

# EUMETSAT - Shared File System (SFS) usage in tenants

 The content of this article only apply to the users of the EUMETSAT part of the EWC.

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## Pre-requisites

 Setting up SFS in a tenancy can be done only by users with **ewcloud-tenant-admin** role!

## Ticket

SFS should be available for tenants created after 28/10/2022, if the tenant is older and you wish to use SFS, please open us a ticket [here](#).

## 1. Create Server Openstack SFS

1.1 From Morpheus go to Infrastructure Storage, select the Servers tab and click +ADD

STORAGE

[Buckets](#) [File Shares](#) [Volumes](#) [Data Stores](#) [Servers](#)

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STORAGE SERVERS

 [+ ADD](#)

TYPE	NAME	SERVICE URL	
 <b>openstack</b>	be-rmib-rss-sfs-server	https://api.waw3-1.cloudferro.com:8786	 

1.2. Fill the following data:

- Select TYPE as **Openstack SFS**
- Add a NAME as **<tenant name>-sfs-server**, e.g., be-rmib-rss-sfs-server
- Select the CLOUD from the list (usually you only have one)

ADD STORAGE SERVER
✕

NAME

DESCRIPTION

ENABLED

TYPE

CLOUD

SUPPORTED PROTOCOLS  +

Once saved this will create the storage server.

## 2. Create a File share

Now that you have a storage server for SFS, you can create the File shares,

2.1 From the same page, go to the **File Shares** tab.

The screenshot shows the EUMETSAT Infrastructure management interface. At the top, there is a navigation bar with the EUMETSAT logo, a search bar, and user information (Support and Pierre De Buyt). Below this is a secondary navigation bar with tabs for Operations, Provisioning, Library, Infrastructure (selected), Backups, Monitoring, Tools, and Administration. Under the Infrastructure tab, there are icons for Groups, Clouds, Clusters, Compute, Network, Load Balancers, Storage (selected), and Trust. The main content area is titled 'STORAGE' and has sub-tabs for Buckets, File Shares (selected), Volumes, Data Stores, and Servers. Below the sub-tabs, there is a 'FILE SHARES' section with a search bar and a '+ ADD' button. At the bottom, a table header is visible with columns: NAME, PROVIDER TYPE, SHARE PATH, SOURCE, BACKUP, and DEPLOYMENTS.

2.2 Click +ADD button to create a file share and select the Openstack SFS share

## STORAGE

Buckets File Shares Volumes Data Stores Servers

### FILE SHARES

Search

NAME	PROVIDER TYPE	SHARE PATH	SOURCE	B...

- CIFS (Samba Windows File Sharing)
- NFSv3
- OpenStack SFS Share

### 2.3 Fill the information:

- Give it a NAME, e.g., be-rmib-rss-sfs-test
- Select as STORAGE SERVICE the server you create in the previous step
- Select 'nova' as the AVAILABILITY\_ZONE
- Select NFS from SHARE PROTOCOL
- Set the SIZE

Then click "Save Changes"

NEW FILE SHARE

NAME

STORAGE SERVICE

RESOURCE POOL

AVAILABILITY\_ZONE

SHARE PROTOCOL

SHARE SIZE

SHARE TYPE

SHARE NETWORK

ACTIVE

DEFAULT BACKUP TARGET

DEFAULT DEPLOYMENT ARCHIVE TARGET

DEFAULT VIRTUAL IMAGE STORE

Retention

RETENTION POLICY

This will create the Shared Filesystem in the storage backend. Wait until you have the "Share Path:" defined in Morpheus. This will take some time.

File Shares > test

**test** ACTIONS DELETE

▼ INFO

Name: test      Share Type: OpenStack SFS Share      Share Path: 10.83.81.227:/share\_d161509e\_2ea9\_43f2\_a472\_b263ede7628f

Default Backup Target: No      Archive Snapshots: Yes      Default Deployment Archive Target: No

Default Virtual Image Store: No      Owner: be-rmib-rss

Files    Access

Search  Q + ADD

FILE NAME	CONTENT TYPE	SIZE	LAST UPDATED
Failed to load files from storage provider			

### 3. Network configuration required for the VMs that need to access the SFS

Now that you have created the SFS, you can use it in a VM.

In order to do that, when provisioning a VM in Morpheus, you need to select two networks (private + sfs).

CREATE INSTANCE

AUTOMATION    REVIEW

Configuration Options

LAYOUT: centos-7.9-generic-eumetsat

PLAN: eo1.large  
Cores: 4 Memory: 8 GB

RESOURCE POOL: cloud\_00215\_1

VOLUMES: 32 GB Volume Auto - Datastore +

NETWORKS: private DHCP +

AVAILABILITY ZONE: Select

SECURITY GROUP: Select

SERVER GROUP (AFFINITY): Select

FLOATING IP: Select

▶ User Config

▶ Advanced Options

PREVIOUS    NEXT

Add private first and then using the **+** button you will be able to add a second network: sfs network. At the end you will see something as below:

NETWORKS

private DHCP +

sfs\_00215\_1 DHCP 

Then continue with normal provisioning.

Once provisioning is finished, ssh into your machine and verify if the SFS network is up:

```
ip addr show
```

```
[murdaca@sfs-test-rocky ~]$ ip addr show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 8942 qdisc fq_codel state UP group default qlen 1000
    link/ether fa:16:3e:69:1b:f6 brd ff:ff:ff:ff:ff:ff
    altname enp0s3
    altname ens3
    inet 10.0.0.244/24 brd 10.0.0.255 scope global dynamic noprefixroute eth0
        valid_lft 38927sec preferred_lft 38927sec
    inet6 fe80::f816:3eff:fe69:1bf6/64 scope link
        valid_lft forever preferred_lft forever
3: eth1: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 8942 qdisc fq_codel state UP group default qlen 1000
    link/ether fa:16:3e:5f:77:37 brd ff:ff:ff:ff:ff:ff
    altname enp0s4
    altname ens4
    inet 10.84.15.144/26 brd 10.84.15.191 scope global dynamic noprefixroute eth1
        valid_lft 38927sec preferred_lft 38927sec
    inet6 fe80::f816:3eff:fe5f:7737/64 scope link
        valid_lft forever preferred_lft forever
```

## 4. Adding permissions to use the Shared Filesystem

Once the Shared Filesystem is created, you need to add access rules to allow read-only or read/write operations to one machine or multiple machines.

4.1 Go to **Infrastructure Storage File Shares**, and click on the "Access" tab, then click the "+ ADD" button ...

The screenshot shows the EUMETSAT Infrastructure Storage File Shares management interface. The page displays a share named 'share\_00218\_1' with the following configuration details:

Name: share_00218_1	Share Type: OpenStack SFS Share	Share Path: 10.83.83.3/share_fe4b6139_afc2_4714_82f6_8672cbc92b2e
Default Backup Target: No	Archive Snapshots: Yes	Default Deployment Archive Target: No
Default Virtual Image Store: No	Owner: eumetsat-batchprocessing	

The 'Access' tab is selected, and a '+ ADD' button is visible at the bottom right.

4.2 Now you can fill the required information:

NEW SHARE ACCESS RULE ✕

NAME

ROUTER

AUTHORIZATION TYPE

ACCESS CONSTRAINT

PERMISSION

[SAVE CHANGES](#)

- NAME: e.g. give a meaningful name
- ROUTER: sfs router
- AUTHORIZATION TYPE: IP
- PERMISSION: Read Only or Read/Write access
- ACCESS CONSTRAINT: Access IP of the local machine on the shared file system network (e.g. **10.84.???.??/32**) or the range of IPs for all machines on the SFS network (10.84.???.0/24). In order to get the IP of your VM on the SFS network. Go to Provisioning > Instances > find your VM and click on it. Then go to network section as described below:

The screenshot shows the EUMETSAT cloud management interface. At the top, there is a navigation bar with 'Provisioning' selected. Below it, the instance 'sfstest-centos-7.9-eumetsat-gpu' is displayed with various status indicators: STATUS (play icon), HEALTH (checkmark), LAST BACKUP (minus icon), AVAILABILITY (99.752%), RESPONSE TIME (N/A), MAX CPU (0%), MEMORY (22%), and STORAGE (58%).

The 'INFO' section provides details about the instance:

- Group: european-weather-cloud
- Cloud: eumetsat-dataprocessing
- Date Created: 12/01/2022 10:55 AM
- Owner: [REDACTED]
- Layout: centos-7.9-eumetsat-gpu
- Version: 7.9
- Cores: 2
- Memory: 2.0GiB
- Total Storage: 16.0GiB
- Source Image: CentOS 7 NVIDIA
- Provision Time: 4 minutes 27 seconds

The 'VMS' section shows a table of virtual machines:

STATUS	NAME	TYPE	CLOUD	ADDRESS(ES)	COMPUTE	MEMORY	STORAGE
<input checked="" type="checkbox"/>	sfstest-centos-7.9-eumetsat-gpu	CentOS	eumetsat-dataprocessing	10.0.0.127	0	22	58

At the bottom, there is a navigation bar with 'Network' highlighted in yellow.

You will be able to see your private network and sfs network IPs:

Summary	Storage	Network	Logs	Backups	Environment	Scale	History	Console
NETWORK								
2	0.0MiB/s	0.0MiB/s	616.0B/s	496.8B/s	163.0B/s	52.1B/s		
INTERFACES	PEAK BANDWIDTH	AVG BANDWIDTH	PEAK RX	AVG RX	PEAK TX	AVG TX		
▼ NETWORK INTERFACE: SFSTEST-CENTOS-7.9-EUMETSAT-GPU								
PRIMARY	IP ADDRESS	MAC ADDRESS	LABEL	TYPE	NETWORK	DHCP		
✓	10.0.0.127		eth0	private		✓	✎	
	10.84.15.164		eth2	sfs_00215_1 - sfs_00215_1		✓	✎	

## 5. Mount file share to VM

Now that everything is configured and permissions have been given for access, you can login into your machine and mount the shared filesystem in a VM using the following commands:

```
sudo mkdir /sfs-test # create the directory to mount the filesystem
sudo mount <PUT_YOUR_SFS_URL_HERE> /sfs-test
```

Example:

```
sudo mkdir /sfs-test # create the directory to mount the filesystem
sudo mount 10.83.81.227:/share_d161509e_2ea9_43f2_a472_b263ede7628f /sfs-test
```

This is good for a once-off test, but the mount won't be there after a reboot. To make it persistent, which you almost certainly want to do, edit the mounts table (e.g. `sudo nano /etc/fstab`) and add a line like the following:

```
10.83.81.227:/share_d161509e_2ea9_43f2_a472_b263ede7628f /sfs-test nfs defaults,rw 0 0
```

To test this, unmount the share with `sudo umount /sfs-test` and then run `sudo mount -a`. This should cause the share to mount again if you have everything correct, otherwise you'll see an error message. If it worked, it's then safe to reboot the machine to test mounting on boot up. If it didn't work, don't reboot until you've fixed it or commented out the entry as it may prevent a proper boot up and you'd have to look at the VM console in Morpheus to correct the problem.

## 6. Managing Directory Permissions

When setting up your Shared File System (SFS) share, it's important to ensure correct directory permissions to maintain security and accessibility. Below are recommendations for managing directory permissions, and **you can choose the one that best fits your requirements**

1. **Change Ownership:** Use the `chown` command to change the ownership of directories and files to specific users or groups. This ensures that the appropriate users have access to the files and directories. For example:

```
sudo chown -R desired_user:desired_group /path/to/mount/point
```

2. **Grant Write Permissions:** If needed, grant write permissions to everyone on the base directory using the `chmod` command. However, this is less secure but convenient for a small, trusted group. For example:

```
sudo chmod a+w /path/to/mount/point
```

3. **Create Subdirectories Securely:** When creating subdirectories, it's recommended to do so as the root user and then change the ownership to the target user or users. This approach enhances security, especially for single users.
4. **Utilize Shared Groups:** If multiple users need access, consider using the Unix group model and changing the ownership to a shared group. This allows multiple users to share a directory securely.

By following any of these steps, you can effectively manage directory permissions on your SFS share, ensuring both security and accessibility.