

Saving files in NaaVRE workflows with MinIO

G.Pelouze, S.Koulouzis, Z.Zhao @uva.nl

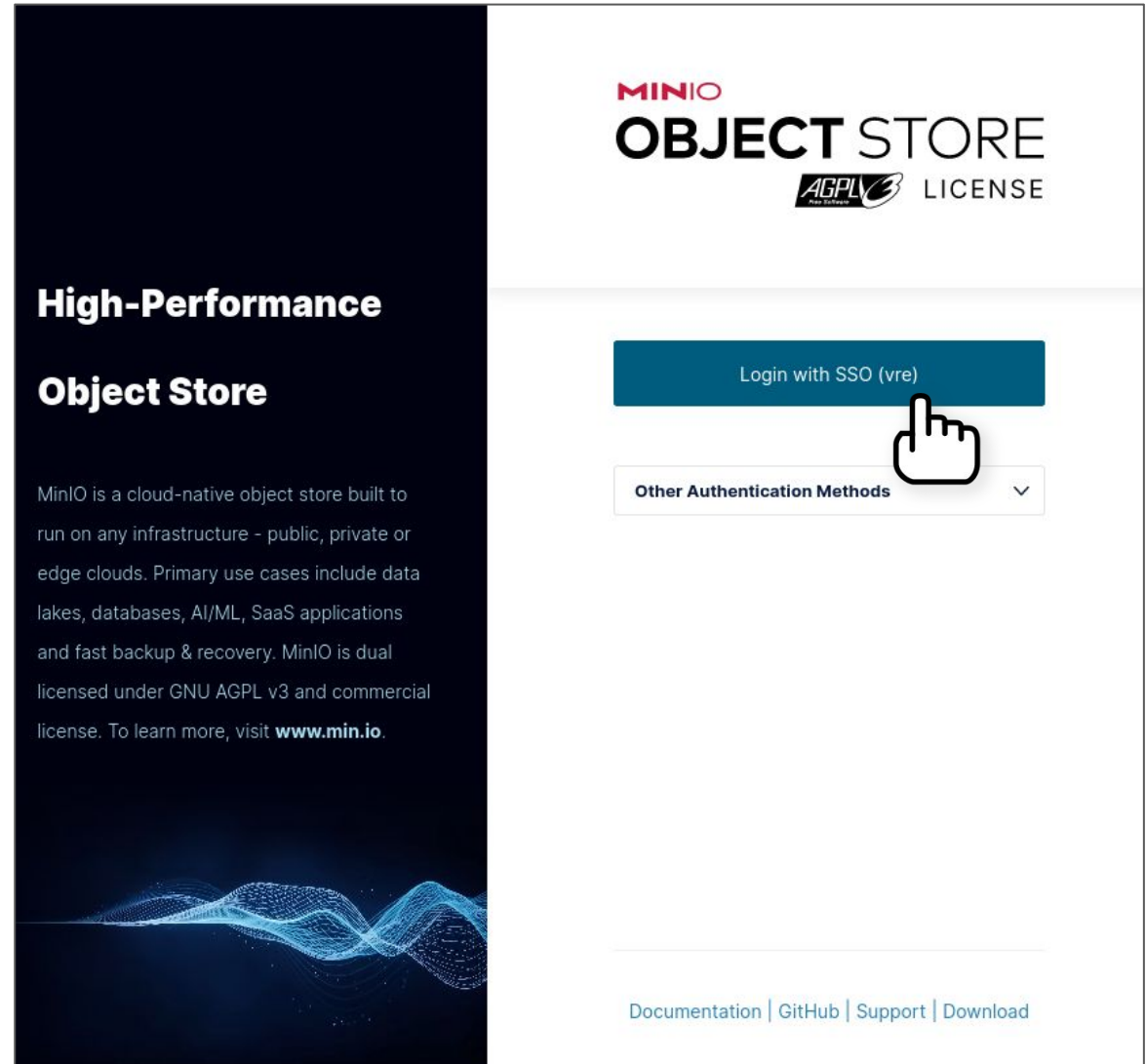


UNIVERSITY
OF AMSTERDAM

MinIO setup

Warning: This service intended for testing and development purposes. It is maintained by the LifeWatch VLIC team as “best effort”. There is **no guarantee** that your data is safe, or that the service will be available. Use at your own risk, and **keep backups of important data.**

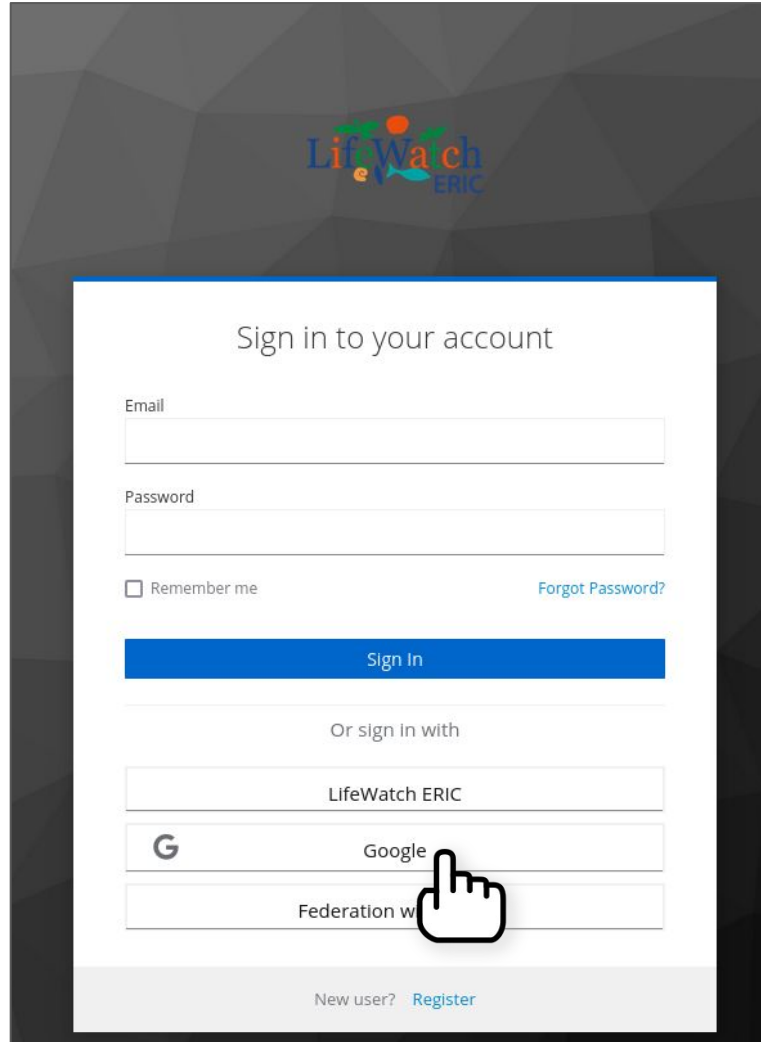
1. Open <https://scruffy.lab.uvalight.net:9001/login>
2. Click on “Login with SSO (vre)”



The screenshot displays the MinIO Object Store login interface. On the left, a dark blue sidebar contains the text "High-Performance Object Store" and a description of MinIO as a cloud-native object store. The main area is white and features the "MINIO OBJECT STORE" logo at the top, with "AGPL LICENSE" below it. A prominent blue button labeled "Login with SSO (vre)" is shown, with a hand cursor icon pointing at it. Below this button is a dropdown menu labeled "Other Authentication Methods". At the bottom of the page, there is a footer with links for "Documentation", "GitHub", "Support", and "Download".

MinIO setup

1. Choose an identity provider and login



LifeWatch ERIC

Sign in to your account

Email

Password

☐ Remember me [Forgot Password?](#)

[Sign In](#)

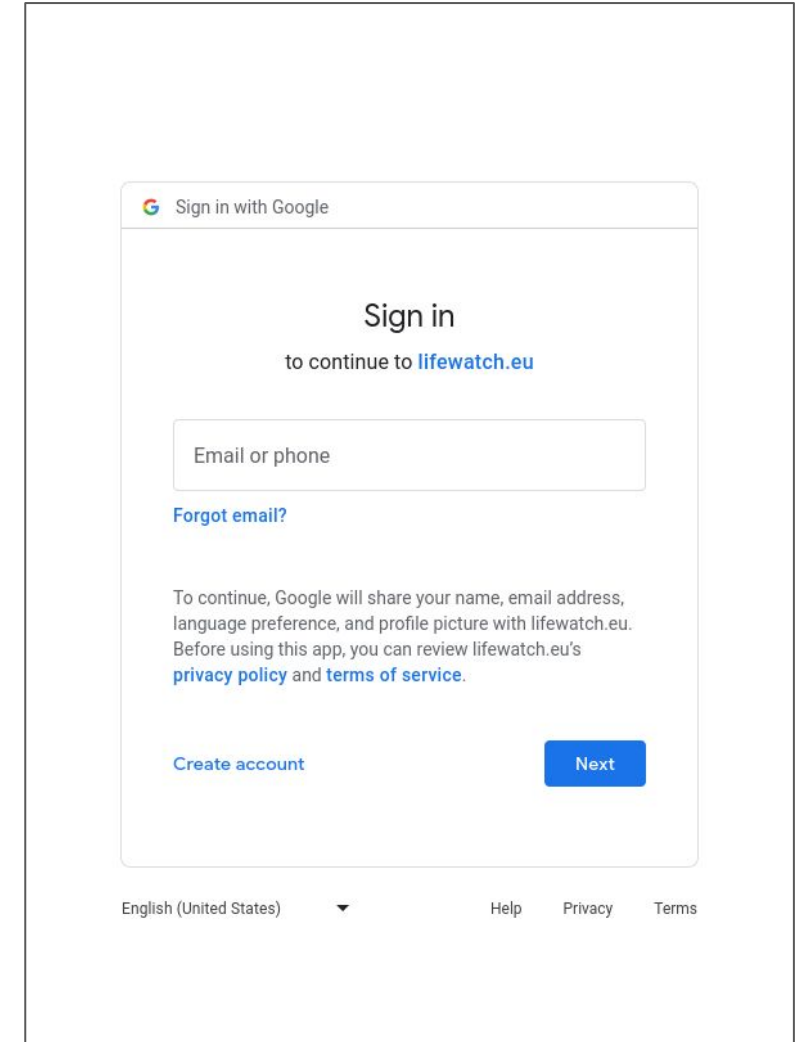
Or sign in with

[LifeWatch ERIC](#)

 [Google](#)

[Federation w](#)

New user? [Register](#)



 Sign in with Google

Sign in
to continue to [lifewatch.eu](#)

[Forgot email?](#)

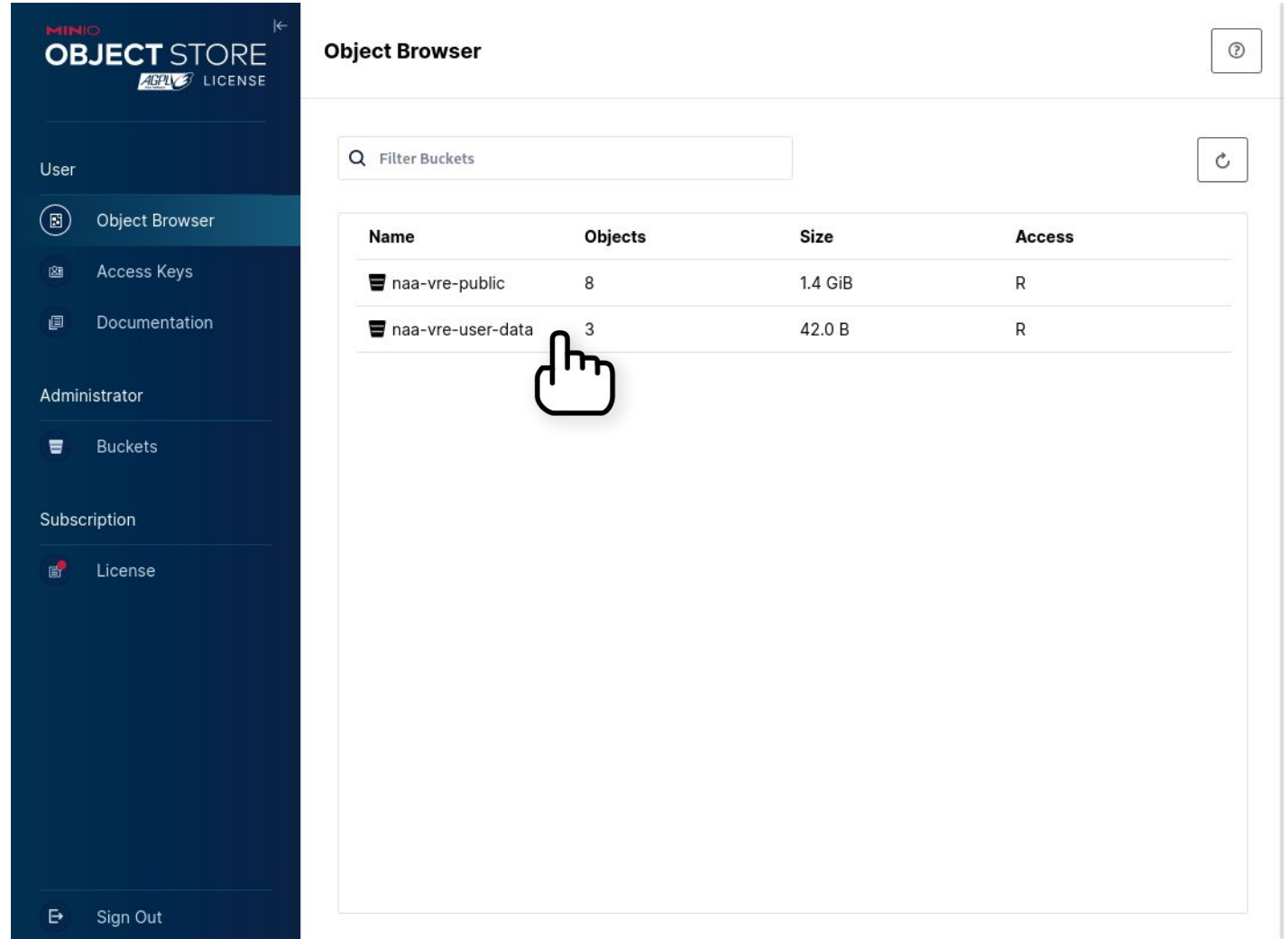
To continue, Google will share your name, email address, language preference, and profile picture with lifewatch.eu. Before using this app, you can review lifewatch.eu's [privacy policy](#) and [terms of service](#).

[Create account](#) [Next](#)

English (United States)  [Help](#) [Privacy](#) [Terms](#)

MinIO setup

1. You have access to two buckets:
 - a. naa-vre-public (read-only)
 - b. naavre-user-data:



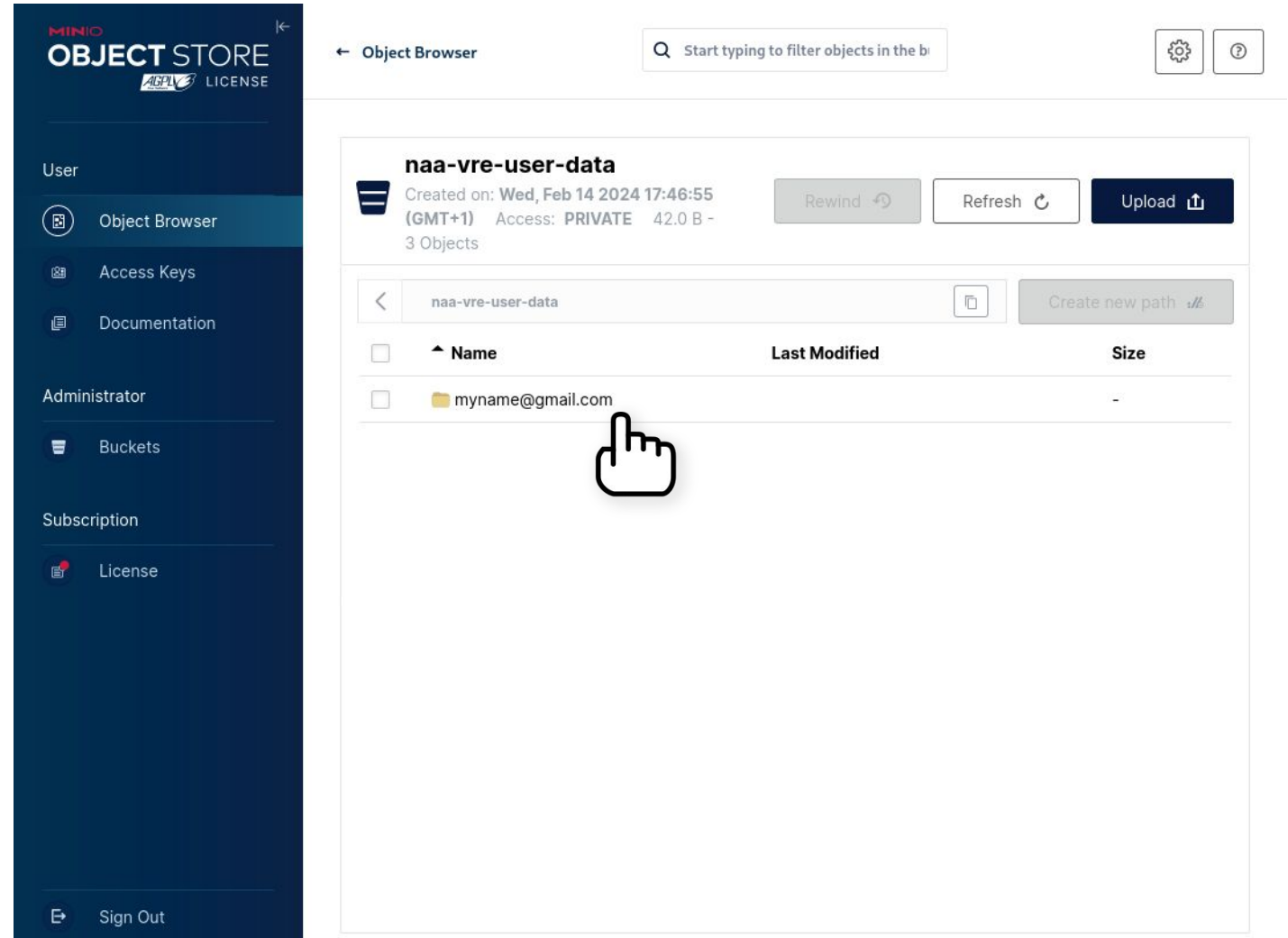
The screenshot displays the MinIO Object Store web interface. On the left is a dark blue sidebar with navigation links: Object Browser (selected), Access Keys, Documentation, Buckets, and License. The main area is titled 'Object Browser' and contains a search bar labeled 'Filter Buckets'. Below the search bar is a table listing available buckets.

Name	Objects	Size	Access
naa-vre-public	8	1.4 GiB	R
naa-vre-user-data	3	42.0 B	R

A hand cursor icon is positioned over the 'naa-vre-user-data' row, indicating it is the selected bucket.

MinIO setup

1. You have access to two buckets:
 - a. naa-vre-public (read-only)
 - b. naavre-user-data:
read and write access to the folder
bearing your username (e.g.
myname@gmail.com)



The screenshot displays the MinIO Object Store web interface. On the left is a dark blue sidebar with the 'MINIO OBJECT STORE' header and a list of navigation items: 'Object Browser' (selected), 'Access Keys', 'Documentation', 'Buckets', and 'License'. The main content area shows the 'naa-vre-user-data' bucket details, including creation time, access type, and size. Below this is a table of objects with columns for checkboxes, Name, Last Modified, and Size. A folder named 'myname@gmail.com' is listed, and a hand cursor is pointing at it. The interface also includes a search bar at the top right and buttons for 'Rewind', 'Refresh', and 'Upload'.

MinIO setup



Create an access key

- 1. Select “Access Keys”

MINIO

OBJECT STORE

AGPLV3 LICENSE

User

Object Browser

Access Keys

Document

Administrator

Buckets

Subscription

License

Sign Out

Object Browser

Start typing to filter objects in the b

Settings

Help

naa-vre-user-data

Created on: Wed, Feb 14 2024 17:46:55 (GMT+1) Access: PRIVATE 42.0 B - 3 Objects

Rewind

Refresh

Upload

naa-vre-user-data

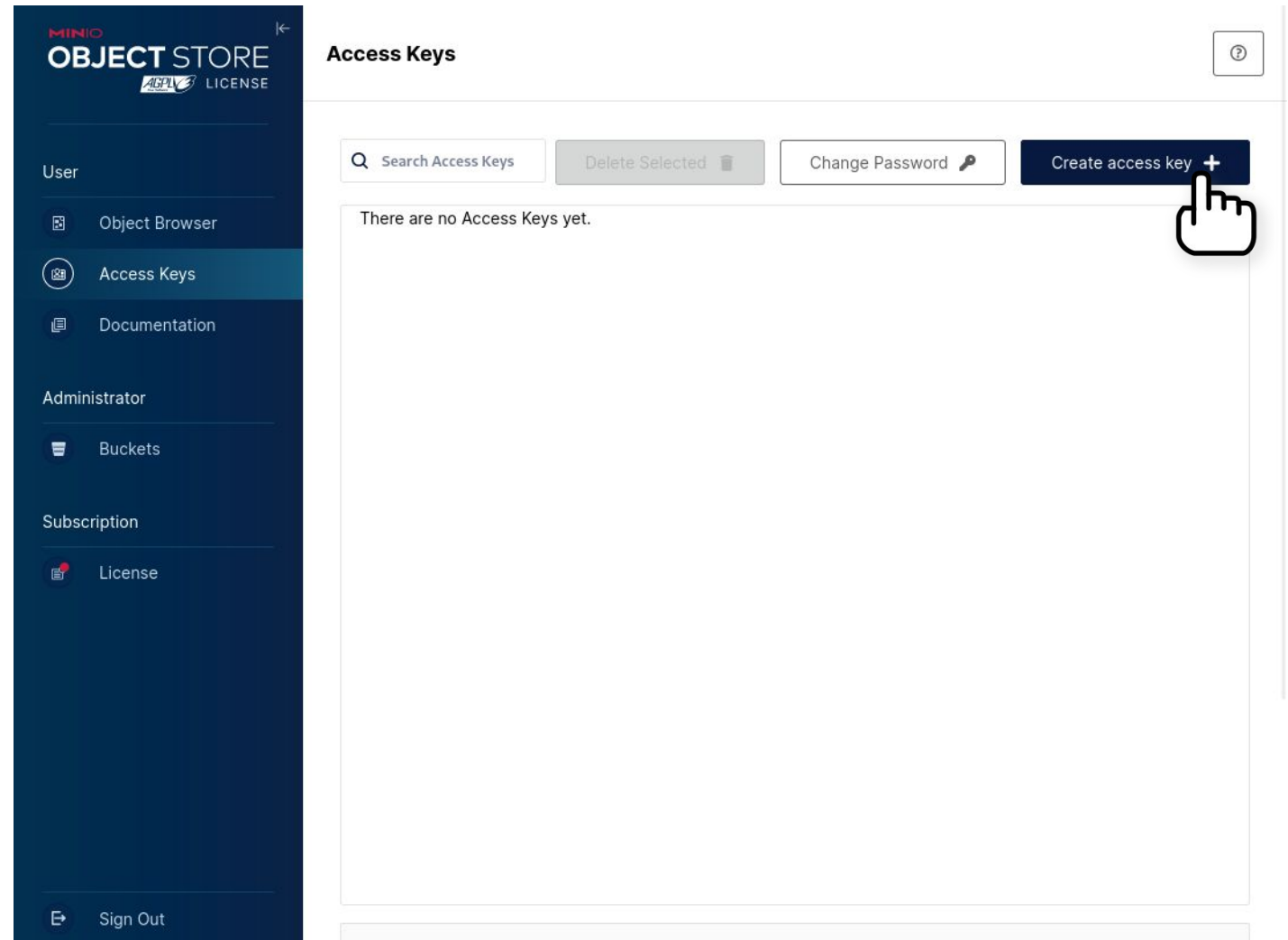
Create new path

☐	Name	Last Modified	Size
☐	myname@gmail.com		-

MinIO setup

Create an access key

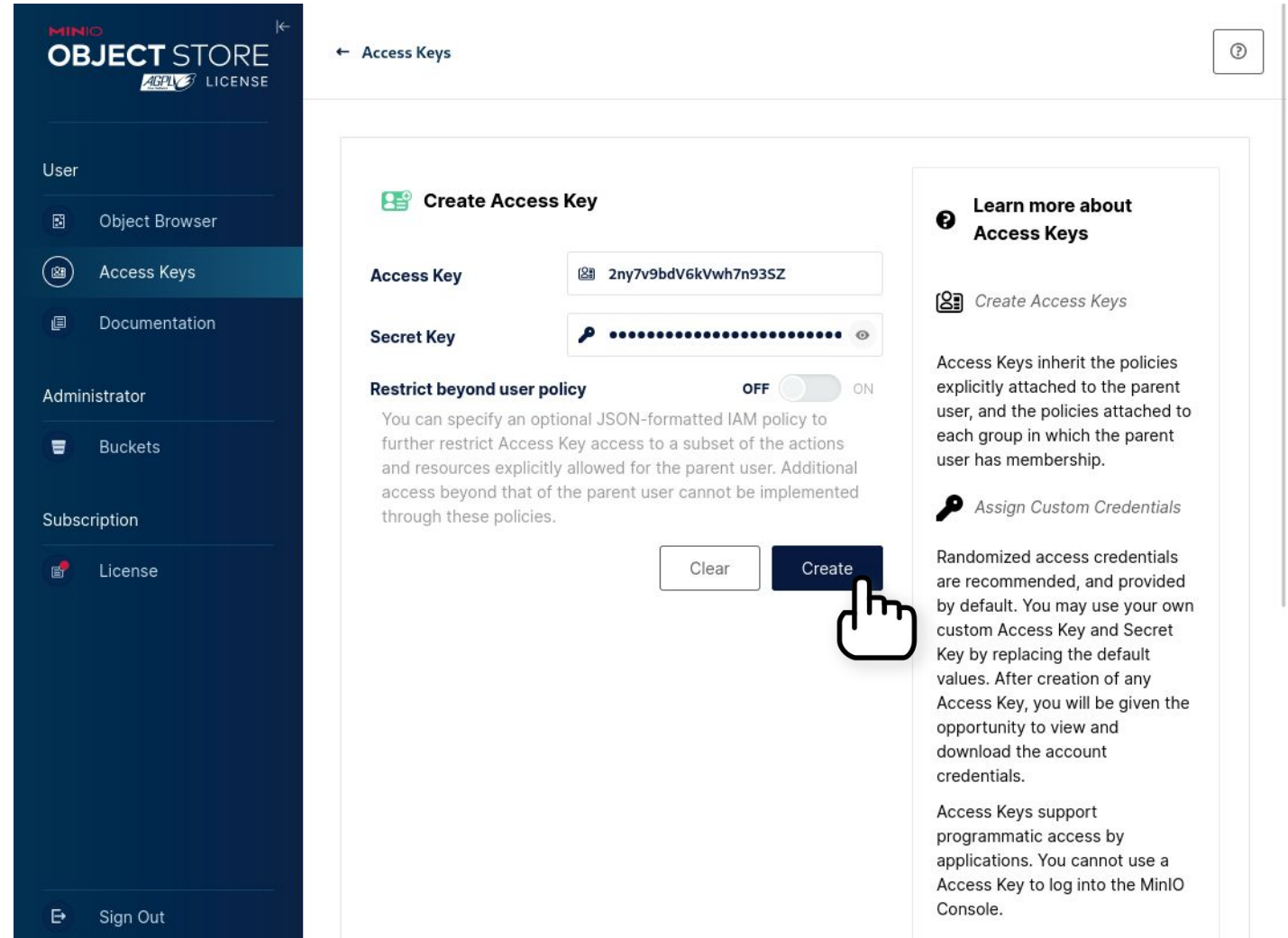
1. Select “Access Keys”
2. “Create access key”



MinIO setup

Create an access key

1. Select “Access Keys”
2. “Create access key”
3. “Create”



MINIO OBJECT STORE LICENSE

← Access Keys

Create Access Key

Access Key 2ny7v9bdV6kVwh7n93SZ

Secret Key

Restrict beyond user policy OFF ☐ ON

You can specify an optional JSON-formatted IAM policy to further restrict Access Key access to a subset of the actions and resources explicitly allowed for the parent user. Additional access beyond that of the parent user cannot be implemented through these policies.

[Clear](#) [Create](#)

Learn more about Access Keys

[Create Access Keys](#)

Access Keys inherit the policies explicitly attached to the parent user, and the policies attached to each group in which the parent user has membership.

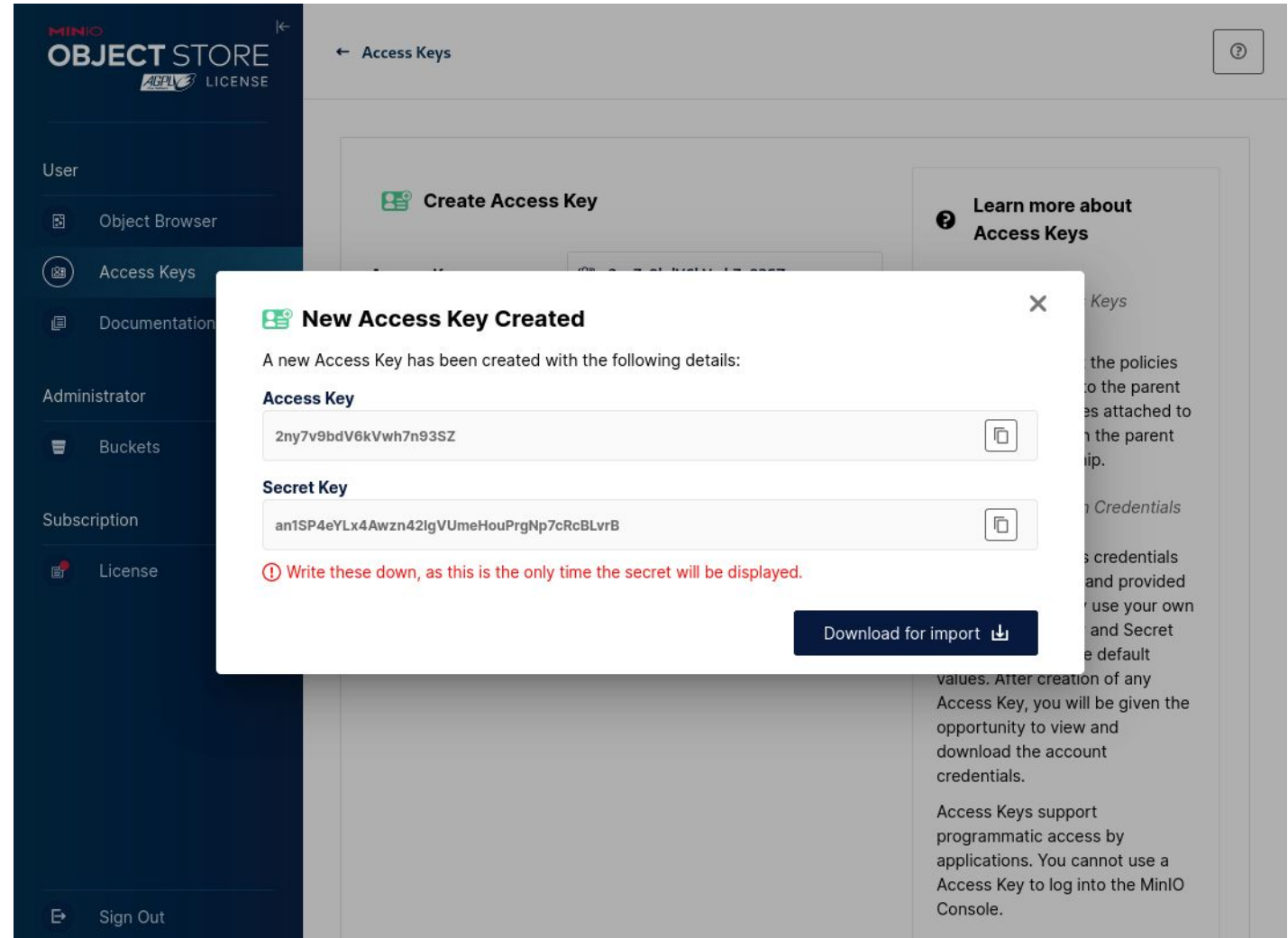
[Assign Custom Credentials](#)

Randomized access credentials are recommended, and provided by default. You may use your own custom Access Key and Secret Key by replacing the default values. After creation of any Access Key, you will be given the opportunity to view and download the account credentials.

Access Keys support programmatic access by applications. You cannot use a Access Key to log into the MinIO Console.

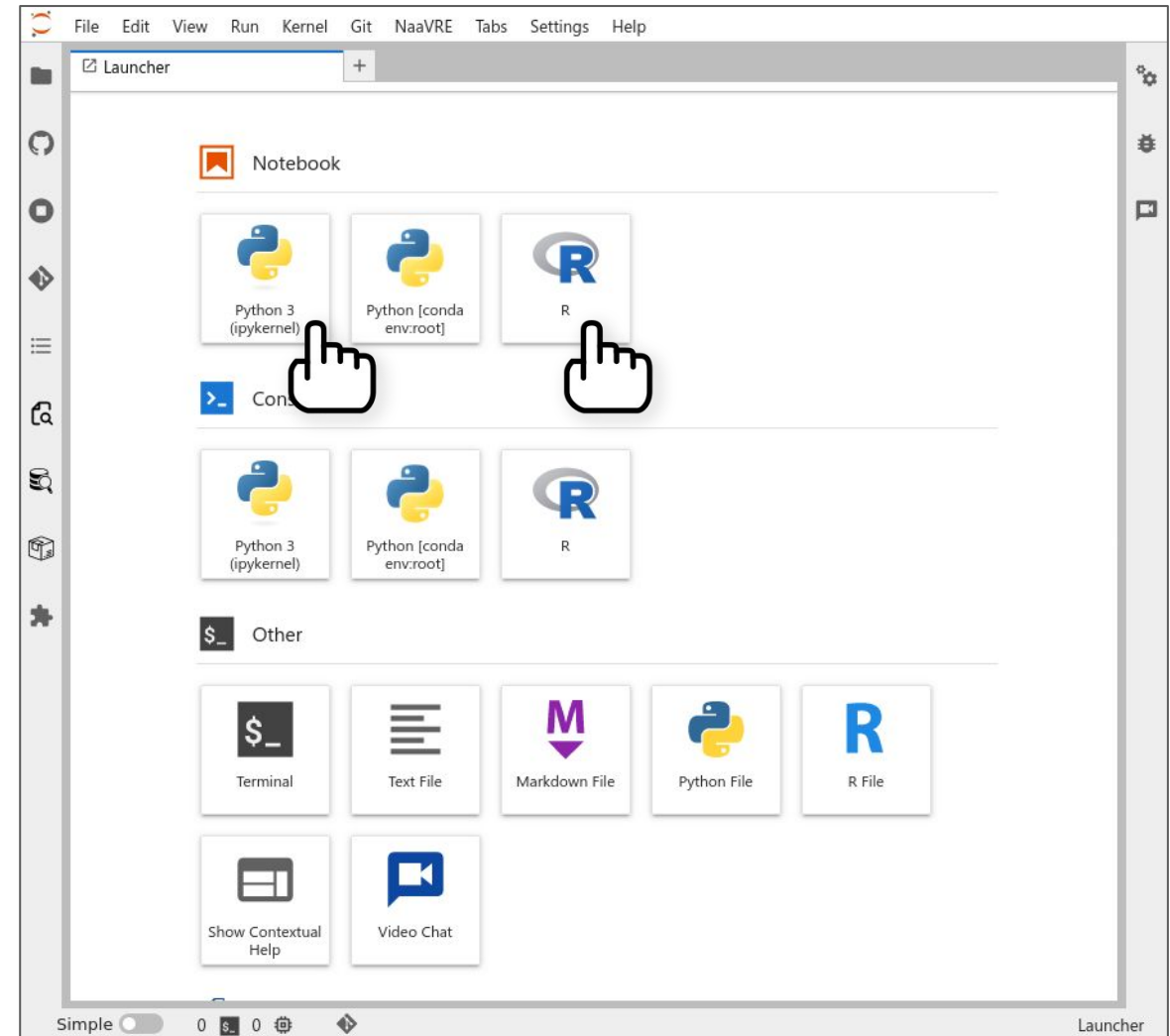
Create an access key

1. Select “Access Keys”
2. “Create access key”
3. “Create”
4. Save the keys for later



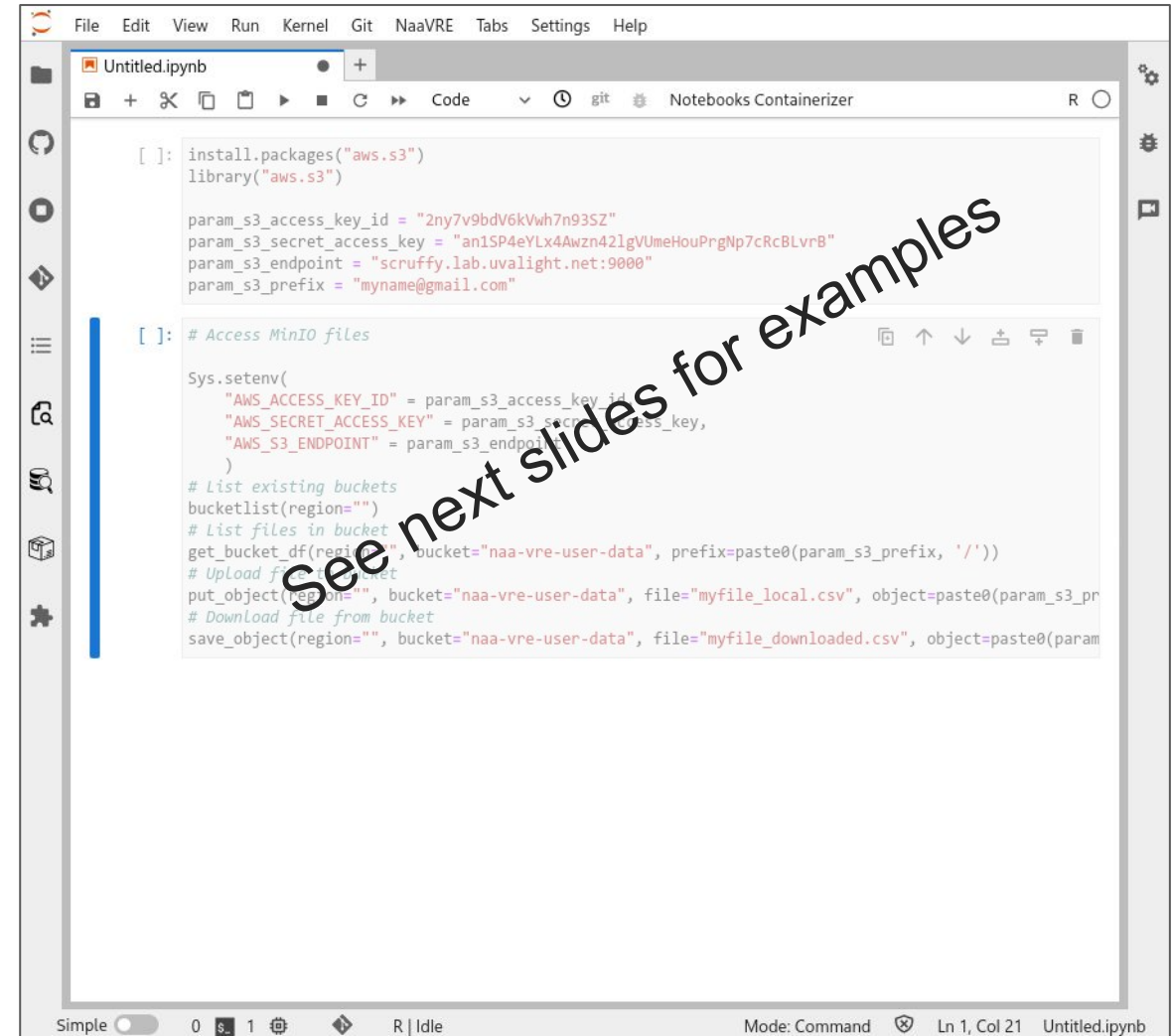
Use MinIO in NaaVRE

1. Open your favourite VRE (see the [NaaVRE getting started tutorial](#))
2. Create a new notebook



Use MinIO in NaaVRE

1. Open your favourite VRE (see the [NaaVRE getting started tutorial](#))
2. Create a new notebook
3. Access MinIO files



The screenshot shows a Jupyter Notebook titled 'Untitled.ipynb' with the following code:

```
[ ]: install.packages("aws.s3")
library("aws.s3")

param_s3_access_key_id = "2ny7v9bdV6kVwh7n93SZ"
param_s3_secret_access_key = "an1SP4eYLx4Awzn42lgVUmeHouPrgNp7cRcBLvrB"
param_s3_endpoint = "scruffy.lab.uvalight.net:9000"
param_s3_prefix = "myname@gmail.com"

[ ]: # Access MinIO files

Sys.setenv(
  "AWS_ACCESS_KEY_ID" = param_s3_access_key_id,
  "AWS_SECRET_ACCESS_KEY" = param_s3_secret_access_key,
  "AWS_S3_ENDPOINT" = param_s3_endpoint
)

# List existing buckets
bucketlist(region="")
# List files in bucket
get_bucket_df(region="", bucket="naa-vre-user-data", prefix=paste0(param_s3_prefix, '/'))
# Upload file to bucket
put_object(region="", bucket="naa-vre-user-data", file="myfile_local.csv", object=paste0(param_s3_prefix, "myfile_local.csv"))
# Download file from bucket
save_object(region="", bucket="naa-vre-user-data", file="myfile_downloaded.csv", object=paste0(param_s3_prefix, "myfile_downloaded.csv"))
```

A large diagonal watermark text "see next slides for examples" is overlaid on the code.



R example

```
# Configuration (do not containerize this cell)
```

```
param_minio_endpoint = "scruffy.lab.uvalight.net:9000"  
param_minio_region = "nl-uvalight"  
param_minio_user_prefix = "myname@gmail.com" # Your personal folder in the naa-vre-user-data bucket in MinIO  
secret_minio_access_key = "2ny7v9bdV6kVwh7n93SZ"  
secret_minio_secret_key = "an1SP4eYLx4Awzn42lgVUmeHouPrgNp7cRcBLvrB"
```

```
# Access MinIO files
```

```
install.packages("aws.s3")  
library("aws.s3")  
Sys.setenv("AWS_S3_ENDPOINT" = param_minio_endpoint,  
           "AWS_DEFAULT_REGION" = param_minio_region,  
           "AWS_ACCESS_KEY_ID" = secret_minio_access_key,  
           "AWS_SECRET_ACCESS_KEY" = secret_minio_secret_key)
```

```
# List existing buckets: get a list of all available buckets
```

```
bucketlist()
```

```
# List files in bucket: get a list of files in a given bucket. For bucket `naa-vre-user-data`, only list files in your personal folder
```

```
get_bucket_df(bucket="naa-vre-user-data", prefix=paste0(param_minio_user_prefix, "/"))
```

```
# Upload file to bucket: uploads `myfile_local.csv` to your personal folder on MinIO as `myfile.csv`
```

```
put_object(bucket="naa-vre-user-data", file="myfile_local.csv", object=paste0(param_minio_user_prefix, "/myfile.csv"))
```

```
# Download file from bucket: download `myfile.csv` from your personal folder on MinIO and save it locally as `myfile_downloaded.csv`
```

```
save_object(bucket="naa-vre-user-data", object=paste0(param_minio_user_prefix, "/myfile.csv"), file="myfile_downloaded.csv")
```



Python example

```
# Configuration (do not containerize this cell)
```

```
param_minio_endpoint = "scruffy.lab.uvalight.net:9000"  
param_minio_user_prefix = "myname@gmail.com" # Your personal folder in the naa-vre-user-data bucket in MinIO  
secret_minio_access_key = "2ny7v9bdV6kVwh7n93SZ"  
secret_minio_secret_key = "an1SP4eYLx4Awzn42lgVUmeHouPrgNp7cRcBLvrB"
```

```
# Access MinIO files
```

```
from minio import Minio  
mc = Minio(endpoint=param_minio_endpoint,  
            access_key=secret_minio_access_key,  
            secret_key=secret_minio_secret_key)
```

```
# List existing buckets: get a list of all available buckets
```

```
mc.list_buckets()
```

```
# List files in bucket: get a list of files in a given bucket. For bucket `naa-vre-user-data`, only list files in your personal folder
```

```
objects = mc.list_objects("naa-vre-user-data", prefix=f"{param_minio_user_prefix}/")
```

```
for obj in objects:
```

```
    print(obj.object_name)
```

```
# Upload file to bucket: uploads `myfile_local.csv` to your personal folder on MinIO as `myfile.csv`
```

```
mc.fput_object(bucket_name="naa-vre-user-data", file_path="myfile_local.csv", object_name=f"{param_minio_user_prefix}/myfile.csv")
```

```
# Download file from bucket: download `myfile.csv` from your personal folder on MinIO and save it locally as `myfile_downloaded.csv`
```

```
mc.fget_object(bucket_name="naa-vre-user-data", object_name=f"{param_minio_user_prefix}/myfile.csv", file_path="myfile_downloaded.csv")
```

