Amazon FSx for Lustre

## Service Overview

*Lustre is a type of parallel distributed file system, for large-scale computing. The name Lustre is derived from “Linux” and “cluster”.*

***Amazon FSx for Lustre*** *makes it easy and cost-effective to launch and run the popular, high-performance Lustre file system. You use Lustre for workloads where speed matters, such as machine learning, high performance computing (HPC), video processing, and financial modeling.*

*The open-source Lustre file system is designed for applications that require fast storage—where you want your storage to keep up with your compute. Lustre was built to solve the problem of quickly and cheaply processing the world's ever-growing datasets. It's a widely used file system designed for the fastest computers in the world. It provides submillisecond latencies, up to hundreds of GBps of throughput, and up to millions of IOPS. For more information on Lustre, see the* [*Lustre website*](http://lustre.org/)*.*

*As a fully managed service, Amazon FSx makes it easier for you to use Lustre for workloads where storage speed matters. Amazon FSx for Lustre eliminates the traditional complexity of setting up and managing Lustre file systems, enabling you to spin up and run a battle-tested high-performance file system in minutes. It also provides multiple deployment options so you can optimize cost for your needs.*

*Amazon FSx for Lustre is POSIX-compliant, so you can use your current Linux-based applications without having to make any changes. Amazon FSx for Lustre provides a native file system interface and works as any file system does with your Linux operating system. It also provides read-after-write consistency and supports file locking.*

***Topics***

* [*Multiple Deployment Options*](https://docs.aws.amazon.com/fsx/latest/LustreGuide/what-is.html#deployment-options)
* [*Multiple Storage Options*](https://docs.aws.amazon.com/fsx/latest/LustreGuide/what-is.html#storage-options)
* [*Amazon FSx for Lustre and Data Repositories*](https://docs.aws.amazon.com/fsx/latest/LustreGuide/what-is.html#data-repo-features)
* [*Accessing File Systems*](https://docs.aws.amazon.com/fsx/latest/LustreGuide/what-is.html#compute-access)
* [*Integrations with AWS Services*](https://docs.aws.amazon.com/fsx/latest/LustreGuide/what-is.html#integration-aws-services)
* [*Security and Compliance*](https://docs.aws.amazon.com/fsx/latest/LustreGuide/what-is.html#security-compliance)

## Use cases

* *Machine Learning, High Performance Computing (HPC)*
* *Video Processing, Financial Modeling, Electronic Design Automation*
* *Scales up to 100s GB/s, millions of IOPS, sub-ms latencies*
* *Seamless integration with S3*
* *Can “read S3” as a file system (through FSx)*
* *Can write the output of the computations back to S3 (through FSx)*
* *Can be used from on-premise servers*

## Governance

***Administering file systems***

*Amazon FSx for Lustre provides a set of features that simplify the performance of your administrative tasks. These include the ability to take point-in-time backups, to manage file system storage quotas, to manage your storage and throughput capacity, and to set maintenance windows for performing routine software patching of the system.*

*You can administer your Amazon FSx for Lustre file systems using the Amazon FSx Management Console, AWS Command Line Interface (AWS CLI), Amazon FSx API, or AWS SDKs.*

*Topics*

* [*Working with backups*](https://docs.aws.amazon.com/fsx/latest/LustreGuide/using-backups-fsx.html)
* [*Storage quotas*](https://docs.aws.amazon.com/fsx/latest/LustreGuide/lustre-quotas.html)
* [*Managing storage and throughput capacity*](https://docs.aws.amazon.com/fsx/latest/LustreGuide/managing-storage-capacity.html)
* [*Amazon FSx for Lustre maintenance windows*](https://docs.aws.amazon.com/fsx/latest/LustreGuide/maintenance-windows.html)

***Logging***

*Amazon FSx for Lustre is integrated with AWS CloudTrail, a service that provides a record of actions taken by a user, role, or an AWS service in Amazon FSx for Lustre. CloudTrail captures all API calls for Amazon FSx for Lustre as events. Captured calls include calls from the Amazon FSx for Lustre console and from code calls to Amazon FSx for Lustre API operations.*

*If you create a trail, you can enable continuous delivery of CloudTrail events to an Amazon S3 bucket, including events for Amazon FSx for Lustre. If you don't configure a trail, you can still view the most recent events in the CloudTrail console in* ***Event history****. Using the information collected by CloudTrail, you can determine the request that was made to Amazon FSx for Lustre. You can also determine the IP address from which the request was made, who made the request, when it was made, and additional details.*

*To learn more about CloudTrail, see the* [*AWS CloudTrail User Guide*](https://docs.aws.amazon.com/awscloudtrail/latest/userguide/)*.*

*For more information about logging on Lustre with CloudTrail, see the* [*Logging Amazon FSx for Lustre API Calls with AWS CloudTrail*](https://docs.aws.amazon.com/fsx/latest/LustreGuide/logging-using-cloudtrail.html)*.*

***Monitoring***

*You can monitor file systems using Amazon CloudWatch, which collects and processes raw data from Amazon FSx for Lustre into readable, near real-time metrics. These statistics are retained for a period of 15 months, so that you can access historical information and gain a better perspective on how your web application or service is performing. By default, Amazon FSx for Lustre metric data is automatically sent to CloudWatch at 1-minute periods. For more information about CloudWatch, see* [*What Is Amazon CloudWatch?*](https://docs.aws.amazon.com/AmazonCloudWatch/latest/monitoring/WhatIsCloudWatch.html) *in the Amazon CloudWatch User Guide.*

*For more information about monitoring Amazon FSx for Lustre, see the* [*Monitoring Amazon FSx for Lustre*](https://docs.aws.amazon.com/fsx/latest/LustreGuide/monitoring_overview.html)*.*

## Pricing considerations

*With Amazon FSx for Lustre, there are no upfront hardware or software costs. You pay for only the resources used, with no minimum commitments, setup costs, or additional fees. For information about the pricing and fees associated with the service, see* [*Amazon FSx for Lustre Pricing*](http://aws.amazon.com/fsx/lustre/pricing)*.*

## More details

*For more information, use official Amazon documentation* [*Amazon FSx for Lustre User Guide*](https://docs.aws.amazon.com/fsx/latest/LustreGuide/index.html)*.*