

Integrate Dell ECS with FileCloud Enterprise Server

Leverage Dell ECS as the Primary Storage with FileCloud

November 2023

H19842

Deployment Guide

Abstract

This document illustrates how to integrate Dell ECS with FileCloud Enterprise Server.

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Executive summary

Overview

As a flexible, API-driven platform, FileCloud can be integrated directly with Dell ECS to serve as a secure gateway to structured or unstructured data. With this integration, users can leverage FileCloud's powerful features and functionalities to organize, secure, and collaborate on files within Dell ECS.

FileCloud is a self-hosted, Enterprise File Access, Sharing, and Sync solution that can be deployed on-premises, on the cloud, or as a hybrid solution. Functioning as an overlay with Dell ECS, FileCloud creates a hyper-secure platform where end users can access object-based data, regardless of the underlying storage protocol. This access supports enterprise requirements centered on leveraging object storage for primary storage use cases. FileCloud can act as a file gateway for files stored in ECS or you can use ECS as an alternate file storage layer for FileCloud.

Dell ECS, the world's most cyber-secure object storage¹, gives you unmatched scalability, performance, resilience, and cost efficiency. ECS delivers rich S3-compatibility on a globally distributed architecture, empowering organizations to support enterprise workloads such as AI, analytics, and archiving at scale. ECS customers are reducing TCO by up to 76% over the public cloud.²

Audience

This document is intended for persons interested in the technical details of Dell ECS with FileCloud Enterprise Server. This guide assumes a basic level of technical knowledge of the devices and technologies described.

Revisions

Date	Part number/ revision	Description
November 2023	H19842	Initial release

We value your feedback

Dell Technologies and the authors of this document welcome your feedback on this document. Contact the Dell Technologies team by [email](#).

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Note: For links to other documentation for this topic, see the [ECS Info Hub](#).

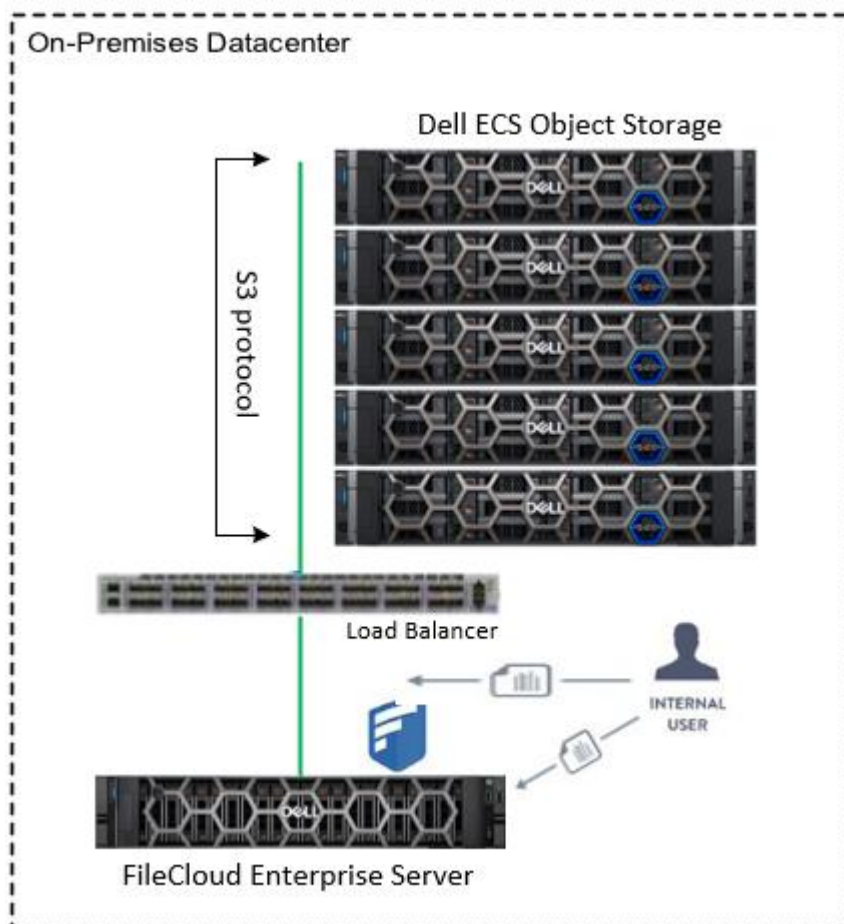
¹ Based on Dell analysis comparing cyber-security software capabilities offered for Dell ECS vs. competitive products, September 2022.

² ESG Economic Validation sponsored by Dell Technologies, "[Analyzing the Economic Benefits of Dell ECS: Economic Benefit Analysis of On-premises Object Storage versus Public Cloud](#)," Tony Palmer, July 2022. Cost savings based on ESG comparison of ECS to a leading public cloud in active storage scenarios. Actual results may vary.

Architecture

The following figure illustrates the logical layout of the architecture used for the validation.

Figure 1. Dell ECS and FileCloud Enterprise Server logical architecture



Configure Dell ECS as the primary storage platform

This section outlines the steps to configure ECS with FileCloud Enterprise Server to serve as the cloud storage platform. For up-to-date information about setting up FileCloud Managed Storage, see the FileCloud documentation listed in the [References](#) section.

External IP load balancer

Load balancers are required in ECS deployments to distribute data loads evenly across all service nodes. Although customers are responsible for implementing and configuring their deployed load balancers, Dell does provide recommendations and suggestions on how to configure some of them with ECS workflows. For details, see the [ECS General Best Practices](#) guide.

The S3 object service communicates on different ports, depending on the data access method.

HTTP	HTTPS
9020	9021

Note: For best performance, terminate SSL connections at the load balancer, passing traffic unencrypted to the ECS nodes. This offloads the encryption from ECS to the load balancer.

Dell ECS Configuration

S3 credentials are required prior to configuring FileCloud Enterprise Server to use ECS. ECS currently supports two different types of object users. (For detailed information about these different types, see the [ECS Administration Guide](#) on the Dell Technologies ECS Info Hub.)

Object users

You can create object users and configure them to use the supported object access protocols (that is, S3). You can edit an object user configuration by adding or removing access to an object protocol, or by creating a new secret key for the object user.

IAM (Identity and Access Management) users

IAM is a service that provides more granular access to ECS resources. Note that IAM is accessible using the S3 protocol only.

The examples in this document use an object user with FileCloud Enterprise Server.

Enable and Configure S3 in FileCloud

Amazon S3 must be enabled in FileCloud as the backend server to use ECS S3 for Cloud Storage.

Note: In Windows, WWWROOT is typically 'c:\xampp\htdocs'; in Linux, it is '/var/www/html'.

Step 1: Edit the file `WWWROOT/config/cloudconfig.php` and change the line:

```
define("TONIDOCLOUD_STORAGE_IMPLEMENTATION", "local");
```

to read as:

```
define("TONIDOCLOUD_STORAGE_IMPLEMENTATION", "amazons3");
```

Step 2: Rename the file `WWWROOT/config/amazons3storageconfig-sample.php` to `WWWROOT/config/amazons3storageconfig.php`.

Note: Nothing typically needs to be added or edited in `amazons3storageconfig.php`.

Step 3: Log in to the FileCloud Admin Portal and select **Settings > Storage**. Enter the S3 Object User or IAM credentials, which were created in ECS, as well as the ECS S3 endpoint. The following figure shows information from Dell ECS to use in the FileCloud Admin Portal when configuring S3 Storage.

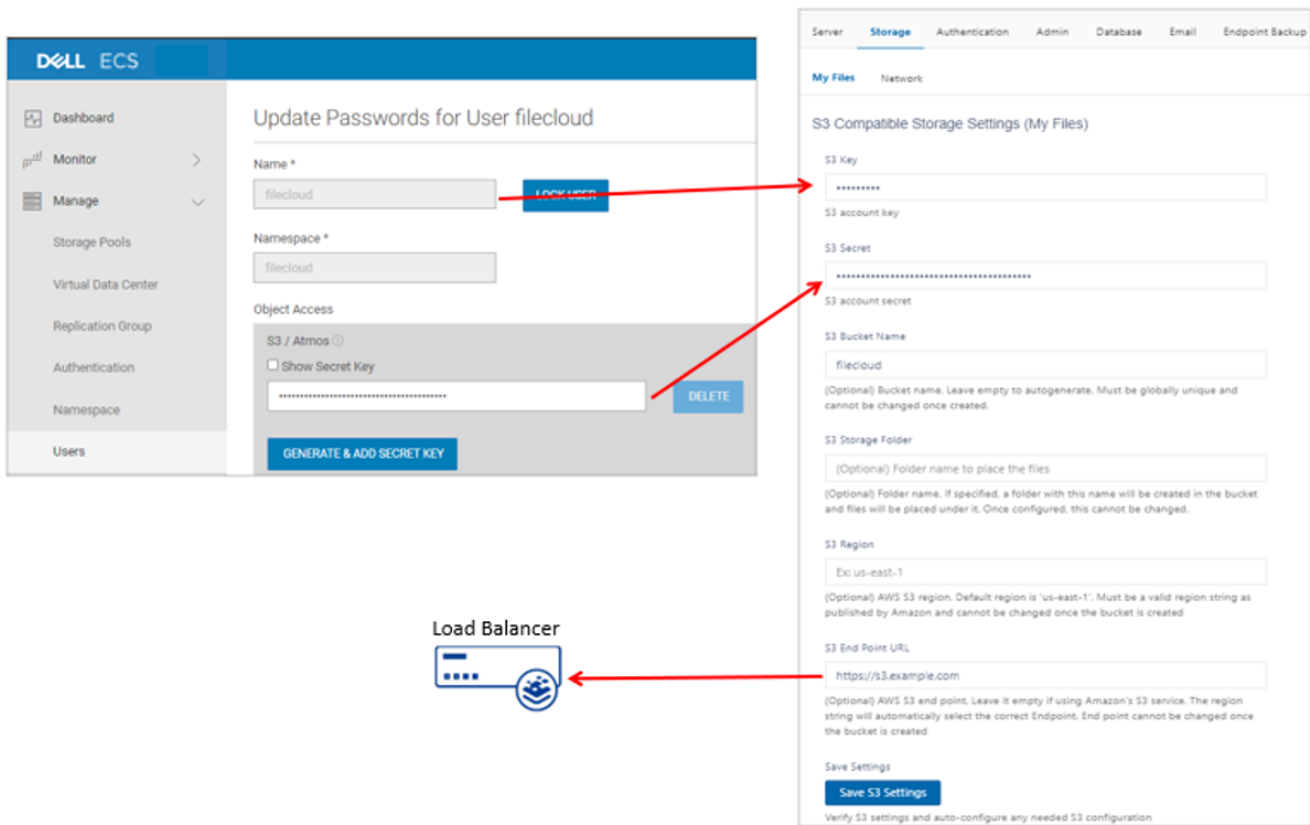


Figure 2. Configure FileCloud Storage to use Dell ECS

Table 1. FileCloud S3 Storage field definitions

Field	Description
S3 Key	The ECS Object User or IAM Access Key
S3 Secret	The ECS Secret Key
S3 Bucket Name	Specify the bucket name in which to store data. (The bucket will be created if it does not exist). This field is optional. FileCloud will auto-generate a bucket if left blank.
S3 Storage Folder	A folder with this name will be created in the bucket where files will reside. This field is optional.
S3 Region	ECS does not use regions; however, ECS can be configured to specify a region for compatibility.
S3 End Point URL	The ECS endpoint URL. The example in Figure 2 is using the VIP of the Load Balancer in front of ECS.

Step 4: Save the storage settings. Click OK to acknowledge that the bucket must be empty and only managed by FileCloud.

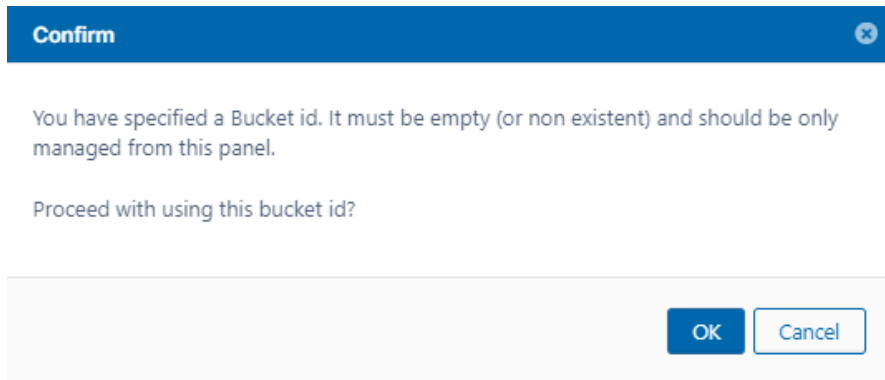


Figure 3. Save the FileCloud storage settings

If the **SUCCESS** dialog appears, then FileCloud can communicate with ECS.

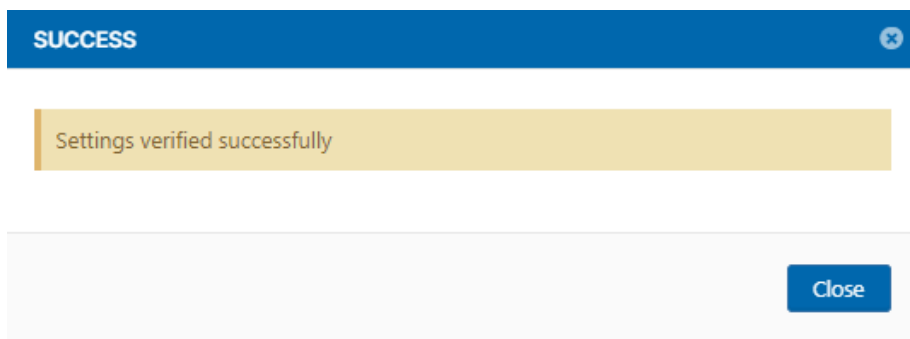


Figure 4. FileCloud can communicate with Dell ECS

Access Files from the FileCloud User Portal

Users can upload, download, delete, and share their files from any browser using the FileCloud User Portal. In this example, a user named 'User One' is logged into the User Portal to manage their files.

Upload files from the User Portal

User One would like to upload a file from their system to FileCloud, so they click the **Upload Files** link after logging into the User Portal.

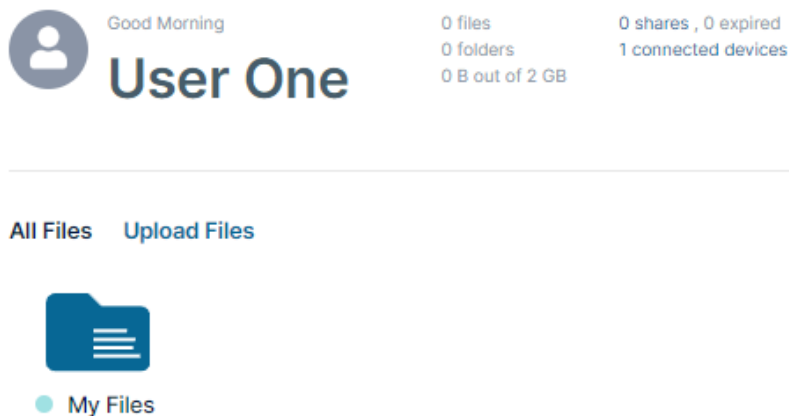


Figure 5. Upload Files from the User Portal

Then User One selects the file to upload from their local file system. Here we can see that the file was successfully uploaded.

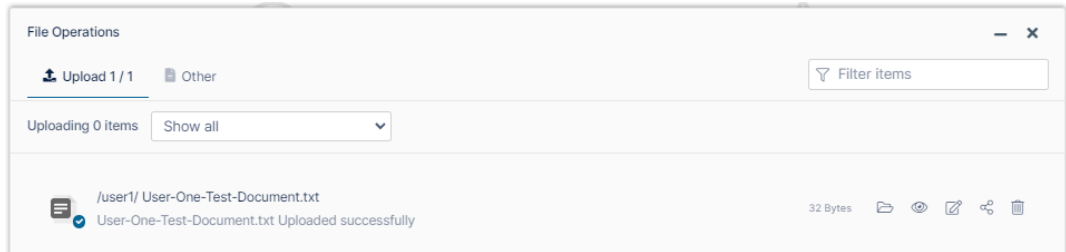


Figure 6. File successfully uploaded to FileCloud

When we list the files in the ECS bucket, we see that an object now exists, which is 32 bytes in size.

```
aws --profile filecloud --endpoint-url https://s3.example.com s3
ls s3://filecloud
2023-11-09 10:57:14          32 654d2b79957c0801641753
```

View a file’s content from the User Portal

User One would like to view the content of a file they stored in FileCloud, so they navigate to the file they want to view and either click the filename or click the eye icon to preview it. This performs a GET REST API call to ECS to retrieve the file.



Figure 7. Preview a file from the FileCloud User Portal

User One could also download the file locally from this web page.

Delete files from the User Portal

User One would like to delete a file from their system from FileCloud, so they click the folder (in this case **My Files**) and can either click the trashcan icon or click the ellipsis and select **Delete**.

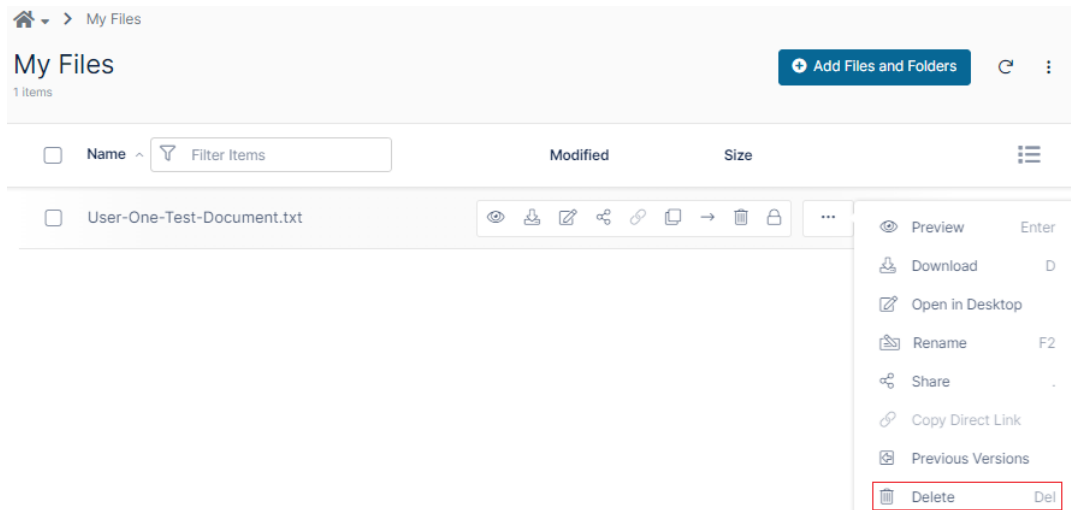


Figure 8. Delete a file from FileCloud

Click **Delete** from the dialog to delete the selected item.

File Operations (as well as **Activity**) show that the file has been deleted and no longer exists in the folder. Note that by default the file will still be accessible until permanently deleted. We can verify this by listing the ECS bucket:

```
aws -profile filecloud -endpoint-url https://s3.example.com s3 ls
s3://filecloud
2023-11-09 10:57:14          32 654d2b79957c0801641753
```

The user can permanently delete the file (if they have that permission) by selecting **Delete Files** in the left pane of the User Portal, hovering over the deleted file, and clicking the trashcan.

FileCloud will ask if you are sure you want to delete the file.

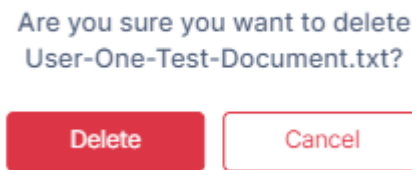


Figure 9. Confirm deletion of the file

Clicking **Delete** permanently deletes the file from ECS.

We can verify that it was deleted from the ECS bucket by listing the objects. No objects will be returned.

```
aws --profile filecloud --endpoint-url https://s3.example.com s3
ls s3://filecloud
```

FileCloud Sync and Drive clients

FileCloud Drive is a client application that allows you to access your FileCloud server files as you would normally access any other file on a Windows, Mac, and Linux systems.

FileCloud Sync will automatically sync selective files/folders, network folders, or backup folders to Cloud Storage. The following example configures a folder to be backed up to ECS.

FileCloud Drive

FileCloud Drive allows users to mount ECS on Windows and Mac to manage files in the Cloud as easily as you manage files directly on the local filesystem.

Create a **tmp** folder under the **My Files** folder that FileCloud Drive created. Copy 199 test files, each with a size of 1MB to the **tmp** folder.

Activity shows that all 199 files have been successfully uploaded to ECS.

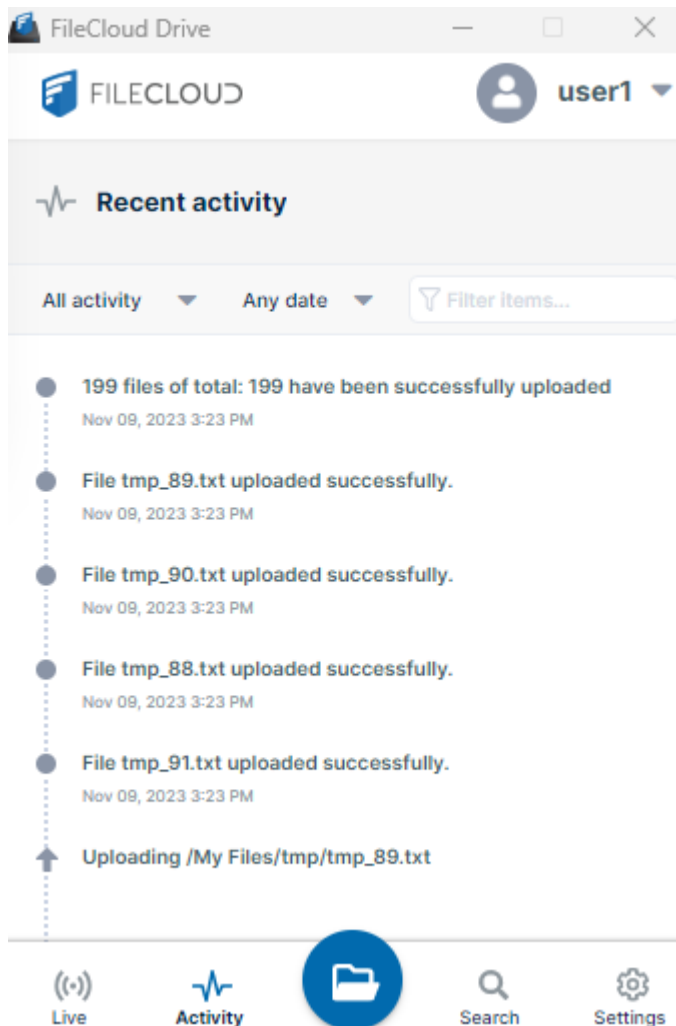


Figure 10. FileCloud Drive Activity

When we list the size and number of files in the ECS bucket, we can see that the size of the files in the bucket coincides with the size of the files that were uploaded.

```
aws --profile filecloud --recursive --endpoint-url  
https://s3.example.com s3 ls s3://filecloud | awk 'BEGIN  
{total=0}{total+=$3}END{print total/1024/1024" MB"}'  
199 MB
```

FileCloud Sync

FileCloud Sync automatically syncs selective files and folders to the Cloud.

Note: The Endpoint Backup Settings 'Click to enable user to backup files using CloudSync client application' must be enabled to configure backups.

Add a backup folder by clicking **Settings > Backup folders** from the Sync client and add a folder to be backed up to ECS.

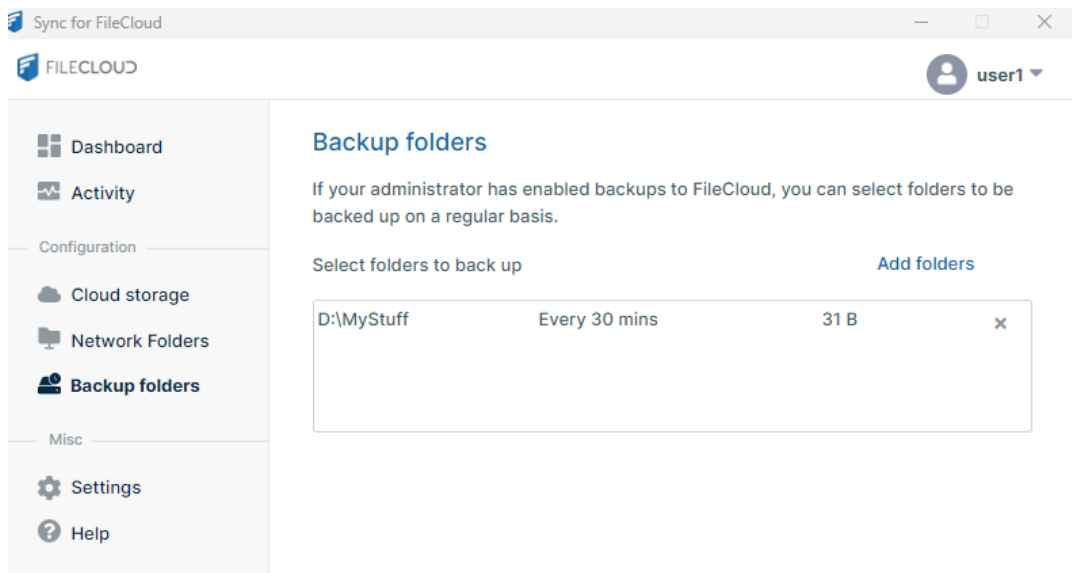


Figure 11. Add a backup folder to FileCloud Sync

You can configure the schedule for how often to back up files. Next, drop a file in **D:\MyStuff**, then click the **Sync now** button on the Sync client.

Check the Activity to verify that the backup ran and is successful.

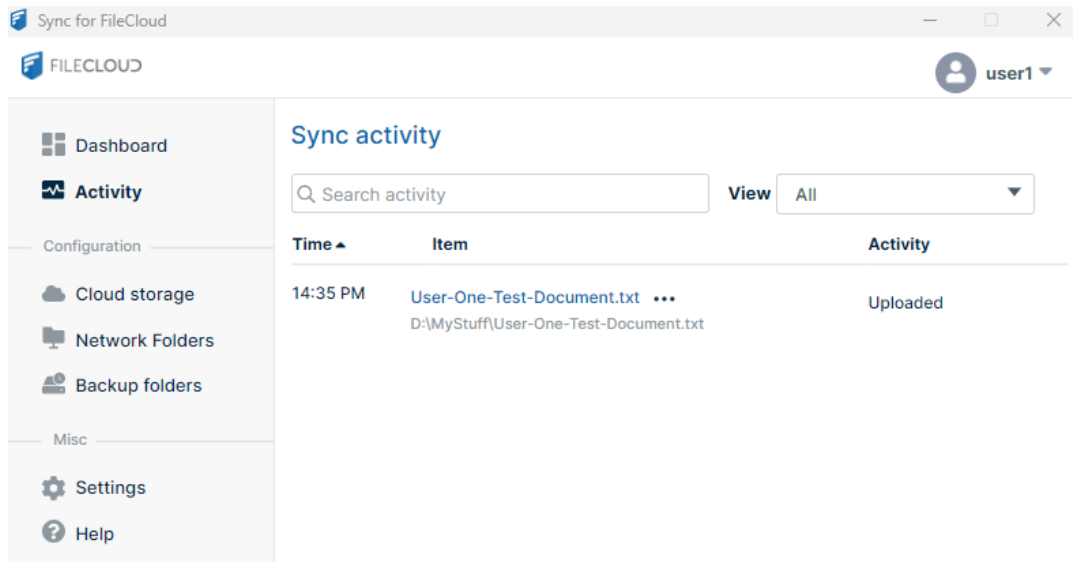


Figure 12. Verify FileCloud synchronized the backup folder to ECS

When we list the bucket on ECS, we see that our file was indeed uploaded.

```
aws --profile filecloud --endpoint-url https://s3.example.com s3
ls s3://filecloud
2023-11-09 14:35:38          32 654d5eaacef49218198586
```

Best practices

The following best practices are recommended when configuring FileCloud Enterprise Server with Dell ECS.

Recommendation	Details
Managing traffic flow to ECS	It is required to use an external IP traffic load balancer with ECS to manage the health and distribute traffic to all ECS nodes in the cluster.
Multipart part size	The default part size in <code>amazons3storageconfig.php</code> is 5MB, which should suffice for most organizations and should not be modified unless that value has been proven to improve throughput.
ECS Geo-Federation	You can deploy ECS software in multiple data centers to create a geo-federation. In a geo-federation, ECS behaves as a loosely coupled federation of autonomous VDCs. Federating sites involves providing replication and management endpoints for communication between sites. After sites are federated, you can manage them as a single infrastructure from any node in the federation. See the Dell ECS High Availability Design document for details and best practices.

Conclusion

By integrating FileCloud with Dell ECS, businesses can access a holistic solution for efficient storage and management of extensive data. This integrated approach ensures secure file-sharing and collaboration, where ECS serves as the primary data storage platform, and FileCloud enhances capabilities for secure collaboration and data governance. Employing this synergy can lead to increased productivity, cost reduction, and heightened levels of data security and control for businesses.

References

Dell Technologies documentation

The following Dell Technologies documentation provides other information related to this document. Access to these documents depends on your login credentials. If you do not have access to a document, contact your Dell Technologies representative.

- [Dell ECS Best Practices](#)
- [Dell ECS Administration Guide](#)
- [Dell ECS High Availability Design](#)

FileCloud documentation

The following FileCloud documentation provides additional information related to this document.

- [FileCloud Managed Storage](#)