. You can use this data broker with additional sync relationships.

Providing permissions to use buckets in other Google Cloud projects

When you create a sync relationship and choose Google Cloud Storage as the source or target, BlueXP copy and sync enables you to choose from the buckets that the data broker's service account has permissions to use. By default, this includes the buckets that are in the *same* project as the data broker service account. But you can choose buckets from *other* projects if you provide the required permissions.

Steps

1. Open the Google Cloud Platform console and load the Cloud Storage service.
2. Select the name of the bucket that you'd like to use as a source or target in a sync relationship.
3. Select **Permissions**.
4. Select **Add**.
5. Enter the name of the data broker's service account.
6. Select a role that provides [the same permissions as shown above](#).
7. Select **Save**.

Result

When you set up a sync relationship, you can now choose that bucket as the source or target in the sync relationship.

Details about the data broker VM instance

BlueXP copy and sync creates a data broker in Google Cloud using the following configuration.

Node.js compatibility

v21.2.0

Machine type

n2-standard-4

vCPUs

4

RAM

15 GB

Operating system

Rocky Linux 9.0

Disk size and type

20 GB HDD pd-standard

Installing the data broker on a Linux host

When you create a new data broker group, choose the On-Prem Data Broker option to install the data broker software on an on-premises Linux host, or on an existing Linux host in the cloud. BlueXP copy and sync guides you through the installation process, but the requirements and steps are repeated on this page to help you prepare for installation.

Linux host requirements

- **Node.js compatibility:** v21.2.0
- **Operating system:**
 - CentOS 8.0 and 8.5

CentOS Stream is not supported.

- Red Hat Enterprise Linux 8.5, 8.8, and 8.9
- Rocky Linux 9
- Ubuntu Server 20.04 LTS
- SUSE Linux Enterprise Server 15 SP1

The command `yum update` must be run on the host before you install the data broker.

A Red Hat Enterprise Linux system must be registered with Red Hat Subscription Management. If it is not registered, the system cannot access repositories to update required 3rd party software during installation.

- **RAM:** 16 GB
- **CPU:** 4 cores
- **Free disk space:** 10 GB
- **SELinux:** We recommend that you disable [SELinux](#) on the host.

SELinux enforces a policy that blocks data broker software updates and can block the data broker from contacting endpoints required for normal operation.

Root privileges

The data broker software automatically runs as root on the Linux host. Running as root is a requirement for data broker operations. For example, to mount shares.

Networking requirements

- The Linux host must have a connection to the source and target.
- The file server must allow the Linux host to access the exports.
- Port 443 must be open on the Linux host for outbound traffic to AWS (the data broker constantly communicates with the Amazon SQS service).
- NetApp recommends configuring the source, target, and data broker to use a Network Time Protocol (NTP) service. The time difference between the three components should not exceed 5 minutes.

Enabling access to AWS

If you plan to use the data broker with a sync relationship that includes an S3 bucket, then you should prepare the Linux host for AWS access. When you install the data broker, you'll need to provide AWS keys for an AWS user that has programmatic access and specific permissions.

Steps

1. Create an IAM policy using [this NetApp-provided policy](#)

[View AWS instructions](#)

2. Create an IAM user that has programmatic access.

[View AWS instructions](#)

Be sure to copy the AWS keys because you need to specify them when you install the data broker software.

Enabling access to Google Cloud

If you plan to use the data broker with a sync relationship that includes a Google Cloud Storage bucket, then you should prepare the Linux host for Google Cloud access. When you install the data broker, you'll need to provide a key for a service account that has specific permissions.

Steps

1. Create a Google Cloud service account that has Storage Admin permissions, if you don't already have one.
2. Create a service account key saved in JSON format.

[View Google Cloud instructions](#)

The file should contain at least the following properties: "project_id", "private_key", and "client_email"



When you create a key, the file gets generated and downloaded to your machine.

3. Save the JSON file to the Linux host.

Enabling access to Microsoft Azure

Access to Azure is defined per relationship by providing a storage account and a connection string in the Sync Relationship wizard.

Installing the data broker

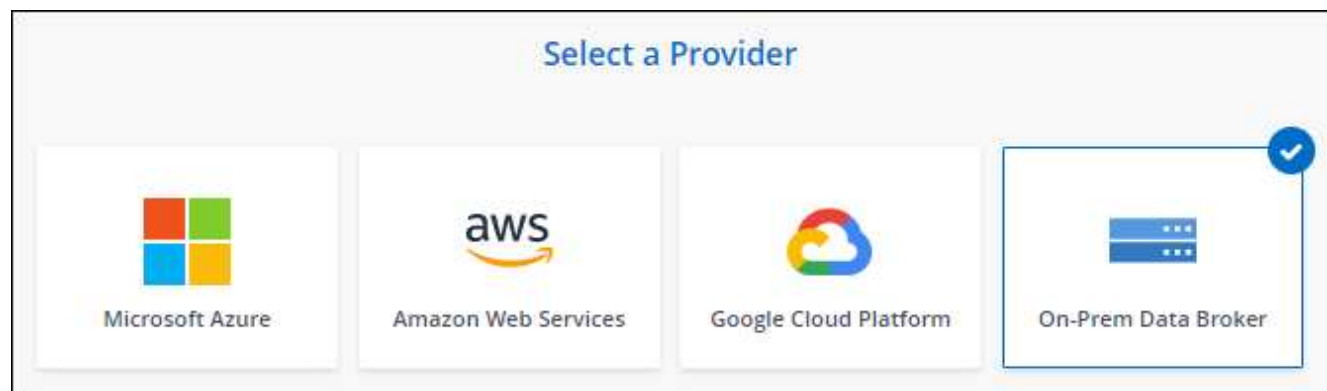
You can install a data broker on a Linux host when you create a sync relationship.

Steps

1. Select **Create New Sync**.
2. On the **Define Sync Relationship** page, choose a source and target and select **Continue**.

Complete the steps until you reach the **Data Broker Group** page.

3. On the **Data Broker Group** page, select **Create Data Broker** and then select **On-Prem Data Broker**.





Even though the option is labeled **On-Prem Data Broker**, it applies to a Linux host on your premises or in the cloud.

4. Enter a name for the data broker and select **Continue**.

The instructions page loads shortly. You'll need to follow these instructions—they include a unique link to download the installer.

5. On the instructions page:

- a. Select whether to enable access to **AWS**, **Google Cloud**, or both.
- b. Select an installation option: **No proxy**, **Use proxy server**, or **Use proxy server with authentication**.



The user must be a local user. Domain users are not supported.

- c. Use the commands to download and install the data broker.

The following steps provide details about each possible installation option. Follow the instructions page to get the exact command based on your installation option.

- d. Download the installer:

- No proxy:

```
curl <URI> -o data_broker_installer.sh
```

- Use proxy server:

```
curl <URI> -o data_broker_installer.sh -x <proxy_host>:<proxy_port>
```

- Use proxy server with authentication:

```
curl <URI> -o data_broker_installer.sh -x  
<proxy_username>:<proxy_password>@<proxy_host>:<proxy_port>
```

URI

BlueXP copy and sync displays the URI of the installation file on the instructions page, which loads when you follow the prompts to deploy the On-Prem Data Broker. That URI isn't repeated here because the link is generated dynamically and can be used only once. [Follow these steps to obtain the URI from BlueXP copy and sync.](#)

- e. Switch to superuser, make the installer executable and install the software:



Each command listed below includes parameters for AWS access and Google Cloud access. Follow the instructions page to get the exact command based on your installation option.

- No proxy configuration:

```
sudo -s  
chmod +x data_broker_installer.sh  
./data_broker_installer.sh -a <aws_access_key> -s <aws_secret_key> -g  
<absolute_path_to_the_json_file>
```

- Proxy configuration:

```
sudo -s
chmod +x data_broker_installer.sh
./data_broker_installer.sh -a <aws_access_key> -s <aws_secret_key> -g
<absolute_path_to_the_json_file> -h <proxy_host> -p <proxy_port>
```

- Proxy configuration with authentication:

```
sudo -s
chmod +x data_broker_installer.sh
./data_broker_installer.sh -a <aws_access_key> -s <aws_secret_key> -g
<absolute_path_to_the_json_file> -h <proxy_host> -p <proxy_port> -u
<proxy_username> -w <proxy_password>
```

AWS keys

These are the keys for the user that you should have prepared [following these steps](#). The AWS keys are stored on the data broker, which runs in your on-premises or cloud network. NetApp doesn't use the keys outside of the data broker.

JSON file

This is the JSON file that contains a service account key that you should have prepared [following these steps](#).

6. Once the data broker is available, select **Continue** in BlueXP copy and sync.
7. Complete the pages in the wizard to create the new sync relationship.

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