Use links

Amazon FSx for NetApp ONTAP

NetApp
September 02, 2024

Table of Contents

Use links

Learn about Workload Factory links

A Workload Factory link creates a trust relationship and connectivity between a Workload Factory account and one or more FSx for ONTAP file systems. This enables you to monitor and manage certain file system features directly from the ONTAP REST API calls that are not available through the Amazon FSx for ONTAP API.

You don’t need a link to get started with Workload Factory, but in some cases you’ll need to create a link to unlock all Workload Factory features and workload capabilities.

How links work

Links leverage AWS Lambda. Lambda executes code in response to events and automatically manages the computing resources required by that code. The links that you create are part of your NetApp account and they are associated with an AWS account.

After you have created a link you can associate it with one, or many, FSx for ONTAP file systems. Each file system can be associated only to one link in the same NetApp account. If you have multiple NetApp accounts, a single file system can be associated with additional links under different NetApp accounts.

You create links from the FSx for ONTAP file system pages in Workload Factory. Learn how to create links for details.

Costs

Each transaction that Lambda performs incurs a charge. Since Lambda acts as a proxy between the two systems, there is a charge when Lambda sends a request to the ONTAP REST API on a file system, and when it sends the response back to Workload Factory.

Learn more about the costs related to using AWS Lambda

When a link is required

Workload Factory requires a link to display some information and to perform some tasks. If you attempt to perform an operation that requires a link and you haven’t associated a link with the FSx for ONTAP file system, you will see a message that the operation requires a link. You can add a new link, or associate the FSx for ONTAP file system with an existing link at that time so you can perform the operation.

The features that require a link include:

- Display the version of ONTAP that is installed on an FSx for ONTAP file system
- Manage iSCSI volumes on the system
- Enable and disable the autogrow feature for volumes
- Create and manage snapshot policies
- Configure replication relationships and replicate volumes between file systems
- Configure backup relationships and back up volume data to cloud storage
- Clone volumes within a file system

- Display additional metrics directly from ONTAP (default metrics are collected by Amazon CloudWatch)
- Management of NFS Export policies

Create a link

You can create and manage links to provide a trust relationship and connectivity between a Workload Factory account and one or more FSx for ONTAP file systems. This enables you to monitor and manage certain features directly from the FSx for ONTAP file system that are not available through the AWS FSx for ONTAP API.

Learn more about links.

About this task

Links leverage AWS Lambda to execute code in response to events and automatically manage the computing resources required by that code. The links that you create are part of your NetApp account and they are associated with an AWS account.

You can create a link in your account when defining an FSx for ONTAP file system. That link will be used for that file system, and it can be used by other FSx for ONTAP file systems.

You'll need to launch an AWS CloudFormation stack in your AWS account to create the link.

Before you begin

- You must have credentials to log in to your AWS account.
- You must have the following permissions in your AWS account when adding a link using a CloudFormation stack:

```
"cloudformation:GetTemplateSummary",
"cloudformation:CreateStack",
"cloudformation:DeleteStack",
"cloudformation:DescribeStacks",
"cloudformation:ListStacks",
"cloudformation:DescribeStackEvents",
"cloudformation:ListStackResources",
"ec2:DescribeSubnets",
"ec2:DescribeSecurityGroups",
"ec2:DescribeVpcs",
"iam:ListRoles",
"iam:GetRolePolicy",
"iam:GetRole",
"iam:DeleteRolePolicy",
"iam:CreateRole",
"iam:DetachRolePolicy",
"iam:PassRole",
"iam:PutRolePolicy",
"iam:DeleteRole",
"iam:AttachRolePolicy",
"lambda:AddPermission",
"lambda:RemovePermission",
"lambda:InvokeFunction",
"lambda:GetFunction",
"lambda:CreateFunction",
"lambda:DeleteFunction",
"lambda:TagResource",
"codestar-connections:GetSyncConfiguration",
"ecr:BatchGetImage",
"ecr:GetDownloadUrlForLayer"
```

Steps

1. Log in to the Workload Factory console
2. In Storage, select **Go to storage inventory**.
3. In the **FSx for ONTAP** tab, select the three dots menu of the file system to associate a link to and then select **Manage**.
4. In the file system overview, select **Associate link**.
5. In the Associate link dialog, select **Create a new link** and select **Continue**.
6. On the Create Link page, provide the following:
   a. **Link name**: Enter the name that you want to use for this link. The name must be unique within your account.

b. **Tags**: Optionally, add any tags that you want to associate with this link so you can more easily categorize your resources. For example, you could add a tag that identifies this link as being used by FSx for ONTAP file systems.

   The AWS account and the additional information for Account, Location, and Security group are retrieved automatically based on the FSx for ONTAP file system.

7. Select **Redirect to CloudFormation**.

   A dialog that explains how to create the link from the AWS CloudFormation service is displayed.

8. Select **Continue** to open the AWS Management Console, and then log in to the AWS account for this FSx for ONTAP file system.
9. On the Quick create stack page, under Capabilities, select **I acknowledge that AWS CloudFormation might create IAM resources**.

   Note that three permissions are granted to Lambda when you launch the CloudFormation template. Workload Factory uses these permissions when using links.

```
"lambda:InvokeFunction",
"lambda:GetFunction",
"lambda:UpdateFunctionCode"
```

10. Select **Create stack** and then select **Continue**.

    You can monitor the link creation status from the Events page. This should take no more than 5 minutes.

11. Return to the Workload Factory interface and you'll see that the link is associated with the FSx for ONTAP file system.

Result

The link you created is associated with the FSx for ONTAP file system.

Manage links

Manage links you've associated with your Workload Factory account.

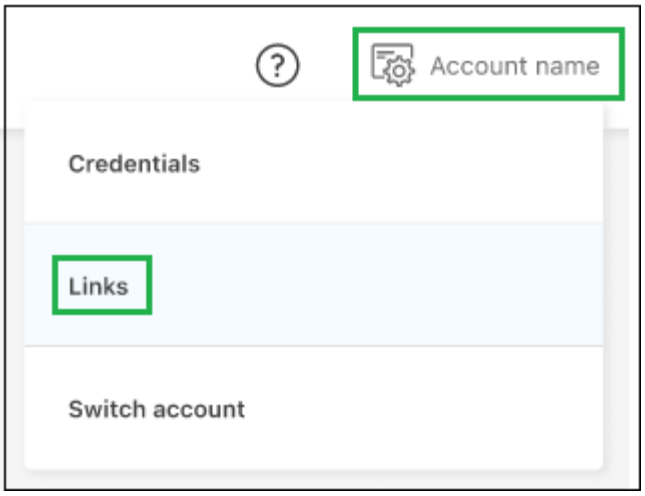
Learn more about links or create a link.

View the links associated with your account

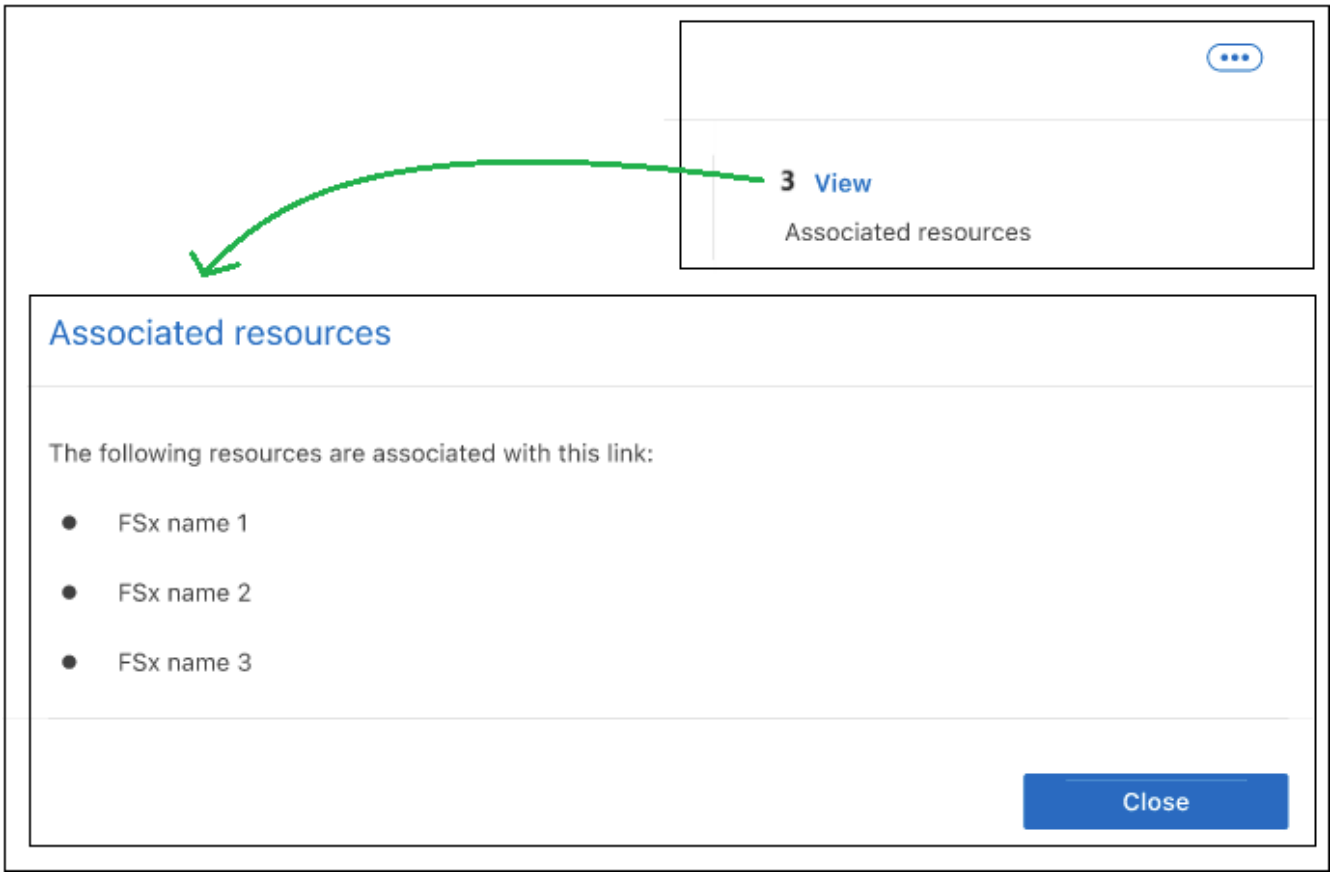
You can view the links that are currently associated with your account.

Steps

1. Log in to the Workload Factory console
2. In Storage, select **Go to storage inventory**.
3. From the Account menu, select **Links**.



4. If any links exist, the overview page provides the information.
5. To view the FSx for ONTAP file systems that are associated with a link, select the **View** button in the Associated resources section.



6. If you need the Amazon Resource Name (ARN) for the link, you can select the *copy* icon next to the ARN field.

Associate a link with an FSx for ONTAP file system

After you create a link, you can associate it with your FSx for ONTAP file systems. Each file system can be associated to only one link in a single NetApp account, but a link can be associated with many file systems.

Steps

1. Log in to the Workload Factory console
2. In Storage, select **Go to storage inventory**.
3. In the **FSx for ONTAP** tab, select the three dots menu of the file system to associate a link to and then select **Manage**.
4. In the file system overview, select **Associate link**.
5. In the Associate link page, select **Associate an existing link**, select the link, and select **Apply**.

Result

The link is associated with the FSx for ONTAP file system and you can perform advanced ONTAP operations.

Edit a link

You can't edit a link from the Workload Factory interface. If you need to make a change to a link, you'll need to create a new link and then associate that link to your file system.

> You can edit the Lambda network configuration (for example VPC, subnets, and security groups) using the AWS console and the changes will be reflected in links management UI; however, these changes can lead to connectivity issues between Lambda and ONTAP, and are not recommended.

Remove a link

You can remove a link that you're no longer using in your environment. Any FSx for ONTAP file systems or other resources that were using the link will be unable to use certain functionality after the link is removed.

Note that the link is only deleted from Workload Factory - it is not deleted from your AWS environment. You must delete the Lambda function from your AWS account after removing the link in Workload Factory.

Steps

1. Log in to the Workload Factory console
2. In Storage, select **Go to storage inventory**.
3. From the Account menu, select **Links**.
4. From the Links page, select the menu button and select **Remove**.

5. If you are sure, select **Remove** again.

Refer to the AWS documentation to delete the Lambda function.

Copyright information

Trademark information