Volume administration

Amazon FSx for NetApp ONTAP

NetApp
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Volume administration

Enable volume autogrow in Workload Factory

Enable volume autogrow to let Workload Factory manage volume capacity for you. You can disable it at any time.

Optionally, you can manually increase the volume capacity of a volume at any time using the adjust volume capacity feature.

Volume autogrow isn't supported for iSCSI volumes.

Before you begin

To enable volume autogrow, you must associate a link. Learn how to associate an existing link or to create and associate a new link. After the link associates, return to this operation.

Steps

1. Log in using one of the console experiences.
2. Select the menu and then select **Storage**.
3. From the Storage menu, select **FSx for ONTAP**.
4. From **FSx for ONTAP**, select the actions menu of the file system with the volume to update and then select **Manage**.
5. From the file system overview, select the **Volumes** tab.
6. From the Volumes tab, select the actions menu for the volume you want to modify.
7. Select **Basic actions**, then **Set volume autogrow**.
8. In the Set autogrow dialog, enable volume autogrow to automatically expand the volume capacity until the volume reaches the maximum size. This feature accommodates increasing data usage, ensuring uninterrupted operations.

   Specify the maximum volume growth size and unit. The maximum growth size cannot be smaller than the current volume size.

9. Select **Apply**.

Adjust volume capacity in NetApp Workload Factory

Manually adjust the volume capacity of a volume at any time from the NetApp Workload Factory console.

Optionally, you can enable the autogrow feature to let Workload Factory manage volume capacity for you.

About this task

You can adjust volume capacity by increasing or decreasing the provisioned size of a volume. The following table shows the minimum and maximum volume sizes by volume type:

Volume type	Minimum size	Maximum size
FlexVol volume	20 MiB	300 TiB
FlexGroup volume	800 GiB	2 PiB

For an iSCSI LUN, increasing the size of the volume also increases the size of the host LUN. After you increase volume capacity, follow the procedure provided by your host operating system to discover the new size of the LUN and expand the file system of the LUN.

Decreasing volume size is supported only for NFS and SMB/CIFS volumes.

Before you begin

To adjust volume capacity, you must associate a link. Learn how to associate an existing link or to create and associate a new link. After the link associates, return to this operation.

Steps

1. Log in using one of the console experiences.
2. Select the menu and then select **Storage**.
3. From the Storage menu, select **FSx for ONTAP**.
4. From **FSx for ONTAP**, select the actions menu of the file system with the volume to update and then select **Manage**.
5. From the file system overview, select the **Volumes** tab.
6. From the Volumes tab, select the actions menu of the volume to adjust capacity for.
7. Select **Basic actions**, then **Adjust volume capacity**.
8. In the Adjust volume capacity dialog, set the **Provisioned capacity** and unit.
9. Select **Adjust** to apply the changes.

Related information

- Enable volume autogrow in Workload Factory
- Rebalance a volume in Workload Factory

Check and rebalance volume capacity

Check the balance of FlexVol or FlexGroup volume capacity and rebalance volume capacity to spread files evenly across all FlexVol volumes in a node or across all constituents so that all nodes participate in the workload of a single FlexGroup volume.

About this task

Rebalancing volume capacity is supported for FlexVol volumes and FlexGroup volumes. Rebalancing a volume redistributes the capacity when imbalances develop over time due to the addition of new files and file growth. After you manually start the rebalance operation, we select the files and move them automatically and non-disruptively. Volume transfer operations consume file system resources.

Each volume type and rebalancing operations differ as follows.

FlexVol volumes

FlexVol volumes are logical containers that offer flexibility in managing data, allowing for expansion, contraction, movement, and efficient copying. They can be used with NAS and SAN environments.

A FlexVol volume can be balanced in relation to other FlexVol volumes within one node in an FSx for ONTAP file system. If the file system has only a single FlexVol volume, then rebalancing isn't possible. When the file system has more then one FlexVol volume per node and a single FlexVol volume is selected, the FlexVol volume is balanced in the context of all FlexVols but only the selected volume is allowed to move.

FlexGroup volumes

FlexGroup volumes, on the other hand, are scalable NAS containers designed for high performance and automatic load distribution. They consist of multiple member volumes (constituents) that share traffic transparently. FlexGroup volumes provide massive capacity, exceeding FlexVol limits, with up to 60PB capacity and 400 billion files. They simplify management by offering a single namespace container.

Capacity is spread across a number of constituents in a scale-out FSx for ONTAP file system with two or more high availability (HA) pairs. Each constituent is a container that dictates the maximum single file size. FSx for ONTAP spreads files across all constituents in an even way so all nodes participate in the workload of a single FlexGroup volume.

When the constituents aren't distributed evenly across all nodes, FlexGroup volume performance decreases.

Checking the balance of FlexGroup volume capacity includes assessing the current layout of constituents. When you rebalance the volume's capacity, NetApp Workload Factory designs a new constituent layout with an even number of constituents to spread the data evenly across all HA pairs. The service executes the rebalance plan which in turn improves read and write operations.

Rebalancing isn't supported for SAN volumes like iSCSI and NVMe.

Check the balance of your volumes

Check the balance of FlexVol or FlexGroup volumes in an FSx for ONTAP file system.

Before you begin

- FlexGroup volume balance is available only for FSx for ONTAP file systems using a scale-out deployment with at least two HA pairs.
- To check the balance of a volume, you must associate a link. If you don't have an existing link, create a link. To associate a link in the file system, select **Associate link** under **Account name**. After the link associates, return to this operation.

Steps

1. Log in using one of the console experiences.
2. Select the menu and then select **Storage**.
3. From the Storage menu, select **FSx for ONTAP**.
4. From **FSx for ONTAP**, select the actions menu of the file system that contains volumes to rebalance and then select **Manage**.
5. From the file system overview, select the **Volumes** tab.
6. From the Volumes tab, select **Check volume balance** at the top of the table.
7. In the Volume balance window, review the balance status of:
    - FlexGroup volumes

- FlexVol volumes

  When a volume is unbalanced, consider rebalancing it.

Rebalance volume capacity

Rebalance one or more unbalanced volumes.

A Workload Factory admin can stop rebalancing during the operation.

Before you begin

- Check the balance of a volume before rebalancing volumes.
- To rebalance a volume, you must associate a link. If you don't have an existing link, create a link. To associate a link in the file system, select **Associate link** under **Account name**. After the link associates, return to this operation.
- Note that existing snapshots on volumes you rebalance become partial and cannot be used to restore volume data, but new snapshots taken after rebalancing can be used to restore volume data.
- FlexVol volumes are best rebalanced altogether to balance all volume resources evenly. Deselected volumes don't actively participate in the balancing procedure.

FlexVol volume

A FlexVol volume can be balanced in relation to other FlexVol volumes within one node in an FSx for ONTAP file system. When the file system has more then one FlexVol volume per node and a single FlexVol volume is selected, then the FlexVol volume is balanced in the context of all FlexVols but only the selected volume is allowed to move.

Steps

1. Log in using one of the console experiences.
2. Select the menu and then select **Storage**.
3. From the Storage menu, select **FSx for ONTAP**.
4. From **FSx for ONTAP**, select the actions menu of the file system that contains the volume to rebalance and then select **Manage**.
5. From the file system overview, select the **Volumes** tab.
6. From the Volumes tab, select **Check volume balance** at the top of the table.
7. In the Volumes balance window, optionally select **Data distribution** in the FlexVol balance summary to view used capacity per aggregate.
8. Select **Rebalance** to rebalance one or more unbalanced volumes.
9. In the Rebalance wizard, follow the steps.
    a. **Max transfer rate**: Optional. Disabled by default. Enable throttling to limit the bandwidth of a volume move on your file system and to slow outgoing volume replication traffic.

       Enter the throttle value in MB/s.

       Select **Next**.

    b. Review the current and proposed layouts of all FlexVol volumes, and then select **Next**.
    c. Carefully review what will happen and the note before beginning the rebalance operation.
10. Select **Rebalance**.

Result

The FlexVol volume is rebalanced. When the operation completes, the file system will be throttled back to the original value.

FlexGroup volume

Data redistributes across member volumes to rebalance the FlexGroup volume. Based on your chosen layout, the rebalance operation might add FlexGroup member volumes and increase the size of provisioned volumes.

Steps

1. Log in using one of the console experiences.
2. In **Storage**, select **Go to Storage**
3. From the Storage menu, select **FSx for ONTAP**.
4. From **FSx for ONTAP**, select the actions menu of the file system that contains the volume to rebalance and then select **Manage**.
5. From the file system overview, select the **Volumes** tab.

6. From the Volumes tab, select **Check FlexGroup balance** at the top of the table.
7. In the FlexGroup balance window, select **Rebalance** to rebalance one or more unbalanced volumes.
8. In the Rebalance wizard, select the data distribution layout that you prefer.
    - **Performance-optimized** (recommended): increases the number of FlexGroup member volumes and the provisioned size of the volume. Follows NetApp best practice.
    - **Restricted**: supports volumes in a replication relationship. The number of FlexGroup member volumes and the size of provisioned volumes remains the same. Selected by default if all selected volumes participate in a replication relationship.
    - **Manual**: Select the desired number of FlexGroup member volumes per HA pair. Depending on your selection, the number of FlexGroup member volumes and the provisioned size of the volume might increase.
9. **Throttling**: Optional. Disabled by default. Enable throttling to limit the bandwidth of a volume move on your file system and to slow outgoing volume replication traffic.

    Enter the throttle value in MB/s.
10. Select a layout comparison view and then select **Next**.
    - Volume layout comparison
    - FSx for ONTAP layout comparison
11. Optionally, download a list of volume moves before rebalancing.
12. Select **Rebalance**.

Result

FlexGroup member volumes are moved one at a time during rebalancing. When the operation completes, the file system will be throttled back to the original value.

Stop a volume rebalance operation

Stop a rebalance operation at any time; it isn't disruptive. Stopping the operation aborts active volume moves.

You can start another rebalance operation later.

Steps

1. After you begin the rebalance operation, from the Volume balance page, select **Stop rebalancing**.
2. In the Stop rebalancing dialog, select **Stop**.

Result

The volume rebalance operation stops and active volume moves abort.

Manage immutable files for a volume in NetApp Workload Factory

You can update certain immutable files settings for a volume when the feature is enabled, such as the retention policy and periods, the autocommit period, and volume append mode.

Note that enabling immutable files is only possible during volume creation.

Steps

1. Log in using one of the console experiences.
2. Select the menu and then select **Storage**.
3. From the Storage menu, select **FSx for ONTAP**.
4. From **FSx for ONTAP**, select the actions menu of the file system with the volume to update and then select **Manage**.
5. In the Volumes tab, select the actions menu of the volume to clone.
6. Select **Data protection actions**, then **Manage immutable files**.
7. On the Manage Immutable files page, you can update the following:
   - **Retention period**: select **Unspecified** or **Specify period**.
     - **Unspecified**: The default minimum period is "0" years and the default maximum period is "30 years".
     - **Specify period**: Option to define the retention policy, minimum and maximum periods, the autocommit feature, and the volume append mode feature. Provide the following details:
       - **Retention policy**: This period must be greater than or equal to the minimum retention period and less than or equal to the maximum retention period.
       - **Minimum and maximum periods**: Set the minimum and maximum periods to commit files in this volume to an immutable WORM state.
   - **Autocommit**: enable or disable the feature to automatically commit files to WORM that haven't been modified during the Autocommit period.
   - **Privileged delete**: Enable or disable the feature. Enabling the feature allows a SnapLock administrator to delete an unexpired WORM volume. This feature is only supported in Enterprise retention mode.
   - **Volume append mode**: enable or disable the feature. Enabling volume append mode enables you to add new content to WORM files.
8. Click **Apply**.

Result

The updates now apply to the volume.

Manage volume tags in NetApp Workload Factory

Tags can help you categorize your resources. You can add, edit, and remove volume tags at any time for FSx for ONTAP volumes in NetApp Workload Factory.

Steps

1. Log in using one of the console experiences.
2. Select the menu and then select **Storage**.
3. From the Storage menu, select **FSx for ONTAP**.
4. From **FSx for ONTAP**, select the actions menu of the file system with the volume to update and then select **Manage**.
5. From the file system overview, select the **Volumes** tab.

6. From the Volumes tab, select the actions menu for the volume to modify tags for.
7. Select **Basic actions** then **Edit volume tags**.
8. On the Edit volume tags page, add, edit, or remove tags.

   The maximum number of tags you can apply to a volume is 50.

9. Select **Apply**.

Manage FSx for ONTAP cache volumes with NetApp Workload Factory

Use the NetApp Workload Factory console to manage cache volumes for FSx for ONTAP file systems. Caching, a method for temporarily storing data, improves data access performance by reducing retrieval time. You can edit the cache name, adjust capacity, change the export policy, select a caching method, pre-populate the cache, or delete cache volumes.

About this task

You can manage cache volumes that are associated with cache relationships in the NetApp Workload Factory console.

Before you begin

- You must associate a link to manage cache volumes and relationships. Learn how to associate an existing link or to create and associate a new link. After you associate the link, return to this operation.
- You must have an existing cache volume to edit.

Edit the cache volume name

Change the name of an existing cache volume at any time.

Steps

1. Log in using one of the console experiences.
2. Select the menu and then select **Storage**.
3. From the Storage menu, select FSx for ONTAP.
4. From FSx for ONTAP, select the actions menu of the file system with the cache volume and then select **Manage**.
5. From the file system overview, select the **Cache relationships** tab.
6. Select the actions menu for the cache volume you want to modify and then select **Edit cache name**.
7. In the **Edit cache name** dialog, enter the new name for the cache volume and then select **Apply**.

Adjust the capacity of a cache volume

You can adjust the capacity of an existing cache volume at any time.

Steps

1. Log in using one of the console experiences.

2. Select the menu and then select **Storage**.
3. From the Storage menu, select FSx for ONTAP.
4. From FSx for ONTAP, select the actions menu of the file system with the cache volume and then select **Manage**.
5. From the file system overview, select the **Cache relationships** tab.
6. Select the actions menu for the cache volume you want to modify and then select **Adjust cache capacity**.
7. In the **Adjust cache capacity** dialog, enter the new capacity for the cache volume by percentage or by unit and then select **Apply**.

Edit the cache volume export policy

Change the mount path or the export policy assigned to an existing cache volume.

Steps

1. Log in using one of the console experiences.
2. Select the menu and then select **Storage**.
3. From the Storage menu, select FSx for ONTAP.
4. From FSx for ONTAP, select the actions menu of the file system with the cache volume and then select **Manage**.
5. From the file system overview, select the **Cache relationships** tab.
6. Select the actions menu for the cache volume you want to modify and then select **Edit export policy**.
7. In the **Edit export policy** dialog, change the mount path or select a different export policy to assign to the cache volume.
8. Select **Apply**.

Change the caching method for a cache volume

You can change how the cache works for an existing cache volume to write-around or write-back.

Learn more about write modes.

Steps

1. Log in using one of the console experiences.
2. Select the menu and then select **Storage**.
3. From the Storage menu, select FSx for ONTAP.
4. From FSx for ONTAP, select the actions menu of the file system with the cache volume and then select **Manage**.
5. From the file system overview, select the **Cache relationships** tab.
6. Select the actions menu for the cache volume you want to modify and then select **Change caching method**.
7. In the **Change caching method** dialog, select the new caching method and then select **Apply**.

Prepopulate a cache volume

Fill the cache volume with data from the origin volume before you use it to make cached data available faster.

Steps

1. Log in using one of the console experiences.
2. Select the menu and then select **Storage**.
3. From the Storage menu, select FSx for ONTAP.
4. From FSx for ONTAP, select the actions menu of the file system with the cache volume and then select **Manage**.
5. From the file system overview, select the **Cache relationships** tab.
6. Select the actions menu for the cache volume you want to modify and then select **Prepopulate cache**.
7. In the **Prepopulate cache** dialog, specify the path to the data set to use for prepopulation and then select **Apply**.

Delete a cache volume

When you delete a cache volume, you remove its cache relationship. Cached data is no longer available.

Steps

1. Log in using one of the console experiences.
2. Select the menu and then select **Storage**.
3. From the Storage menu, select FSx for ONTAP.
4. From FSx for ONTAP, select the actions menu of the file system with the cache volume and then select **Manage**.
5. From the file system overview, select the **Cache relationships** tab.
6. Select the actions menu for the cache volume you want to delete and then select **Delete cache volume**.
7. In the **Delete cache volume** dialog, confirm the deletion and then select **Delete**.

Change the tiering policy of a volume in NetApp Workload Factory

In NetApp Workload Factory, you can change the tiering policy to automatically re-allocate data from the high-performance primary storage tier to the secondary capacity pool storage tier.

About this task

You can change the tiering policy of a volume at any time. The tiering policy is defined per volume.

Deciding where your data is stored has implications for your cost savings.

FSx for ONTAP has two tiers for storing volume data:

- **SSD storage tier**: This primary storage tier is for the data you access most frequently, also known as *hot* data. Storing data in the primary storage tier is more expensive than in the secondary storage tier.
- **Capacity pool storage tier**: This secondary storage tier is for archived data or infrequently accessed data, also known as *cold* data.

Refer to Managing storage capacity in AWS for FSx for NetApp ONTAP documentation for more information about storage tiers.

Before you begin

Review the available tiering policies before you change the tiering policy.

- **Balanced (Auto)**: default tiering policy when creating a volume using the user interface. Keeps frequently accessed data in the SSD storage tier and tiers infrequently accessed data and snapshots to the capacity pool storage tier after the cooling period ends. Recommended for general primary workloads.
- **Cost-optimized (All)**: Tiers all snapshots and data to the capacity pool storage tier. Recommended for secondary targets.
- **Performance optimized (Snapshots only)**: Tiers only snapshot data to the capacity pool storage tier. Recommended for low-latency workloads such as mission-critical databases.
- **None**: Keeps volume data in the SSD storage tier, preventing it from being moved to the capacity pool storage tier.

Note that some tiering policies have an associated minimum cooling period which sets the time, or *cooling days*, that user data in a volume must remain inactive for the data to be considered "cold" and moved to the capacity pool storage tier. The cooling period starts when data is written to the disk.

Steps

1. Log in using one of the console experiences.
2. Select the menu and then select **Storage**.
3. From the Storage menu, select **FSx for ONTAP**.
4. From **FSx for ONTAP**, select the actions menu of the file system with the volume to update and then select **Manage**.
5. From the file system overview, select the **Volumes** tab.
6. From the Volumes tab, select the actions menu of the volume to change the tiering policy for.
7. Select **Advanced actions**, then **Change tiering policy**.
8. On the Change tiering policy page, select to copy the tiering policy of the source volume or select one of the following tiering policies:
   - **Balanced (Auto)**: Enter the number of cooling days.
   - **Cost-optimized (All)**
   - **Performance-optimized (Snapshots only)**: Enter the number of cooling days.
   - **None**
9. Select **Apply**.

Update storage efficiency setting of a volume

In NetApp Workload Factory, you can update the storage efficiency setting after volume creation.

About this task

The storage efficiency feature includes deduplication, data compression, and data compaction to achieve optimal space savings on a FlexVol volume. Deduplication eliminates duplicate data blocks. Data compression compresses the data blocks to reduce the amount of physical storage that is required. Data compaction stores more data in less space to increase storage efficiency.

If you chose not to enable storage efficiency when you created a volume, you can enable the setting for

potential space and cost savings at any time.

Volumes use thin provisioning whether you enable or disable storage efficiency.

Steps

1. Log in using one of the console experiences.
2. Select the menu and then select **Storage**.
3. From the Storage menu, select **FSx for ONTAP**.
4. From **FSx for ONTAP**, select the actions menu of the file system with the volume to update and then select **Manage**.
5. From the file system overview, select the **Volumes** tab.
6. From the Volumes tab, select the actions menu of the volume to change the tiering policy for.
7. Select **Advanced actions**, then **Set storage efficiency**.
8. Choose to enable or disable volume storage efficiency.
9. Select **Apply** to save the change.

Manage the NFS export policy for a volume in NetApp Workload Factory

Manage the NFS export policy for a volume that uses NFSv3 or NFSv4.1 protocol types in NetApp Workload Factory.

About this task

Managing a volume's export policy involves adding export policy rules that detail client specifications, access control, super user access, and NFS version. You can add more than one export policy and prioritize them.

Before you begin

Determine the client specifications for the export policy rules. Valid values for the client specification are as follows:

- IP addresses
- IP addresses with subnet masks
- IP addresses with a network mask
- A netgroup name preceded by the "@" character
- A domain name preceded by a period "."
- Host names

Steps

1. Log in using one of the console experiences.
2. Select the menu and then select **Storage**.
3. From the Storage menu, select **FSx for ONTAP**.
4. From **FSx for ONTAP**, select the actions menu of the file system with the volume to update and then select **Manage**.
5. From the file system overview, select the **Volumes** tab.

6. From the Volumes tab, select the actions menu for the volume to change the NFS export policy for.
7. Select **Advanced actions**, then **Edit NFS export policy**.
8. On the Edit NFS export policy page, provide the following:
    a. **Access control**: Select **Custom export policy** or **Existing export policy**.

       Alternatively, you can select **No access to the volume**.

    b. **Export policy name**: Optionally, enter a name for the export policy.
    c. **Add export policy rule**: Provide the following details and rank the policies starting with #1 as the priority rule:
        i. **Client specification**: Separate multiple values with commas.
        ii. **Access control**: Select **Read/Write**, **Read only**, or **No access** from the dropdown menu.
        iii. **Super user access**: Select **Yes** or **No**.
        iv. **NFS version**: Select **All**, **NFSv3**, or **NFSv4**.
9. Select **Apply**.

Manage the SMB/CIFS share for a volume in Workload Factory

Managing a volume's SMB/CIFS share in Workload Factory includes SMB/CIFS share creation, determining the users and groups to give access to and the level of permissions to give them, and SMB/CIFS share deletion.

Before you begin

Before you begin, do the following:

- To manage SMB/CIFS shares, you must associate a link. Learn how to associate an existing link or to create and associate a new link. After the link associates, return to this operation.
- Determine the users or groups to give access to and the level of permissions to give them.

Create an SMB/CIFS share for a volume

Follow the steps to create an SMB/CIFS share for a volume.

Steps

1. Log in using one of the console experiences.
2. Select the menu and then select **Storage**.
3. From the Storage menu, select **FSx for ONTAP**.
4. From **FSx for ONTAP**, select the actions menu of the file system with the volume to update and then select **Manage**.
5. From the file system overview, select the **Volumes** tab.
6. From the Volumes tab, select the actions menu of the volume to change the SMB share for.
7. Select **Advanced actions**, then **Manage SMB/CIFS shares**.
8. On the Manage SMB/CIFS shares page, select **Create SMB/CIFS share**.

9. In the Create SMB/CIFS share dialog, provide the following:
    a. **Name**: Enter the name of the SMB/CIFS share.
    b. **Path**: Either define the path using the default volume name or provide a share to an internal directory.

        Valid path inputs for volume name, for example "avocado", are as follows:

        - /avocado
        - /avocado/folder
        - /avocado/folder/subfolder
        - /avocado/file-name

        Valid path inputs for share name, for example "Server", are as follows:

        - \\Server
        - \\Server\Projects
        - \\Server\Projects\Shared resources

    c. **Permissions**: Select Full control, Read/Write, Read, or No access, and then enter the users or groups separated by a semicolon (;). Users or groups are case sensitive and the user's domain must be included using the format "domain\username".
10. Select **Create**.

Change an SMB/CIFS share for a volume

Follow the steps to change the SMB/CIFS share settings for a volume.

Steps

1. Log in using one of the console experiences.
2. Select the menu and then select **Storage**.
3. In the **FSx for ONTAP** tab, select the actions menu of the file system with the volume to update and then select **Manage**.
4. From the file system overview, select the **Volumes** tab.
5. From the Volumes tab, select the actions menu of the volume to change the SMB share for.
6. Select **Advanced actions**, then **Manage SMB/CIFS shares**.
7. On the Manage SMB/CIFS shares page, select **View and edit**.
8. Change the SMB/CIFS access permissions, or the users or groups to give permissions to.

    Changes might cause current users or groups to lose access to the SMB/CIFS share.

9. Select **Apply** to save the changes.

Delete an SMB/CIFS share for a volume

Follow the steps to delete an SMB/CIFS share for a volume.

Steps

1. Log in using one of the console experiences.

2. Select the menu and then select **Storage**.
3. In the **FSx for ONTAP** tab, select the actions menu of the file system with the volume to update and then select **Manage**.
4. From the file system overview, select the **Volumes** tab.
5. From the Volumes tab, select the actions menu of the volume to change the SMB share for.
6. Select **Advanced actions**, then **Manage SMB/CIFS shares**.
7. On the Manage SMB/CIFS shares page, select the actions menu of the SMB/CIFS share and then select **Delete**.

   Deleting the SMB/CIFS share makes it unavailable and inaccessible to any users who want to mount it.

8. In the Delete SMB/CIFS share dialog, select **Delete** to confirm deletion.

Manage the S3 access points for a volume in NetApp Workload Factory

Manage the S3 access points for a volume in NetApp Workload Factory. You can use the Workload Factory console to assign S3 access points to existing volumes, view details for your S3 buckets, make changes to existing access points, or delete S3 access points.

About this task

Amazon FSx for NetApp ONTAP supports S3 data access to NFS and SMB file systems, enabling their integration with dozens of S3-based AWS services such as Amazon Bedrock, SageMaker, Athena, AWS Glue, and more. You can connect AWS services to all of your object storage data.

By attaching S3 access points to NFS and SMB volumes in an FSx for ONTAP file system, files stored in these volumes can be accessed by any AWS services as if they were in an S3 bucket. When attaching the access point, you define its unique id, specify the file access type (UNIX or Windows) and add a username for authorizing file access requests by the access point.

After the S3 access point is attached, it appears in the AWS Management Console and has a unique access point alias. This alias is used as the S3 bucket name provided to the AWS services to which you want to connect. For example, you can provide the alias to an Amazon Bedrock knowledge base, and it will then use the files in the FSx for ONTAP volume to provide contextual answers to queries.

You can attach multiple S3 access points to a single FSx for ONTAP volume, each with its own unique access level, allowing you to connect to as many AWS services as required.

Before you begin

Ensure that you meet the following requirements:

- You must have an existing volume with an S3 access point.
- You must grant credentials with the *operations and remediation* permission policy in Workload Factory to complete this task.

Create and attach S3 access points to an existing volume

Create and attach S3 access points to an existing volume in NetApp Workload Factory.

Steps

1. Log in using one of the console experiences.
2. Select the menu and then select **Storage**.
3. From the Storage menu, select **FSx for ONTAP**.
4. From **FSx for ONTAP**, select the file system with the volume to update.
5. From the file system overview, select the **Volumes** tab.
6. From the Volumes tab, select the actions menu for the volume to manage the S3 access points for and then select **Advanced actions**, then **Manage S3 access points**.
7. Select **Create and attach S3 access point**.
8. In the **Create and attach S3 access point** dialog, provide the following information:
   - **S3 access point name**: Enter the name of the S3 access point.
   - **User**: Select an existing user with access to the volume or create a new user.
   - **User type**: Select **UNIX** or **Windows** as the user type.
   - **Enable metadata catalog**: Select to enable metadata on the volume to generate metadata inventory for all objects accessible to the S3 access point. This feature incurs AWS costs for S3 requests.
9. Select **Create and attach**.

View details

Alias, ARN, and S3 URI are available access point details without metadata enabled.

With metadata enabled on the volume, you can view access point, inventory table, and table bucket details of existing S3 access points attached to the volume. A link to the inventory table in the AWS Management Console is also provided.

Access point details are copiable for use in other applications.

Steps

1. Log in using one of the console experiences.
2. Select the menu and then select **Storage**.
3. From the Storage menu, select **FSx for ONTAP**.
4. From **FSx for ONTAP**, select the actions menu of the file system with the volume to update, then select **Manage**.
5. From the file system overview, select the **Volumes** tab.
6. From the Volumes tab, select the actions menu for the volume to manage the S3 access points for and then select **Advanced actions**, then **Manage S3 access points**.
7. From the **Manage S3 access points** screen, select the actions menu and then select **View details**.

Edit access point

Change the user and user type for an existing S3 access point attached to a volume. You can also enable or disable metadata for the access point.

Steps

1. Log in using one of the console experiences.
2. Select the menu and then select **Storage**.

3. From the Storage menu, select **FSx for ONTAP**.
4. From **FSx for ONTAP**, select the actions menu of the file system with the volume to update, then select **Manage**.
5. From the file system overview, select the **Volumes** tab.
6. From the Volumes tab, select the actions menu for the volume to manage the S3 access points for and then select **Advanced actions**, then **Manage S3 access points**.
7. From the **Manage S3 access points** screen, select the actions menu and then select **Edit access point**.
8. Make updates and then select **Apply**.

Manage S3 access point tags

Add or remove tags for an existing S3 access point attached to a volume.

Steps

1. Log in using one of the console experiences.
2. Select the menu and then select **Storage**.
3. From the Storage menu, select **FSx for ONTAP**.
4. From **FSx for ONTAP**, select the actions menu of the file system with the volume to update, then select **Manage**.
5. From the file system overview, select the **Volumes** tab.
6. From the Volumes tab, select the actions menu for the volume to manage the S3 access points for and then select **Advanced actions**, then **Manage S3 access points**.
7. From the **Manage S3 access points** screen, select the actions menu and then select **Manage tags**.
8. In the Manage S3 access point tags dialog, you can add up to 50 tags or remove tags for the S3 access point.
9. Select **Apply**.

Delete existing S3 access points from a volume

Delete existing S3 access points from a volume in NetApp Workload Factory.

Steps

1. Log in using one of the console experiences.
2. Select the menu and then select **Storage**.
3. From the Storage menu, select **FSx for ONTAP**.
4. From **FSx for ONTAP**, select the actions menu of the file system with the volume to update, then select **Manage**.
5. From the file system overview, select the **Volumes** tab.
6. From the Volumes tab, select the actions menu for the volume to manage the S3 access points for and then select **Advanced actions**, then **Manage S3 access points**.
7. Select the actions menu for the S3 access point to delete and then select **Detach**.
8. In the **Detach and remove an S3 access point** dialog, select **Detach and remove** to delete the S3 access point from the volume.

Split a cloned volume in NetApp Workload Factory

Split a cloned FlexVol volume from its parent volume to make the clone a normal read/write FlexVol volume in NetApp Workload Factory.

Data is accessible on the clone and the parent during the split. The split process only updates metadata and requires minimal IO. No data blocks are copied.

About this task

The clone splitting operation involves the following:

- New snapshot copies of the FlexClone volume cannot be created during the split operation.
- A FlexClone volume cannot be split from the parent volume if it belongs to a data protection relationship.
- If you take the FlexClone volume offline while splitting is in progress, the split operation is suspended; when you bring the FlexClone volume back online, the splitting operation resumes.
- After the split, both the parent FlexVol volume and the clone require the full space allocation determined by their volume guarantees.
- After a FlexClone volume is split from its parent the two cannot be rejoined.

Before you begin

Consider the following before you split a cloned volume:

- To split a cloned volume, you must associate a link. Learn how to associate an existing link or to create and associate a new link. After the link associates, return to this operation.
- The FlexClone volume must be online when the split operation begins.
- The parent volume must be online for the split to succeed.

Steps

1. Log in using one of the console experiences.
2. Select the menu and then select **Storage**.
3. From the Storage menu, select **FSx for ONTAP**.
4. From **FSx for ONTAP**, select the actions menu of the file system with the volume clone to split and then select **Manage**.
5. From the file system overview, select the **Volumes** tab.
6. In the Volumes tab, select the actions menu of the volume with the cloned volume to split.
7. Select **Data protection actions**, then **Split cloned volume**.
8. In the Split volume dialog, select **Delete**.

Result

The volume clone is split and appears in the Volumes tab.

Delete a volume in NetApp Workload Factory

Delete a volume in your FSx for ONTAP file system that is no longer required and to free up space. This operation is irreversible.

Before you begin

Consider the following before deleting a volume:

- Replication relationships: You must delete all existing replication relationships for this volume before deleting the volume so that no broken relationships remain.
- Local snapshots: All snapshots associated with this FSx for ONTAP file system will be permanently deleted.
- FSx for ONTAP backup: FSx for ONTAP backup copies will remain and you can still use them.
- Immutable files and snapshots: Volumes containing immutable files and snapshots cannot be deleted until the retention period ends.

Steps

1. Log in using one of the console experiences.
2. Select the menu and then select **Storage**.
3. From the Storage menu, select **FSx for ONTAP**.
4. From **FSx for ONTAP**, select the actionsenu of the file system with the volume to delete and then select **Manage**.
5. From the file system overview, select the **Volumes** tab.
6. From the Volumes tab, select the actions menu of the volume to delete.
7. Select **Basic actions** then **Delete volume**.
8. In the Delete volume dialog, do the following:
    a. Optionally, select **Back up the volume** to back up the volume before deletion.

        The backup will remain in the file system until you manually delete it.

    b. Select **Continue**.
    c. Type “delete” to delete the volume.
    d. Select **Delete** to confirm.

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