

# How to install a data broker

## Cloud Manager

NetApp

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# How to install a data broker

## Installing the data broker in AWS

When you create a sync relationship, choose the AWS Data Broker option to deploy the data broker software on a new EC2 instance in a VPC. Cloud 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 and GovCloud (US) regions.

### Networking requirements

- The data broker needs an outbound internet connection so it can poll the Cloud Sync service for tasks over port 443.

When Cloud 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 Cloud 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.

## Installing the data broker


You can install a data broker in AWS when you create a sync relationship.

### Steps

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

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

3. On the **Data Broker** page, click **Create Data Broker** and then select **Amazon Web Services**.

If you already have a data broker, you'll need to click the  icon first.

4. Enter a name for the data broker and click **Continue**.
5. Enter an AWS access key so Cloud 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, click 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/occm/media/video\\_cloud\\_sync.mp4](https://docs.netapp.com/us-en/occm/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 then select an existing IAM role, or leave the field blank so Cloud Sync creates the role for you.

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

### Basic Settings

<p><b>Location</b></p> <p>Region  <input type="text" value="US West   Oregon"/></p> <p>VPC  <input type="text" value="vpc-3c46c059 - 10.60.21.0/25"/></p> <p>Subnet  <input type="text" value="10.60.21.0/25"/></p>	<p><b>Connectivity</b></p> <p>Key Pair  <input type="text" value="newKey"/></p> <p>Enable Public IP?  <input checked="" type="radio"/> Enable <input type="radio"/> Disable</p> <p>IAM Role (optional) <span style="float: right;">?</span>  <input type="text"/></p>
---	---

7. Specify a proxy configuration, if a proxy is required for internet access in the VPC.
8. After the data broker is available, click **Continue** in Cloud Sync.

The following image shows a successfully deployed instance in AWS:

### Select a NetApp Data Broker

1 NetApp Data Brokers 🔍

<input checked="" type="checkbox"/>	name	<input checked="" type="checkbox"/> Active						
	<table border="0" style="width: 100%;"> <tr> <td style="width: 33%;">US West (Oregon) <small>Region</small></td> <td style="width: 33%;">10.60.21.0/25   vpc-3c46c059 <small>VPC</small></td> <td style="width: 33%;">10.60.21.5 <small>Private IP</small></td> </tr> <tr> <td>us-west-2c <small>Availability Zone</small></td> <td>10.60.21.0/25   subnet-e7f526be <small>Subnet</small></td> <td>i-0fc5c97e2f5f22c20 <small>Instance ID</small></td> </tr> </table>	US West (Oregon) <small>Region</small>	10.60.21.0/25   vpc-3c46c059 <small>VPC</small>	10.60.21.5 <small>Private IP</small>	us-west-2c <small>Availability Zone</small>	10.60.21.0/25   subnet-e7f526be <small>Subnet</small>	i-0fc5c97e2f5f22c20 <small>Instance ID</small>	5f5002eecf378e000a560988 <small>Broker ID</small>
US West (Oregon) <small>Region</small>	10.60.21.0/25   vpc-3c46c059 <small>VPC</small>	10.60.21.5 <small>Private IP</small>						
us-west-2c <small>Availability Zone</small>	10.60.21.0/25   subnet-e7f526be <small>Subnet</small>	i-0fc5c97e2f5f22c20 <small>Instance ID</small>						

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 with additional sync relationships.

## Installing the data broker in Azure

When you create a sync relationship, choose the Azure Data Broker option to deploy the data broker software on a new virtual machine in a VNet. Cloud 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.

## Networking requirements

- The data broker needs an outbound internet connection so it can poll the Cloud Sync service for tasks over port 443.

When Cloud 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.

## Authentication method

When you deploy the data broker, you'll need to choose an authentication method: 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](#).

## Installing the data broker


You can install a data broker in Azure when you create a sync relationship.

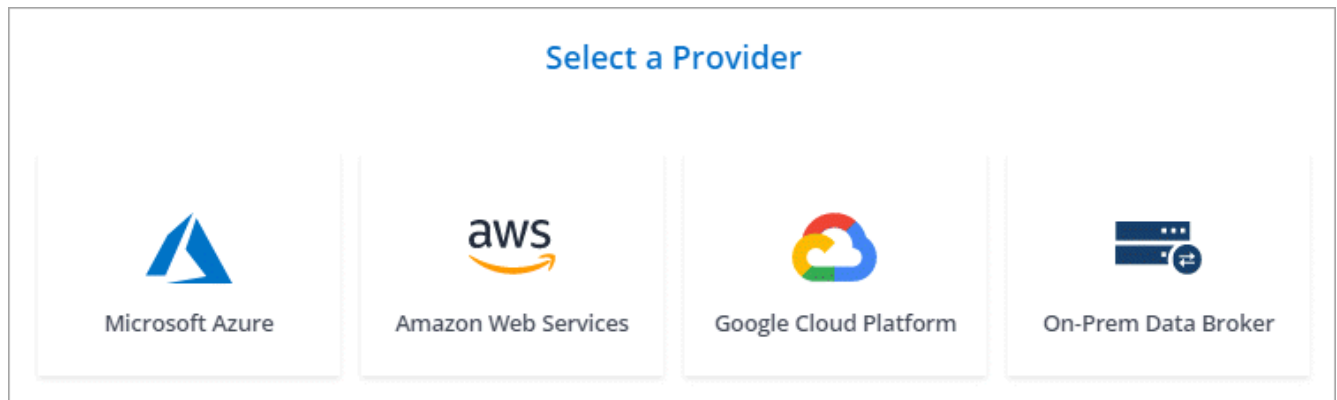
### *Steps*

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

Complete the pages until you reach the **Data Broker** page.

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

If you already have a data broker, you'll need to click the  icon first.



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

The image shows two side-by-side configuration panels. The left panel is titled 'Location' and has four dropdown menus: 'Subscription' (OCCM Dev), 'Azure Region' (West US 2), 'VNet' (Vnet1), and 'Subnet' (Subnet1). The right panel is titled 'Virtual Machine' and has several fields: 'VM Name' (netappdatabroker), 'User Name' (databroker), 'Authentication Method' (radio buttons for Password and Public Key, with Password selected), 'Enter Password' (masked with dots), and 'Resource Group' (radio buttons for Generate a new group and Use an existing group, with Generate a new group selected).

7. Specify a proxy configuration, if a proxy is required for internet access in the VNet.
8. Click **Continue** and keep the page open until the deployment is complete.

The process can take up to 7 minutes.

9. In Cloud Sync, click **Continue** once the data broker is available.

10. 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 Cloud 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`.

## **Installing the data broker in Google Cloud Platform**

When you create a sync relationship, choose the GCP Data Broker option to deploy the data broker software on a new virtual machine instance in a VPC. Cloud 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 GCP regions**

All regions are supported.



## Networking requirements

- The data broker needs an outbound internet connection so it can poll the Cloud Sync service for tasks over port 443.

When Cloud Sync deploys the data broker in GCP, 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 GCP

Ensure that the GCP 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.*`

## Installing the data broker


You can install a data broker in GCP when you create a sync relationship.

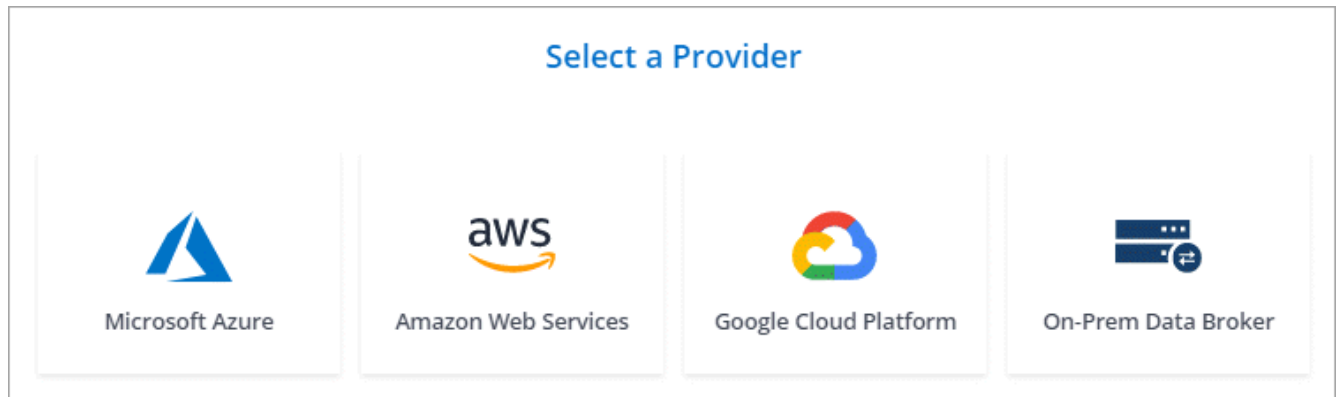
### *Steps*

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

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

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

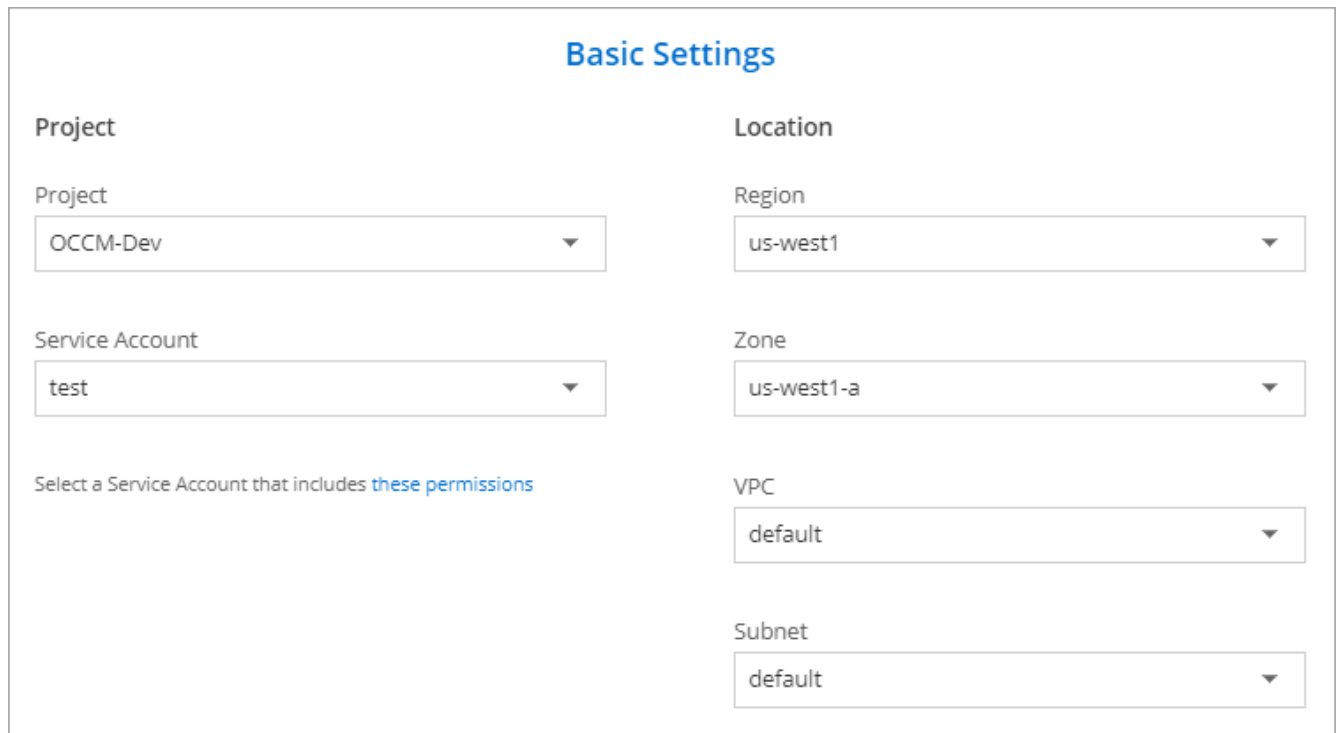
If you already have a data broker, you'll need to click the  icon first.



4. Enter a name for the data broker and click **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.



The screenshot shows the 'Basic Settings' form with the following fields:

Project	Location
Project: OCCM-Dev	Region: us-west1
Service Account: test	Zone: us-west1-a
Select a Service Account that includes <a href="#">these permissions</a>	VPC: default
	Subnet: default

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, click **Continue** in Cloud Sync.

The instance takes approximately 5 to 10 minutes to deploy. You can monitor the progress from the Cloud 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 GCP and created a new sync relationship. You can use this data broker with additional sync relationships.

## Installing the data broker on a Linux host

When you create a sync relationship, 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. Cloud 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

- **Operating system:**

- CentOS 7.0, 7.7, and 8.0
- Red Hat Enterprise Linux 7.7 and 8.0
- Ubuntu Server 20.04 LTS
- SUSE Linux Enterprise Server 15 SP1

The command `yum update all` 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.

- **OpenSSL:** OpenSSL must be installed on the Linux host.

## 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 GCP 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 GCP 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 GCP 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.

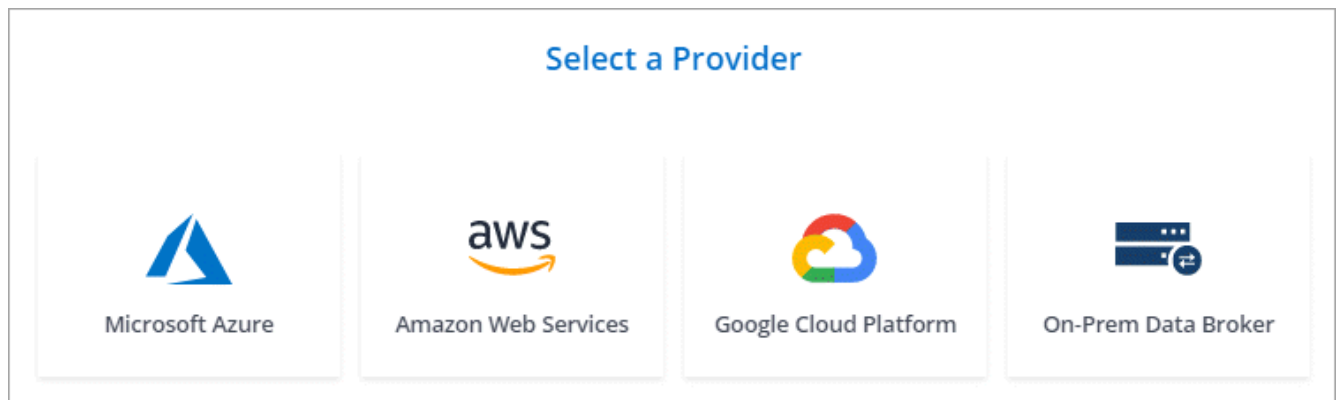
### Steps

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

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

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

If you already have a data broker, you'll need to click the  icon first.



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 click **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**.
  - 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

Cloud 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 Cloud Sync.](#)

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



Each command listed below includes parameters for AWS access and GCP 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, click **Continue** in Cloud Sync.
7. Complete the pages in the wizard to create the new sync relationship.

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