



Create templates to standardize resource creation

Cloud Manager

NetApp
April 22, 2021

Table of Contents

- Create templates to standardize resource creation 1
 - Learn about Application Templates 1
 - Building application templates for your organization 2

Create templates to standardize resource creation

Learn about Application Templates

The Application Templates 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. 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
- Enforces template settings on created resources with the "drift" feature (future)

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.

Available template actions

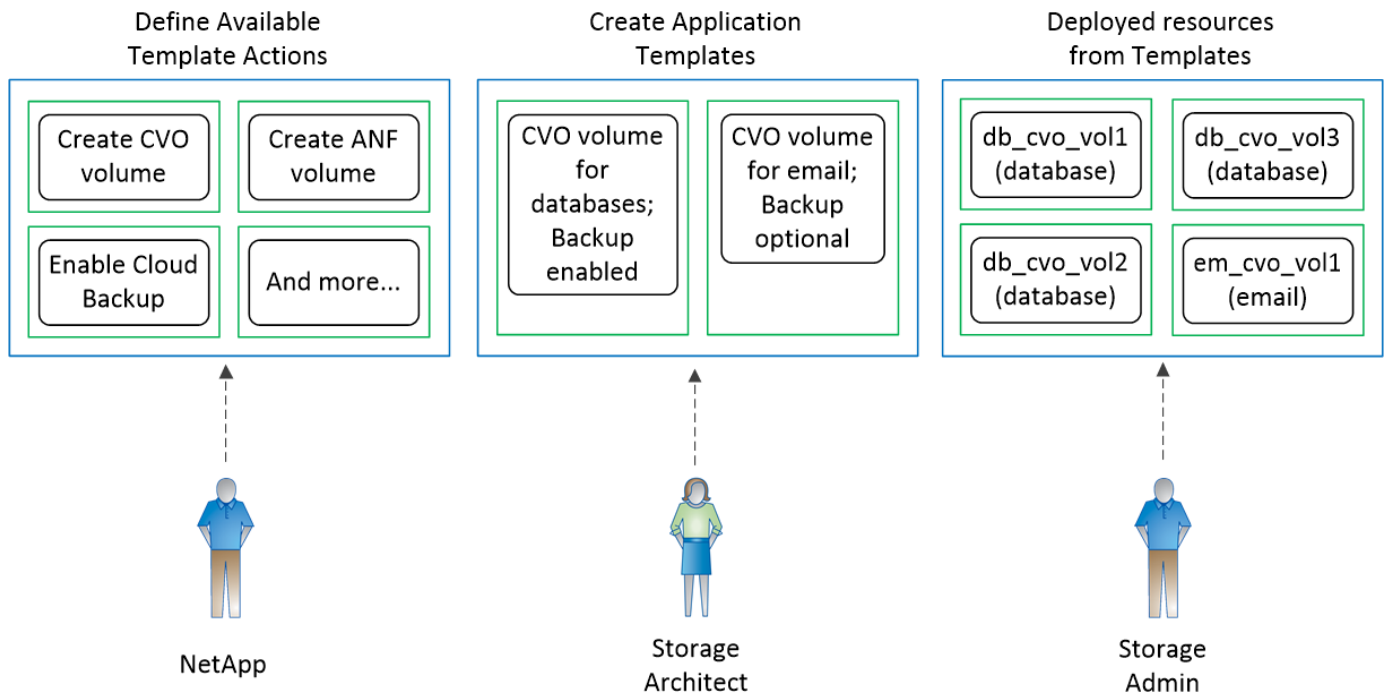
A template is a chain of "actions" that have some pre-defined values. You can build templates that include the following actions:

- Create a Cloud Volumes ONTAP volume
- Create an Azure NetApp Files volume
- Enable the Cloud Backup service

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 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 application 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.

Limitations

- The Application Templates service is not supported in any of the Gov Cloud regions or in "dark" sites.
- You can't use a template to create a volume on an existing aggregate. New volumes are created in a new aggregate.
- You can't use a template to create a volume on a Cloud Volumes ONTAP system that includes multiple Storage VMs (SVMs).

Building application templates for your organization

Select one or more of the NetApp-provided "actions" and quickly build an application template that your organization can use to start optimizing the creation of resources.

Quick start

Get started quickly by following these steps, or scroll down to the remaining sections for full details.



Verify required prerequisites

- Before users can create a Cloud Volumes ONTAP or Azure NetApp Files volume using a template, make sure they have access to a Cloud Volumes ONTAP or Azure NetApp Files Working Environment where the volume will be deployed.
- If you plan to add a Cloud service "action" to your template, such as [Cloud Backup](#), ensure that your environment has an active and licensed Cloud Backup service.



Launch the Application Templates service

Select the **AppTemplate** service and add your template.



Build the template by selecting "actions" and defining parameters

Follow the creation wizard and define the actions that will be performed by the template.

Requirements

Read the following requirements to make sure that you have a supported configuration.

- If you don't already have a Connector, [see how to create Connectors](#) for AWS, Azure, and GCP.
- When creating a Cloud Volumes ONTAP volume template, make sure you have a Cloud Volumes ONTAP working environment available for your users. See how to launch a Cloud Volumes ONTAP system in [AWS](#), [Azure](#), or in [GCP](#).
- When creating an Azure NetApp Files volume template, make sure you have an Azure NetApp Files working environment available for your users. See how to [create an Azure NetApp Files working environment](#) in Cloud Manager.

Special template controls

Before you start creating your template, you should understand some special options that you can set when pre-populating a value for a parameter in a template.

☒ Storage Efficiency ☐ No Storage Efficiency ☐ Editable

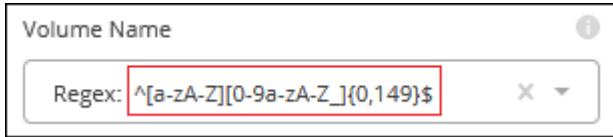
Editable checkbox

Check this box to let the storage admin override the pre-populated value you have entered in the template. This gives the storage admin a suggestion for what the value should be, but it allows them to customize the value when creating the resource.

When unchecked, the user can't change the value and the hard-coded value in the template is always used when the admin deploys a resource.

Using a regular expression (regex) in fields

There are a few fields within templates that allow you to enter a regex to define the value that your admin can enter in the field; for example "Volume Name" and "Share Name".

A screenshot of a form field labeled "Volume Name". Below the label is a text input box containing the regex pattern: `^[a-zA-Z][0-9a-zA-Z_]{0,149}$`. The input box has a red border and a small 'x' icon to its right.

As an example, if you enter `^[a-zA-Z][0-9a-zA-Z_]{0,149}$` as the regex for the volume name, it means that *"the name should start with an alphabetic character, it can contain only numbers, letters, or the underscore, and it should be 150 or fewer characters in length"*.

Creating a template for a Cloud Volumes ONTAP volume

See [how to provision Cloud Volumes ONTAP volumes](#) for details about all the parameters you need to complete in the Cloud Volumes ONTAP volume template.

For this example we'll create a template named "CVO volume for databases" and include the following 2 actions:

- Create Cloud Volumes ONTAP Volume

Make the volume for the AWS environment, configure it with 100 GB of storage, set the Snapshot Policy to "default", and enable Storage Efficiency.

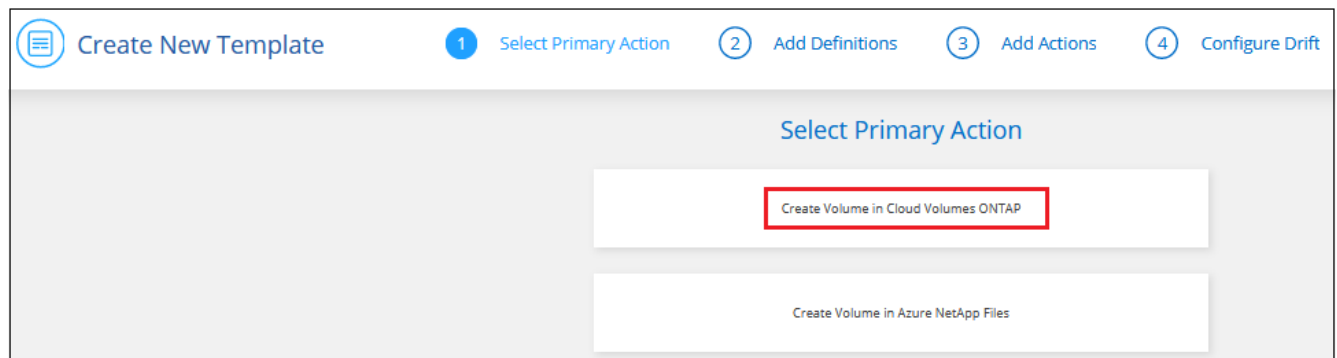
- Enable Cloud Backup

Create daily backups with a retention value of 30 copies.

Steps

1. Select the **AppTemplate** service and click **Add New Template**.

The *Select_Primary Action* page is displayed.

A screenshot of the "Create New Template" page in the AppTemplate service. The page has a header with a navigation bar containing four steps: 1. Select Primary Action (active), 2. Add Definitions, 3. Add Actions, and 4. Configure Drift. The main content area is titled "Select Primary Action" and displays two buttons: "Create Volume in Cloud Volumes ONTAP" (highlighted with a red border) and "Create Volume in Azure NetApp Files".

2. Select **Create Volume in Cloud Volumes ONTAP** as the type of resource you want to create, and click **Next**.

The *Add Definitions* page is displayed.

✓

Select Primary Action

2

Add Definitions

3

Add Actions

4

Configure Drift

Define action "Create Volume in Cloud Volumes ONTAP"

Enter the values that will be used when an admin uses this template to Create Volume in Cloud Volumes ONTAP.
If you want to let admins override certain values, check "Editable".

Template Details

Template Name

Enter a name for this template

Description

Enter a description for this template

i

Details

Volume Name

Select...

☐

Editable

Volume Size

Minimum

Maximum

☐

Enter minimum

Enter maximum

Fixed value

☐

Enter volume size

Size Unit

☐

Editable

Previous

Next

- Template Details:** Enter the template name **CVO volume for databases** (for this example) and a more detailed description so that this template can be distinguished from other similar templates.
- Details:** Enter the volume name and size.

| Field | Description |
|-------------|--|
| Volume Name | <p>Select one of the 5 options. You can let the admin enter any name by selecting Free Text, or you can specify that the volume name must have a certain prefix or suffix, that it <i>contains</i> certain characters, or that it follows rules from a regular expression (regex) you enter.</p> <p>For example, you could specify that "db" be a required prefix, suffix, or contains; requiring the user to add volume names like "db_vol1", "vol1_db", "vol_db_1".</p> |
| Volume Size | <p>You can specify a range of allowable values, or you can specify a fixed size. This value is in GB. For our example we can add a fixed value 100.</p> |

5. **Protection:** Choose whether this volume will have Snapshot copies created by selecting "Default" or some other policy, or choose "None" if you do not want to create Snapshot copies.
6. **Usage Profile:** Choose whether or not NetApp storage efficiency features are applied to the volume. This includes Thin Provisioning, Deduplication, and Compression. For our example, keep storage efficiency enabled.
7. **Disk Type:** Choose the cloud storage provider, the type of disk, and the capacity tier (optional) that will be used for the aggregate that the volume uses for storage. For our example, choose **AWS** and select **GP2** as the Disk Type.
8. **Protocol:** Select **NFS** or **SMB** to set the protocol of the volume. And then the provide the protocol details.

| NFS Fields | Description |
|----------------|--|
| Access Control | Choose whether access controls are needed to access the volume. |
| Export Policy | Create an export policy to define the clients in the subnet that can access the volume. |
| NFS Version | Select the NFS version for the volume: either <i>NFSv3</i> or <i>NFSv4</i> , or you can select both. |

| SMB Fields | Description |
|----------------|--|
| Share Name | Select one of the 5 options. You can let the admin enter any name (Free Text) or you can specify that the share name must have a certain prefix or suffix, that it <i>contains</i> certain characters, or that it follows rules from a regular expression (regex) you enter. |
| Permissions | Select the level of access to a share for users and groups (also called access control lists, or ACLs). |
| Users / Groups | Specify local or domain Windows users or groups, or UNIX users or groups. If you specify a domain Windows user name, you must include the user's domain using the format domain\username. |

9. **Tiering Policy:** Choose the tiering policy that you would like applied to the volume, or set this to "None" if you do not want to tier cold data from this volume to object storage.

See [volume tiering policies](#) for an overview, and see [Tiering inactive data to object storage](#) to make sure your environment is set up for tiering.

10. Click **Next** after you have defined the parameters needed for this action.

The *Add Actions* page is displayed.

✓ Select Primary Action ✓ Add Definitions 3 Add Actions 4 Configure Drift

Add Actions

Select the Cloud Manager services that will be enabled on each new resource created with this template.
For each service, enter the values that will be used when an admin runs this template.
If you want to let admins override certain values, check "Editable".

Enable Cloud Backup ☑

Policy - Retention & Schedule

Backup Every ☐ Editable
Day

Number of backups to retain ☐ Editable
Minimum Maximum
Enter minimum Enter maximum

Fixed value ☑ 30

Volume Name ☐ Editable
\$input.[0].name

[Previous](#) [Next](#)

11. Use the switch to enable Backups (if required), and then set the policy to create daily backups with a 30-day retention value.
12. In the read-only Volume Name field the value "\$input.[0].name" appears. This just means that the value entered by the admin in the "Volume Name" field will be populated here as well so that Backup functionality is added to the volume.
13. Click **Next** and the *Configure Drift* page is displayed. In the future this page will allow you to choose whether the Drift feature should be applied to the template. This will allow Cloud Manager to monitor the hard-coded values you entered for parameters when creating this template.
14. Click **Create Template**.

Result

The template is created and you are returned to the Template Dashboard where your new template appears.

See [what you should tell your users about templates](#).

Creating a template for an Azure NetApp Files volume

Creating a template for an Azure NetApp Files volume is done in the same manner as creating a template for a

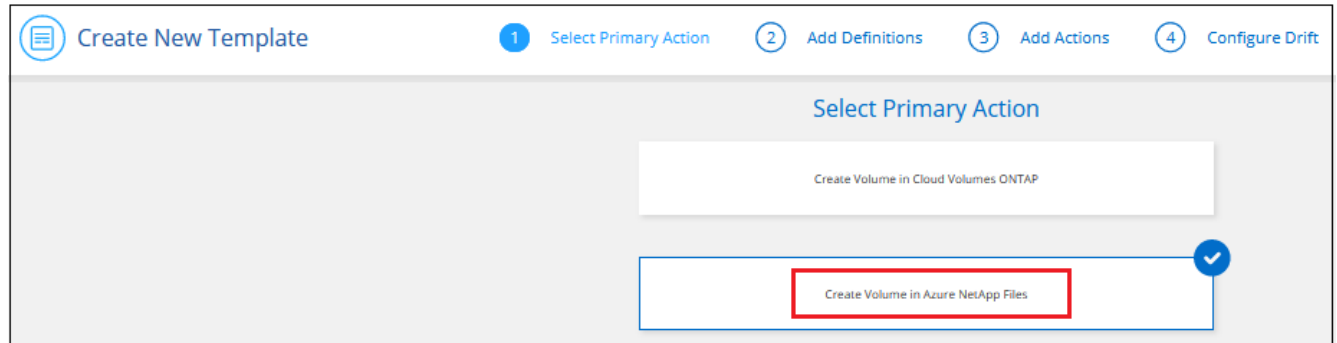
Cloud Volumes ONTAP volume.

See [how to provision Azure NetApp Files volumes](#) for details about all the parameters you need to complete in the ANF volume template.

Steps

1. Select the **AppTemplate** service and click **Add New Template**.

The *Select_Primary Action* page is displayed.



2. Select **Create Volume in Azure NetApp Files** as the type of resource you want to create, and click **Next**.

The *Add Definitions* page is displayed.

✓

Select Primary Action

2

Add Definitions

3

Add Actions

4

Configure Drift

Define action "Create Volume in Azure NetApp Files"

Enter the values that will be used when an admin uses this template to Create Volume in Azure NetApp Files.
If you want to let admins override certain values, check "Editable".

Template Details

Template Name

Enter a name for this template

Description

Enter a description for this template

Azure NetApp Files Details

NetApp Account Name

Enter NetApp Account Name

☐ Editable

Azure Subscription ID

Enter Subscription ID

☐ Editable

Region

Enter Region

☐ Editable

Resource Group Name

Enter Resource Group Name

☐ Editable

Previous

Next

3. **Azure NetApp Files Details:** Add the details for a new or an existing Azure NetApp Files account.

| Field | Description |
|-----------------------|---|
| NetApp Account Name | Enter the name you want to use for the account. |
| Azure Subscription ID | Enter the Azure Subscription ID. This is the full ID in a format similar to "2b04f26-7de6-42eb-9234-e2903d7s327". |
| Region | Enter the region using the internal region name . |
| Resource Group Name | Enter the name of the Resource Group you want to use. |
| Capacity Pool Name | Enter the name of an existing capacity pool. |

4. **Volume Details:** Enter a volume name and size, the VNet and subnet where the volume should reside, and optionally specify tags for the volume.

| Field | Description |
|-------------|--|
| Volume Name | <p>Select one of the 5 options. You can let the admin enter any name by selecting Free Text, or you can specify that the volume name must have a certain prefix or suffix, that it <i>contains</i> certain characters, or that it follows rules from a regular expression (regex) you enter.</p> <p>For example, you could specify that "db" be a required prefix, suffix, or contains; requiring the user to add volume names like "db_vol1", "vol1_db", "vol_db_1".</p> |
| Volume Size | You can specify a range of allowable values, or you can specify a fixed size. This value is in GB. |
| Subnet | Enter the VNet and subnet. This value includes the full path, in a format similar to "/subscriptions/<subscription_id>/resourceGroups/<resource_group>/providers/Microsoft.Network/virtualNetworks/<vpc_name>/subnets/<subhet_name>". |

5. **Protocol:** Select **NFSv3**, **NFSv4.1**, or **SMB** to set the protocol of the volume. And then the provide the protocol details.

| NFS Fields | Description |
|---------------------|---|
| Volume Path | Select one of the 5 options. You can let the admin enter any path by selecting Free Text , or you can specify that the path name must have a certain prefix or suffix, that it <i>contains</i> certain characters, or that it follows rules from a regular expression (regex) you enter. |
| Export Policy Rules | Create an export policy to define the clients in the subnet that can access the volume. |

| SMB Fields | Description |
|-------------|---|
| Volume Path | Select one of the 5 options. You can let the admin enter any path by selecting Free Text , or you can specify that the path name must have a certain prefix or suffix, that it <i>contains</i> certain characters, or that it follows rules from a regular expression (regex) you enter. |

6. **Snapshot Copy:** Enter the Snapshot ID for an existing volume Snapshot if you want this new volume to be created using characteristics from an existing volume.
7. Click **Next** after you have defined the parameters needed for this action.
8. Click **Next** as there are no additional Actions available at this time for ANF volumes.
9. In the future the *Configure Drift* page will allow you to choose whether the Drift feature should be applied to the template. This will allow Cloud Manager to monitor the hard-coded values you entered for parameters when creating this template.
10. Click **Create Template**.

Result

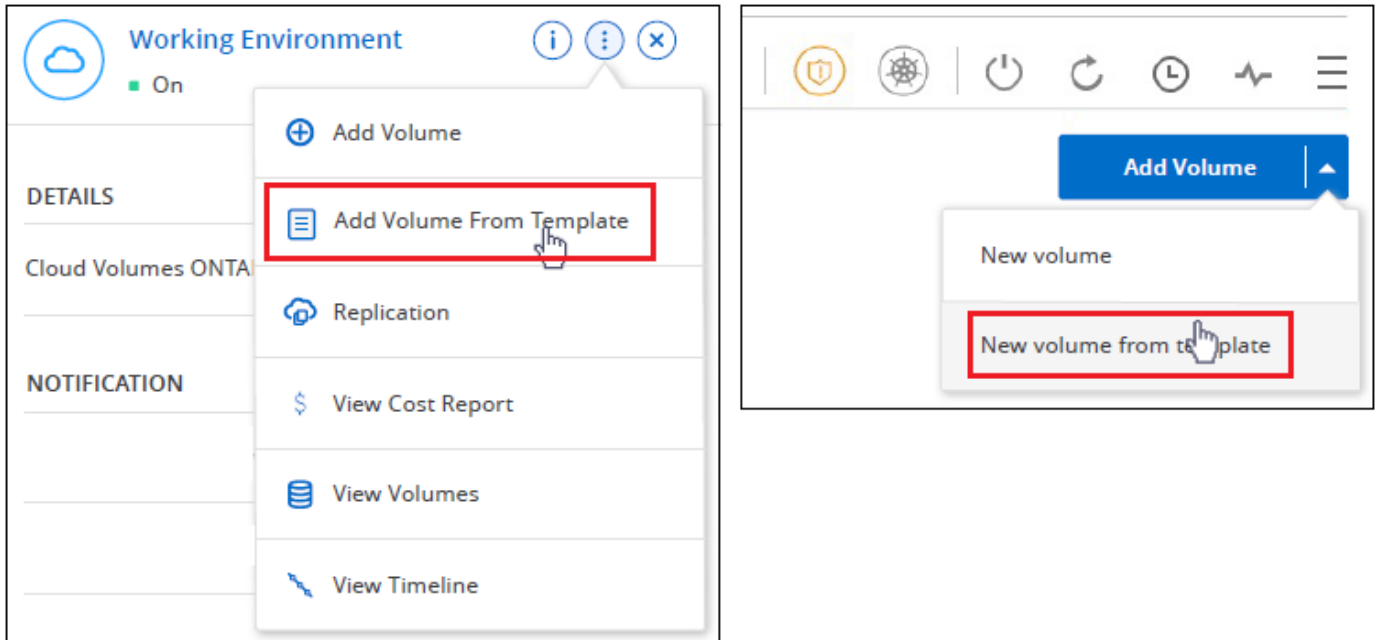
The template is created and you are returned to the Template Dashboard where your new template appears.

See [what you should tell your users about templates](#).

What to do after you have created the template

After you have created a template, you should inform your storage administrators to use the template when creating new volumes.

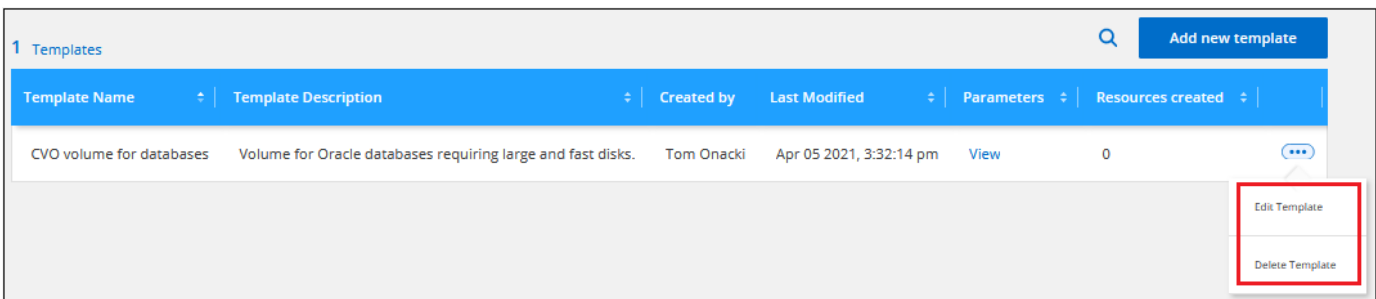
Your users should select **Add Volume From Template** when adding a volume to a Working Environment in the future. The selection is available from the *Working Environment* page, and from the *Volume Details* page. See [how to provision Cloud Volumes ONTAP volumes](#) or [how to provision Azure NetApp Files volumes](#) using templates.



Editing and deleting a template

You can modify a template if you need to change any of the parameters. After you save your changes, all future resources created from the template will use the new parameter values.

You can also delete a template if you no longer need it. Deleting a template does not affect any of the resources that were created with the template.



Copyright Information

Copyright © 2021 NetApp, Inc. All rights reserved. Printed in the U.S. No part of this document covered by copyright may be reproduced in any form or by any means-graphic, electronic, or mechanical, including photocopying, recording, taping, or storage in an electronic retrieval system-without prior written permission of the copyright owner.

Software derived from copyrighted NetApp material is subject to the following license and disclaimer:

THIS SOFTWARE IS PROVIDED BY NETAPP "AS IS" AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL NETAPP BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

NetApp reserves the right to change any products described herein at any time, and without notice. NetApp assumes no responsibility or liability arising from the use of products described herein, except as expressly agreed to in writing by NetApp. The use or purchase of this product does not convey a license under any patent rights, trademark rights, or any other intellectual property rights of NetApp.

The product described in this manual may be protected by one or more U.S. patents, foreign patents, or pending applications.

RESTRICTED RIGHTS LEGEND: Use, duplication, or disclosure by the government is subject to restrictions as set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.277-7103 (October 1988) and FAR 52-227-19 (June 1987).

Trademark Information

NETAPP, the NETAPP logo, and the marks listed at <http://www.netapp.com/TM> are trademarks of NetApp, Inc. Other company and product names may be trademarks of their respective owners.