# Solution Automation

## NetApp Solutions

NetApp
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# Table of Contents

# Solution Automation

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## Introduction

In providing solutions to meet today's business challenges, NetApp delivers solutions with the following goals:

- Providing validated deployment and configuration steps,
- Providing solutions that are easily consumable,
- Providing solution deployment that has a predictable outcome, is easily repeated, and scalable across a customer's enterprise.

In order to achieve these goals, it is paramount that the deployment and configuration of infrastructure and/or applications delivered through our solutions is simplified through automation. NetApp is committed to simplifying solution consumption through automation.

Utilizing open-source automation tools such as Red Hat Ansible, HashiCorp Terraform, or Microsoft Powershell, NetApp solutions have the ability to automate application deployment, cloud provisioning, configuration management, and many other common IT tasks. NetApp's solutions take advantage of publicly available automation artifacts - as well as providing NetApp authored automation - to simplify the overall deployment of a solution.

Where automation capabilities are available, the solution collateral will guide the user through the process for automating the solution or solution steps via the specific automation tool(s).

# Setup the Ansible control node (For CLI based deployments)

# NetApp Solution Automation

## AWS Authentication Requirements for CVO and Connector Using NetApp Cloud Manager

To configure automated Deployments of CVO and Connectors using Ansible playbooks via AWX/Ansible Tower, the following information is needed:

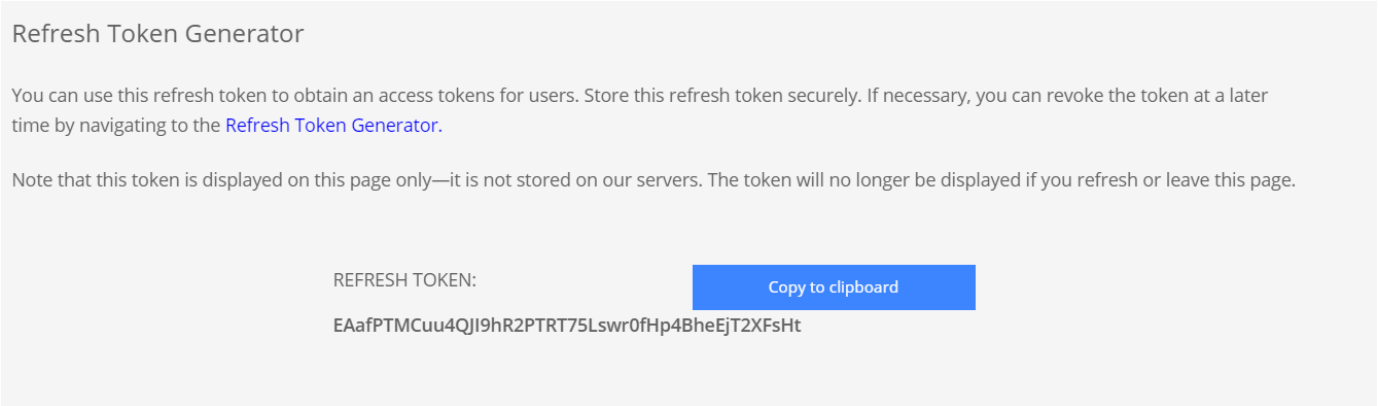
### Acquiring Access/Secret Keys from AWS

1. To deploy CVO and Connector in Cloud Manager, we need AWS Access/Secret Key. Acquire the keys in AWS console by launching IAM-→Users-→your username-→security credentials-→Create Access key.
2. Copy access keys and keep them secured to use in Connector and CVO deployment.

If you lose your key, you can create another access key and delete the one you lost

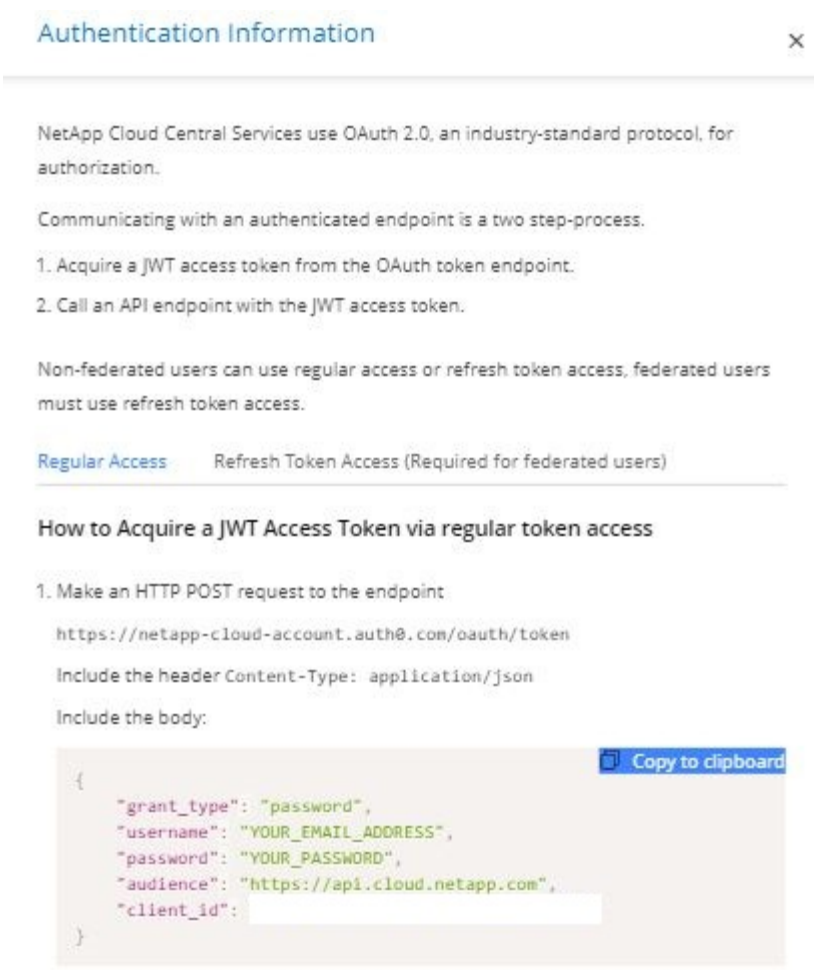

### Acquiring Refresh Token from NetApp Cloud Central

1. Login into your cloud central account using your account credentials at https://services.cloud.netapp.com/refresh-token
2. Generate a refresh Token and save it for deployments.



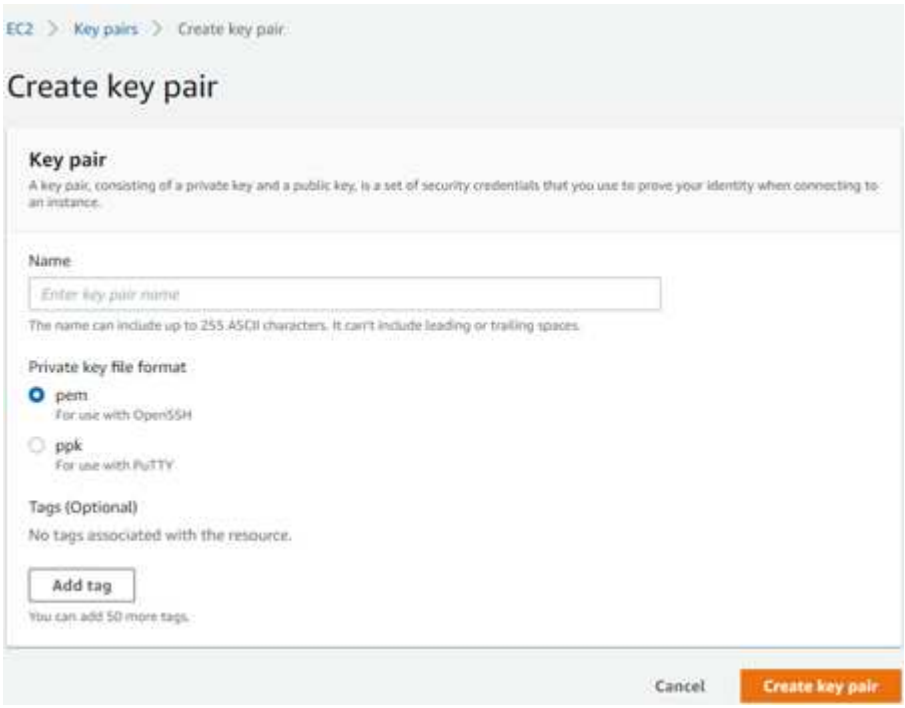

### Acquiring Client ID

1. Access the API page to copy Client ID at https://services.cloud.netapp.com/developer-hub.
2. Click on "learn How to Authenticate", in the top right corner.
3. From the Authentication window that pops up, copy the Client ID from Regular Access if you require a username/password to login. Federated users with SSO should copy the client ID from the "Refresh Token Tab".



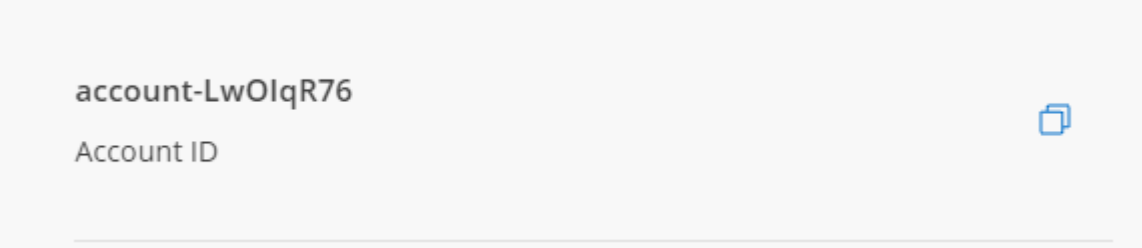

### Acquiring Key Pair from AWS

1. In AWS console, search for “Key Pair” and create a key pair with “pem”. Remember the name of you key_pair, we will use it to deploy the connector.



#### Acquiring Account ID

1. In Cloud Manager, click on Account –> Manage Accounts and then copy the account id for use in variables for AWX.




# Cloud Volumes Automation via Terraform

This solution documents the automated deployments of Cloud Volumes on AWS (CVO Single Node, CVO HA and FSX ONTAP) and Azure (CVO Single Node, CVO HA and ANF) using Terraform modules. The code can be found at https://github.com/NetApp-Automation/na_cloud_volumes_automation

## Pre-requisites

1. Terraform >= 0.13
2. Cloud Manager Account
3. Cloud Provider Account – AWS, Azure
4. Host machine (any OS supported by Terraform)

## Provider documentation

The documentation of Terraform provider for Cloud Manager is available at: https://registry.terraform.io/providers/NetApp/netapp-cloudmanager/latest/docs

#### Controlling the provider version

Note that you can also control the provider version. This is controlled by a required_providers block in your Terraform configuration.

The syntax is as follows:

```
terraform {
  required_providers {
    netapp-cloudmanager = {
      source = "NetApp/netapp-cloudmanager"
      version = "20.10.0"
    }
  }
}
```

Read more on provider version control.

## Running Specific Modules

### AWS

Unresolved directive in automation/cloud_volumes_terraform.adoc - include::automation/cloud_volumes_aws.adoc[]

### Azure

Unresolved directive in automation/cloud_volumes_terraform.adoc - include::automation/cloud_volumes_azure.adoc[]

### GCP

Unresolved directive in automation/cloud_volumes_terraform.adoc - include::automation/cloud_volumes_gcp.adoc[]