Get started

AppTemplate

NetApp
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Learn about Application Templates

The Application Template service enables you to standardize resource creation in your working environments. For example, you can hard-code required parameters in a "volume template" that are later applied when a storage admin creates a volume using the template. This can include required disk type, size, protocol, snapshot policy, cloud provider, and more. You can also turn on certain services, like Cloud Backup, for every created volume.

Templates make it easy for your storage admins to create volumes that are optimized for the workload requirements for each deployed application; such as databases, email, or streaming services. And it makes life easier for your storage architects knowing that each volume is created optimally for each application.

Features

Application Templates offer the following features and benefits:

- Automates and improves the design and development of your infrastructure
- Provides a single location to activate different NetApp Cloud services; like Cloud Backup and Cloud Data Sense
- Identifies resources that have been changed and are no longer compliant with the template (using the "drift" feature)

What is "drift"?

"Drift" allows Cloud Manager to monitor the parameter values used when a resource is created with the template. At this time, "drift" can identify when a resource has been changed so you can manually make adjustments to bring it back into compliance with the template. In the future we'll be able to send you notifications when a resource is out of compliance, or even reverse a user's change so that all resources created from a template are brought back into compliance automatically.

Learn more about drift.

Available template actions

A template is a chain of "actions" that have some pre-defined values. You can build templates that include the following actions:

Resource actions:

- Create a Cloud Volumes ONTAP volume (on AWS, Azure, or GCP)
- Create an Azure NetApp Files volume
- Create an on-premises ONTAP volume
- Create a Cloud Volumes ONTAP working environment (single node or HA system on AWS)
- Find existing resources that meet certain criteria (so you can apply a "services" action on exiting resources)

Services actions:

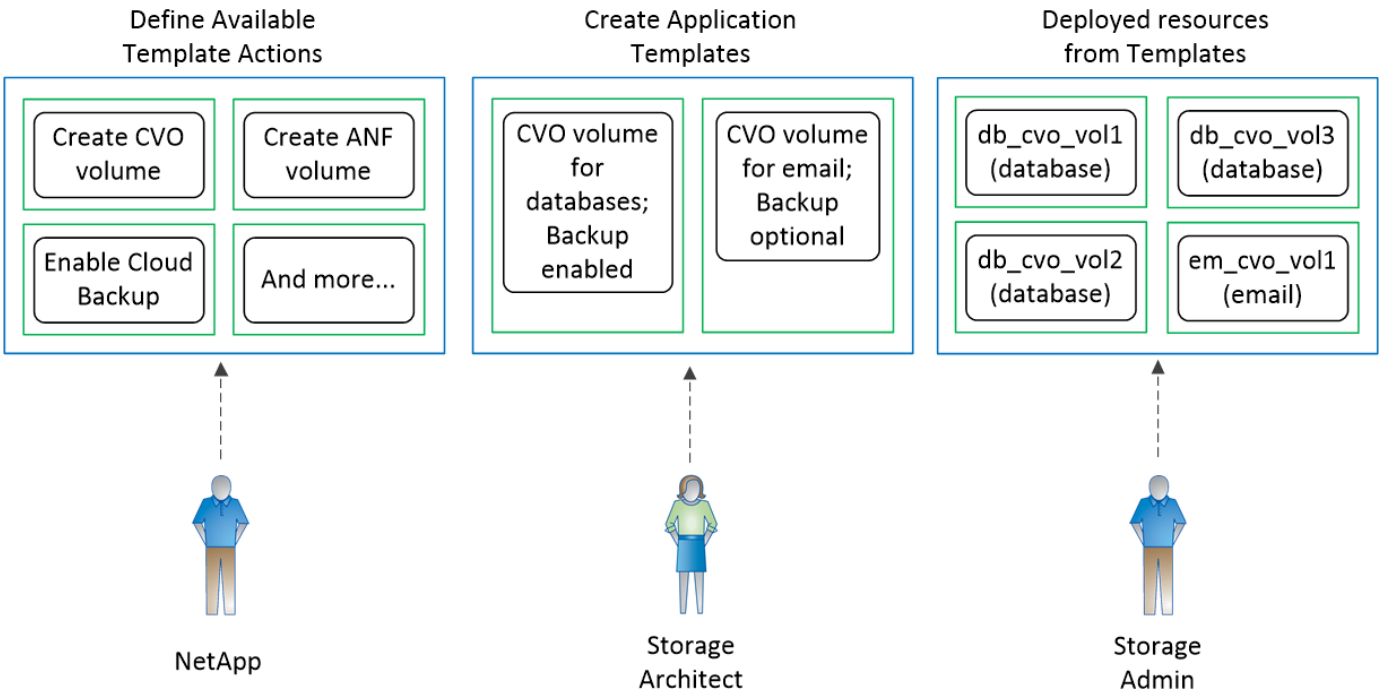
- Activate Cloud Backup on volumes (not applicable for Azure NetApp Files)
- Activate Cloud Data Sense on volumes
- Activate Replication on volumes (not applicable for Azure NetApp Files)

For example, you can create a template that creates a Cloud Volumes ONTAP volume. Or that creates a Cloud Volumes ONTAP volume and then enables Cloud Backup on that volume. Or that that creates a Cloud Volumes ONTAP volume, and then enables Cloud Backup *and* Cloud Data Sense on that volume.

More actions will be added over time by NetApp.

How Application Templates work

The Application Templates service is made up of 3 parts. The available template "actions", the customized application template, and the deployed resource as a result of running the template. The following image shows the relationship between each component:



At a high level, Templates work like this:

1. NetApp defines the available template "actions".

   For example, an "action" to create a Cloud Volumes ONTAP volume or an Azure NetApp Files volume.

2. Your storage architect selects the "actions" they want to use to create an Application Template, and then they hard-code certain values for the listed parameters.

   For example, they select high speed disks and a large amount of RAM for Cloud Volumes ONTAP volumes that will be used to carry the workloads for Oracle databases. And they require that backups are made for each volume.

3. Your storage admins use the templates to create resources that are optimized for the applications they will be used for.

For example, they create a volume that will be used for an Oracle database by using the volume template created for databases.

4. The service tracks certain resource settings defined in the template using the "drift" feature as determined by your storage architect.

Pricing and licenses

The Application Templates feature requires no licensing and is free to use by all Cloud Manager users.

Templates enable you to apply a cloud service onto a created resources, for example, enable Cloud Backup on every volume. In this case there is a cost for using the Backup service and for the object storage space used by the backup files.

Limitations

- The Application Templates service is not supported in any of the Gov Cloud regions or in sites without internet access.
- You can’t use a template to create a Cloud Volumes ONTAP volume on an existing aggregate. New volumes are created in a new aggregate.

Learn about tagging

Cloud Manager enables you to apply tags to your *existing* resources to help organize and manage those resources. Tags are metadata that you can use to group resources to identify applications, environments, regions, billing codes, cloud providers, and more.

Tags consists of a **tag key** and a **tag value**. For example, you can create a tag key called "Environment" and then add tag values of "Production" and "Test". After they are applied to your resources, you can quickly search for and view resources that match the key/value pair.

You can add tag key/value pairs to *new* resources when you create a working environment or an Azure NetApp Files volume. You can also define tag key/value pairs in Cloud Manager templates that you build for your storage admins and DevOps engineers.

You can add new tags using the Tagging service, and you can change or delete existing tags.

Features

The Tagging service offers the following features and benefits:

- Create tag keys and tag values that match the terms you use in your environment
- Organize the resources in your environment for easier monitoring and management
- Add, remove, and edit tag keys and tag values by resource type
- Tag ONTAP resources and resources in your environment from AWS and Azure.

Pricing and licenses

The ability to tag your resources requires no licensing and is free to use by all Cloud Manager users with the Account Admin or Workspace Admin role.

Resources that you can tag

You can apply tags to the following resources.

Provider	Service	Resource
ONTAP	Cloud Volumes ONTAP	Aggregate Storage VM Volume
	On-premise ONTAP	Aggregate Storage VM Volume
	Azure NetApp Files	Volume
NetApp-Service	Sync	Relationship
AWS	EC2	Instance Security Group Subnet Volume VPC
Azure	Compute	Snapshot Virtual Machine
	Network	Security Group Virtual Network
	Resource	Resource Group
	Storage	Storage Account
GCP	Compute	Instance
	Storage	Bucket

For information about AWS EC2 tags, refer to AWS Documentation: Tagging your Amazon EC2 Resources.

For information about Azure tags, refer to Azure Documentation: Tagging your Azure resources.

For information about Google labels, refer to Google Cloud Documentation: Tagging your Google Cloud resources.

Prerequisites

Verify your AWS Connector permissions

If you created the Connector using Cloud Manager version 3.9.10 or greater, then you're all set. If you created the Connector using an earlier version of Cloud Manager, then you'll need to add some required permissions for the Cloud Manager IAM role to tag AWS EC2 instances:

```
{
  "Action": [
    "ec2:CreateTags",
    "ec2:DeleteTags",
    "ec2:DescribeTags",
    "tag:getResources",
    "tag:getTagKeys",
    "tag:getTagValues",
    "tag:TagResources",
    "tag:UntagResources"
  ],
  "Resource": "*",
  "Effect": "Allow",
  "Sid": "tagServicePolicy"
}
```

Verify your Azure Connector permissions

If you created the Connector using Cloud Manager version 3.9.10 or greater, then you're all set. If you created the Connector using an earlier version of Cloud Manager, then you'll need to add some required permissions for the Cloud Manager Operator IAM role to tag Azure resources:

```
{
  "id": "<ID>",
  "properties": {
    "roleName": "Cloud Manager Operator-<ID>",
    "description": "Cloud Manager Operator",
    "assignableScopes": [
      "/subscriptions/<SUBSCRIPTION-ID>"
    ],
    "permissions": [
      {
        "actions": [
          "Microsoft.Resources/tags/read",
          "Microsoft.Resources/tags/write",
          "Microsoft.Resources/tags/delete",
          "Microsoft.ClassicCompute/virtualMachines/read"
        ],
        "notActions": [],
        "dataActions": [],
        "notDataActions": []
      }
    ]
  }
}
```

Tag rules and restrictions

The following rules apply when creating tag keys and tag values:

- Maximum key length: 128 characters
- Maximum key value length: 256 characters
- Valid tag and tag value characters: letters, numbers, spaces, and special characters (_, @, &, *, etc.)
- Tags are case upper/lower sensitive.
- Maximum tags per resource: 30
- Per resource, each tag key must be unique

Tag examples

Key	Values
Env	production test
Dept	finance sales eng

Key	Values
Owner	admin storage