

Accessing the FIU EnviStor Storage System using Rclone

This guide provides step-by-step instructions for configuring and using Rclone to access the FIU EnviStor Ceph S3-compatible object storage system and mount your S3 bucket as a drive on your system. Alternate GUI-enabled clients are available for users (e.g. Mountain Duck <https://mountainduck.io/>), but these instructions focus on accessing EnviStor using free tools.

Prior to connecting to the EnviStor storage environment, note that you will need:

- the Access Key and Secret Key provided by an EnviStor Administrator
- the bucket name(s) for your project(s)
- to be connected to the FIU network or on the FIU VPN

Reminder: EnviStor is not to be used for the storage of HIPAA, PHI, PID, classified, or other restricted access data sets. Be mindful that EnviStor is designed for data storage and sharing, and is not intended for heavy I/O usage.

Platform-Specific Setup

macOS and Linux Setup

1. Download the official Rclone binary from <https://rclone.org/downloads> (do not use Homebrew).
2. Choose the correct macOS .zip file (ARM64 for Apple Silicon or AMD64 for Intel Macs).
3. In Terminal, unzip and install Rclone:
 - `unzip rclone-current-osx-*.zip`
 - `cd rclone-*-osx-*/`
 - `sudo cp rclone /usr/local/bin/`
 - `sudo chown root:wheel /usr/local/bin/rclone`
 - `sudo chmod 755 /usr/local/bin/rclone`
4. (Optional) To bypass Gatekeeper warnings on MacOS, run:
 - `xattr -d com.apple.quarantine /usr/local/bin/rclone`
5. For MacOS, download and install macFUSE from <https://osxfuse.github.io>.
 - Go to System Settings > Privacy & Security and click 'Allow' next to 'Benjamin Fleischer'. Reboot your Mac.
 - If the extension still won't load, reboot into Recovery Mode, open Startup Security Utility, and allow kernel extensions.
 - (Optional but recommended) Grant Full Disk Access to Terminal under System Settings > Privacy & Security.
- For Linux, download and install libfuse from <https://github.com/libfuse/libfuse>.

Windows Setup

1. Download and install Rclone for Windows from <https://rclone.org/downloads>.
2. Download and install WinFsp from <https://winfsp.dev/> to enable FUSE support.
3. Ensure both Rclone and WinFsp are in your system PATH.
4. Use Command Prompt or PowerShell to run Rclone commands.

Step-by-Step Configuration of Rclone

1. Open Rclone Config
Open your terminal and run:
`rclone config`
2. Create a New Remote
Type "n"
3. Name Your Remote
Enter a name, such as:
`envistor_ceph`
4. Option Storage
Select:
`Amazon S3 Compliant Storage Providers`
5. Choose your S3 provider
Select:
`Ceph Object Storage`
6. Authentication Method
When prompted for `env_auth`, press Enter to accept the default:
`false`
7. Enter Access Key
Enter the access key you were provided.
8. Enter Secret Access Key
Enter the secret access key you were provided.
9. Region
Enter the following :
`us-east-1`
10. Endpoint
Type the following:
`envistor.fiu.edu:8580`
11. Location Constraint
Press Enter to leave blank.
12. ACLs

Press Enter to accept the default (blank or private).

13. Server-Side Encryption

When prompted, press enter to leave empty.

14. Option `sse_kms_key_id`

Press Enter to leave blank.

15. Advanced Config

When asked if you want to edit advanced config, type “n”.

This will skip the advanced configuration step. Rclone will use defaults, which are sufficient for connecting to Envistor Ceph.

16. Save and Exit

Confirm settings by typing “y”.

Then exit with “q”.

17. Test Your Remote

Note that since you are not the owner of a bucket, you must specify the bucket name provided by an administrator

To list files in a bucket:

```
rclone ls your-remote-name:your-bucket-name
```

18. Mounting the bucket as a drive

- In MacOS or Linux:

- create the mount directory (if needed):

```
mkdir -p ~/mnt/envistor
```

- Then mount:

```
rclone mount envistor_ceph:your-bucket-name \  
~/mnt/envistor --vfs-cache-mode full
```

- In order to unmount in Linux:

```
mountfuse -u /your-mount-point
```

- In Windows:

- Instead of using a mount directory, specify a letter for the drive. (The example letter S is used.)

```
rclone mount <your-remote>:<your-bucket>/ S: \  
--vfs-cache-mode full --links
```