Granting Azure permissions to Cloud Manager using a service principal and credentials

Cloud Manager 3.5

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03/12/2020

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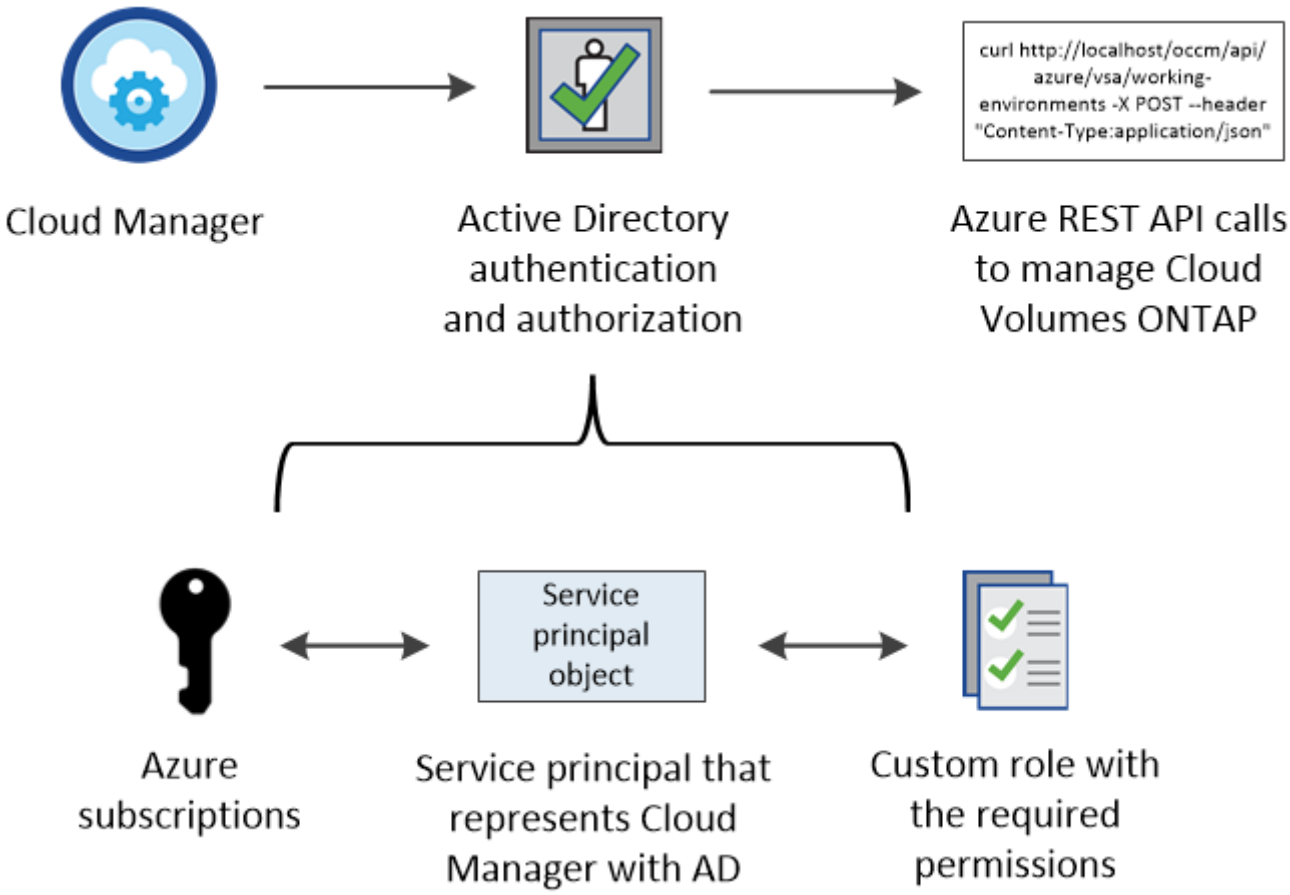
Cloud Manager needs permissions to perform actions in Azure. You can grant the required permissions by creating and setting up a service principal in Azure Active Directory and by obtaining the Azure credentials that Cloud Manager needs.

Before you begin

Using a service principal and credentials is an alternative to using a Managed Service Identity, which is simpler and does not require credentials. To use a Managed Service Identity with Cloud Manager instead, follow instructions for new Cloud Manager virtual machines or instructions for existing Cloud Manager virtual machines.

About this task

The following image depicts how Cloud Manager obtains permissions to perform operations in Azure. A service principal object, which is tied to one or more Azure subscriptions, represents Cloud Manager in Azure Active Directory and is assigned to a custom role that allows the required permissions.



The following steps use the new Azure portal. If you experience any issues, you should use the Azure classic portal.

Steps

1. Create a custom role with the required Cloud Manager permissions.
2. Create an Active Directory service principal.
3. Assign the custom Cloud Manager Operator role to the service principal.

Creating a custom role with the required Cloud Manager permissions

A custom role is required to provide Cloud Manager with the permissions that it needs to launch and manage Cloud Volumes ONTAP in Azure.

Steps

1. Download the Cloud Manager Azure policy.
2. Modify the JSON file by adding Azure subscription IDs to the assignable scope.

   You should add the ID for each Azure subscription from which users will create Cloud Volumes ONTAP systems.

   Example

   "AssignableScopes": [
   "/subscriptions/d333af45-0d07-4154-943d-c25fbzzzzzzz",
   "/subscriptions/54b91999-b3e6-4599-908e-416e0zzzzzzz",
   "/subscriptions/398e471c-3b42-4ae7-9b59-ce5bbzzzzzzz"

3. Use the JSON file to create a custom role in Azure.

   The following example shows how to create a custom role using the Azure CLI 2.0:

   az role definition create --role-definition C:\Policy_for_Cloud_Manager_Azure_3_5_2.json

Result

You should now have a custom role called OnCommand Cloud Manager Operator.

Creating an Active Directory service principal

You must create an Active Directory service principal so Cloud Manager can authenticate with Azure Active Directory.

Before you begin

You must have the appropriate permissions in Azure to create an Active Directory application and to assign the application to a role. For details, refer to Microsoft Azure Documentation: Use portal to create Active Directory application and service principal that can access resources

Steps

1. From the Azure portal, open the **Azure Active Directory** service.

[Shows the Active Directory service in Microsoft Azure.]

2. In the menu, click **App registrations**.
3. Create the service principal:
   a. Click **New application registration**.
   b. Enter a name for the application, keep **Web app / API** selected, and then enter any URL—for example, http://url
   c. Click **Create**.
4. Modify the application to add the required permissions:
   a. Select the created application.
   b. Under Settings, click **Required permissions** and then click **Add**.

      [Shows the settings for an Active Directory application in Microsoft Azure and highlights the option to add required permissions for API access.]

   c. Click **Select an API**, select **Windows Azure Service Management API**, and then click **Select**.

      [Shows the API to select in Microsoft Azure when adding API access to the Active Directory application. The API is the Windows Azure Service Management API.]

   d. Click **Access Azure Service Management as organization users**, click **Select** and then click **Done**.
5. Create a key for the service principal:
   a. Under Settings, click **Keys**.
   b. Enter a description, select a duration, and then click **Save**.
   c. Copy the key value.

      You need to enter the key value in Cloud Manager when you create user accounts for this subscription.

   d. Click **Properties** and then copy the application ID for the service principal.

      Similar to the key value, you need to enter the application ID in Cloud Manager when you create user accounts for this subscription.

      [Shows the application ID for an Azure Active Directory service principal.]

6. Obtain the Active Directory tenant ID for your organization:
   a. In the Active Directory menu, click **Properties**.
   b. Copy the Directory ID.

      [Shows the Active Directory properties in the Azure portal and the Directory ID that you need to copy.]

      Just like the application ID and application key, you must enter the Active Directory tenant

ID when you create Cloud Manager user accounts.

Result

You should now have an Active Directory service principal and you should have copied the application ID, the application key, and the Active Directory tenant ID. You need to enter this information in Cloud Manager when you set up user accounts.

Assigning the Cloud Manager Operator role to the service principal

You must bind the service principal to one or more Azure subscriptions and assign it the Cloud Manager Operator role so Cloud Manager has permissions in Azure.

About this task

If you want to deploy Cloud Volumes ONTAP from multiple Azure subscriptions, then you must bind the service principal to each of those subscriptions. Cloud Manager enables you to select the subscription that you want to use when deploying Cloud Volumes ONTAP.

Steps

1. From the Azure portal, select **Subscriptions** in the left pane.
2. Select the subscription.
3. Click **Access control (IAM)** and then click **Add**.
4. Select the **OnCommand Cloud Manager Operator** role.
5. Search for the name of the application (you cannot find it in the list by scrolling).
6. Select the application, click **Select**, and then click **OK**.

Result

The service principal for Cloud Manager now has the required Azure permissions.