



Learn about Backup to Cloud

Cloud Manager

Tom Onacki
December 03, 2020

This PDF was generated from https://docs.netapp.com/us-en/occm/concept_backup_to_cloud.html on December 07, 2020. Always check docs.netapp.com for the latest.

Table of Contents

- Learn about Backup to Cloud. 1
 - Features 1
 - Supported working environments and object storage providers. 1
 - Cost. 2
 - How Backup to Cloud works 2
 - Supported volumes 5
 - Limitations 5

Learn about Backup to Cloud

Backup to Cloud is an add-on service for Cloud Volumes ONTAP and on-premises ONTAP clusters that delivers backup and restore capabilities for protection, and long-term archive of your cloud data. Backups are stored in an object store in your cloud account, independent of volume Snapshot copies used for near-term recovery or cloning.

There are two services that provide the full suite of backup and restore functionality:

- The **Backup to Cloud service** enables you to create backup files and to restore an entire volume to the same or different working environment.
- The **Restore service** enables you to use the same backup file to restore one or more **files** to a volume in the same or different working environment. This is also called Single File Restore.

Backup to Cloud is powered by the [Cloud Backup Service](#).



You must use Cloud Manager for all backup and restore operations. Any actions taken directly from ONTAP or from your cloud provider results in an unsupported configuration.

Features

- Back up independent copies of your data volumes to low-cost object storage in the cloud.
- Backup data is secured with AES-256 bit encryption at-rest and TLS 1.2 HTTPS connections in-flight.
- Back up from cloud to cloud, and from on-premises ONTAP systems to cloud.
- Support for up to 1,019 backups of a single volume.
- Restore data from a specific point in time.
- Restore a volume or individual files to the source system or to a different system.
- Browsable file catalog for single file restore.

Supported working environments and object storage providers

Backup to Cloud is supported with the following types of working environments:

- Cloud Volumes ONTAP in AWS
- Cloud Volumes ONTAP in Azure
- Cloud Volumes ONTAP in Google Cloud (Only single-node systems are currently supported.)

- On-premises ONTAP clusters

Single File Restore is supported only in AWS at this time.

Cost

Backup to Cloud is available in two pricing options: Bring Your Own License (BYOL) and Pay As You Go (PAYGO).

For BYOL you'll pay NetApp to use the service for a period of time, say 6 months, and for a maximum amount backup capacity, say 10 GB (before storage efficiencies), and you'll need to pay your cloud provider for object storage costs. You'll receive a serial number that you enter in the Cloud Manager Licensing page to enable the service. When either limit is reached you'll need to renew the license. See [Adding and updating your Backup BYOL license](#). The Backup BYOL license applies to all Cloud Volumes ONTAP systems associated with your [Cloud Central account](#).

For PAYGO you'll need to pay your cloud provider for object storage costs and NetApp for backup licensing costs. The licensing costs are based on used capacity (before storage efficiencies):

- AWS: [Go to the Cloud Manager Marketplace offering for pricing details](#).
- Azure: [Go to the Cloud Manager Marketplace offering for pricing details](#).
- GCP: [Go to the Cloud Manager Marketplace offering for pricing details](#)

The only cost for the Restore service (for the single file restore functionality) is the cost to your cloud provider for the deployed instance.

- In AWS, the Restore instance runs on an m5n.xlarge instance with 4 CPUs, 16 GiB Memory, and EBS Only instance storage. In regions where m5n.xlarge instance isn't available, Restore runs on an m5.xlarge instance instead.

Free trial

A 30-day free trial is available. When using the trial version, you are notified about the number of free trial days that remain. At the end of your free trial, backups stop being created. You must subscribe to the service or purchase a license to continue using the service.

Backups are not deleted when the service is disabled. You'll continue to be charged by your cloud provider for object storage costs for the capacity that your backups use unless you delete the backups.

How Backup to Cloud works

When you enable Backup to Cloud on a Cloud Volumes ONTAP or on-premises ONTAP system, the service performs a full backup of your data. Volume snapshots are not included in the backup image. After the initial backup, all additional backups are incremental, which means that only changed blocks and new blocks are backed up.

Where backups reside

Backup copies are stored in an S3 bucket, Azure Blob container, or Google Cloud Storage bucket that Cloud Manager creates in your cloud account. For Cloud Volumes ONTAP systems the object store is created in the same region where the Cloud Volumes ONTAP system is located. For on-premises ONTAP systems you identify the region when you enable the service.

There's one object store per Cloud Volumes ONTAP or on-premises ONTAP system. Cloud Manager names the object store as follows: `netapp-backup-clusteruuid`

Be sure not to delete this object store.

Notes:

- In AWS, Cloud Manager enables the [Amazon S3 Block Public Access feature](#) on the S3 bucket.
- In Azure, Cloud Manager uses a new or existing resource group with a storage account for the Blob container.
- In GCP, Cloud Manager uses a new or existing project with a storage account for the Google Cloud Storage bucket.

Supported storage classes or access tiers

- In Amazon S3, backups start in the *Standard* storage class and transition to the *Standard-Infrequent Access* storage class after 30 days.
- In Azure, each backup is associated with the *cool* access tier.
- In GCP, backups are associated with the *Standard* storage class.

Backup settings are system wide

When you enable Backup to Cloud, all the volumes you identify on the system are backed up to the cloud.

The schedule and number of backups to retain are defined at the system level. The backup settings affect all volumes on the system.

The schedule is daily, weekly, monthly, or a combination

You can choose daily, or weekly, or monthly backups of all volumes. You can also select one of the system-defined policies that provide backups and retention for 3 months, 1 year, and 7 years. These policies are:

Policy Name	Backups per interval...			Max. Backups
	Daily	Weekly	Monthly	

Policy Name	Backups per interval...			Max. Backups
Netapp3MonthsRetention	30	13	3	46
Netapp1YearRetention	30	13	12	55
Netapp7YearsRetention	30	53	84	167

Backup protection policies that you have created on the system using ONTAP System Manager or the ONTAP CLI are also available as selections.

Once you have reached the maximum number of backups for a category, or interval, older backups are removed so you always have the most current backups.

Note that the retention period for backups of data protection volumes is the same as defined in the source SnapMirror relationship. You can change this if you want by using the API.

Backups are taken at midnight

- Daily backups start just after midnight each day.
- Weekly backups start just after midnight on Sunday mornings.
- Monthly backups start just after midnight on the first of each month.

At this time, you can't schedule backup operations at a user specified time.

Backup copies are associated with your Cloud Central account

Backup copies are associated with the [Cloud Central account](#) in which Cloud Manager resides.

If you have multiple Cloud Manager systems in the same Cloud Central account, each Cloud Manager system will display the same list of backups. That includes the backups associated with Cloud Volumes ONTAP and on-premises ONTAP instances from other Cloud Manager systems.

BYOL license considerations

When using a Backup to Cloud BYOL license, Cloud Manager notifies you when backups are nearing the capacity limit or nearing the license expiration date. You receive these notifications:

- when backups have reached 80% of licensed capacity, and again when you have reached the limit
- 30 days before a license is due to expire, and again when the license expires

Use the chat icon in the lower right of the Cloud Manager interface to renew your license when you receive these notifications.

Two things can happen when your license expires:

- If the account you are using for your ONTAP systems has a marketplace account, the backup service continues to run, but you are shifted over to a PAYGO licensing model. You are charged by your cloud provider for object storage costs, and by NetApp for backup licensing costs, for the capacity that your backups are using.
- If the account you are using for your ONTAP systems does not have a marketplace account, the backup service continues to run, but you will continue to receive the expiration message.

Once you renew your BYOL subscription, Cloud Manager automatically obtains the new license from NetApp and installs it. If Cloud Manager can't access the license file over the secure internet connection, you can obtain the file yourself and manually upload it to Cloud Manager. For instructions, see [Adding and updating your Backup BYOL license](#).

Systems that were shifted over to a PAYGO license are returned to the BYOL license automatically. And systems that were running without a license will stop receiving the warning message and will be charged for backups that occurred while the license was expired.

Supported volumes

Backup to Cloud supports FlexVol read-write volumes and data protection (DP) volumes.

FlexGroup volumes aren't currently supported.

Limitations

- WORM storage (SnapLock) is not supported on a Cloud Volumes ONTAP or on-premises system when Backup to Cloud is enabled.
- Backup to Cloud restrictions when making backups from on-premises ONTAP systems:
 - Cloud Manager must be deployed in the cloud (Azure or AWS). There is no support for on-premises Cloud Manager deployments.
 - At this time, backups can be restored only to Cloud Volumes ONTAP systems deployed on the same cloud provider. You can't restore a backup to an on-premises ONTAP system or to a Cloud Volumes ONTAP system that is using a different cloud provider.
- When backing up data protection (DP) volumes, the rule that is defined for the SnapMirror policy on the source volume must use a label that matches the allowed Backup to Cloud policy names of **daily**, **weekly**, or **monthly**. Otherwise the backup will fail for that DP volume.
- In Azure, if you enable Backup to Cloud when Cloud Volumes ONTAP is deployed, Cloud Manager creates the resource group for you and you cannot change it. If you want to pick your own resource group when enabling Backup to Cloud, **disable** Backup to Cloud when deploying Cloud Volumes ONTAP and then enable Backup to Cloud and choose the resource group from the Backup to Cloud Settings page.

- When backing up volumes from Cloud Volumes ONTAP systems, volumes that you create outside of Cloud Manager aren't automatically backed up. For example, if you create a volume from the ONTAP CLI, ONTAP API, or System Manager, then the volume won't be automatically backed up. If you want to back up these volumes, you would need to disable Backup to Cloud and then enable it again.
- ILM (tiering) from the object storage, or direct write to Glacier or similar lower tier object storage, is not supported.
- MetroCluster (MCC) and SVM-DR configurations are not supported.
- WORM/Compliance mode on an object store is not supported.

Single File Restore limitations

- Single file restore can restore individual files. There is currently no support for restoring folders/directories.
- Single File Restore is supported only with AWS at this time.
- The ONTAP version must be 9.6 or greater in your Cloud Volumes ONTAP systems.
- Cross account restore requires manual action in the cloud provider console. See the AWS topic [granting cross-account bucket permissions](#) for details.
- Non supported Configurations:
 - Gov Cloud is not supported.
 - Same account with different Cloud Managers in different subnets.
- We can browse a single directory with flat files up to a maximum of 30,000 files. Larger directories are not supported.

Copyright Information

Copyright © 2020 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.