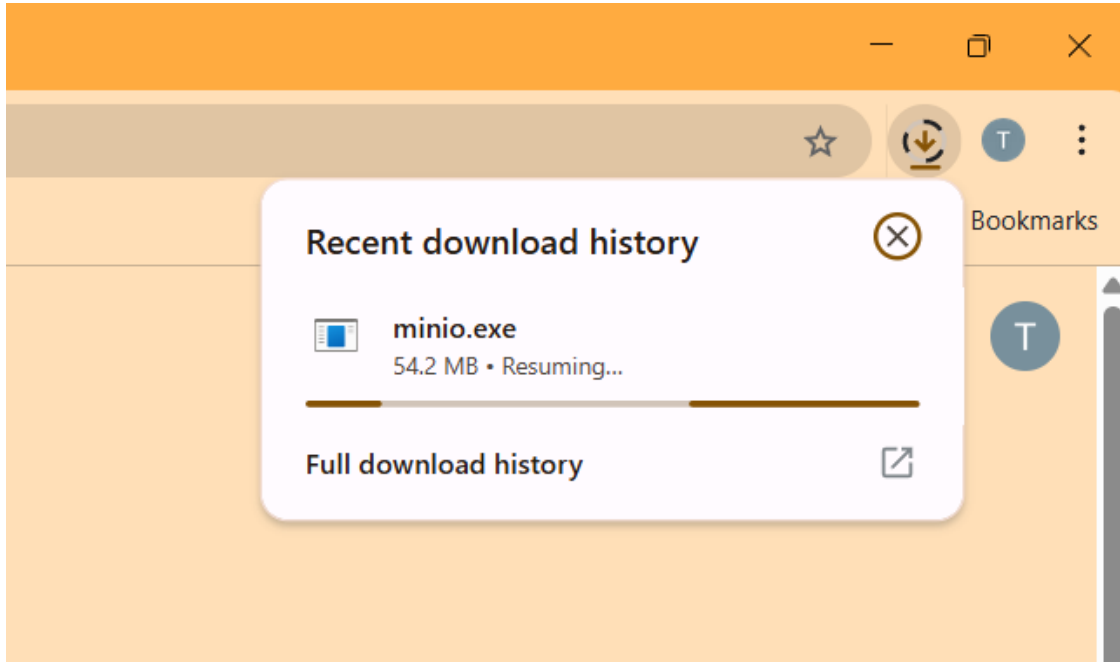
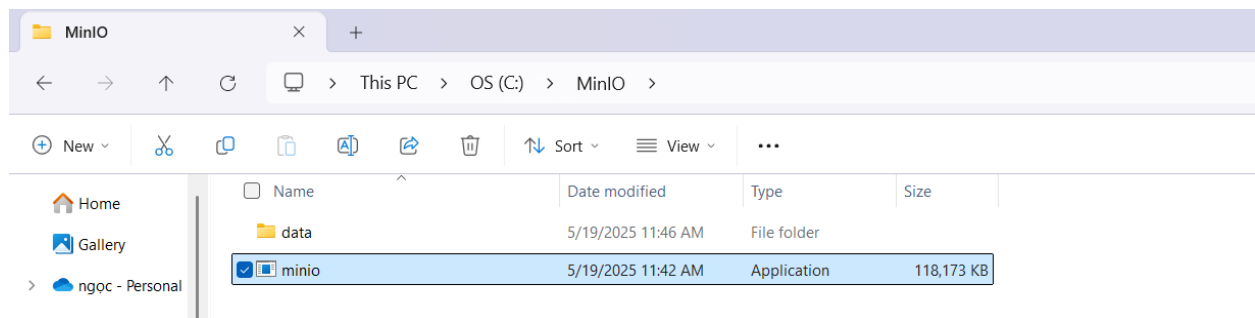


LAB 6.1. Sử dụng MinIO để mô phỏng AWS S3

Bước 1: Tải MinIO Server cho Windows



Bước 2: Tạo thư mục lưu trữ dữ liệu C:\MinIO\data



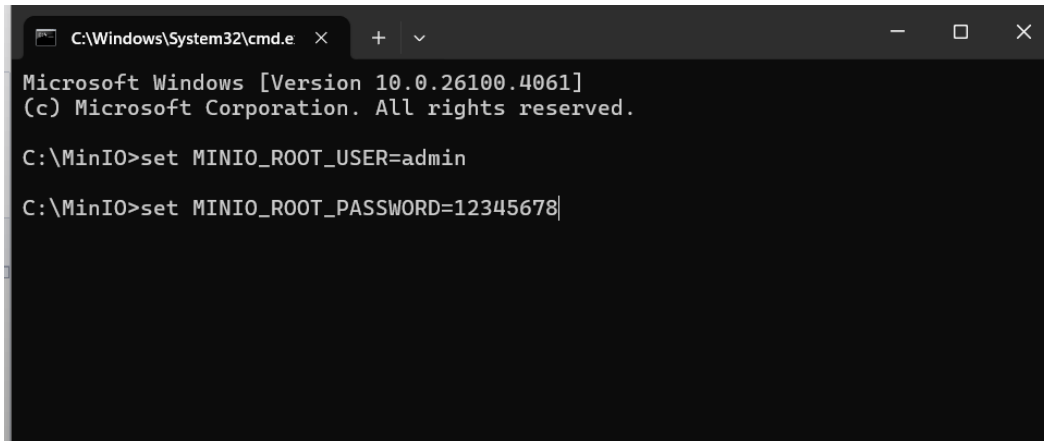
Bước 3: Khởi chạy MinIO:

Trong chế độ Command Prompt (CMD ở chế độ Administrator)

```
cd C:\MinIO set MINIO_ROOT_USER=admin↵ set
```

```
MINIO_ROOT_PASSWORD=12345678↵
```

```
minio.exe server C:\MinIO\data↵
```



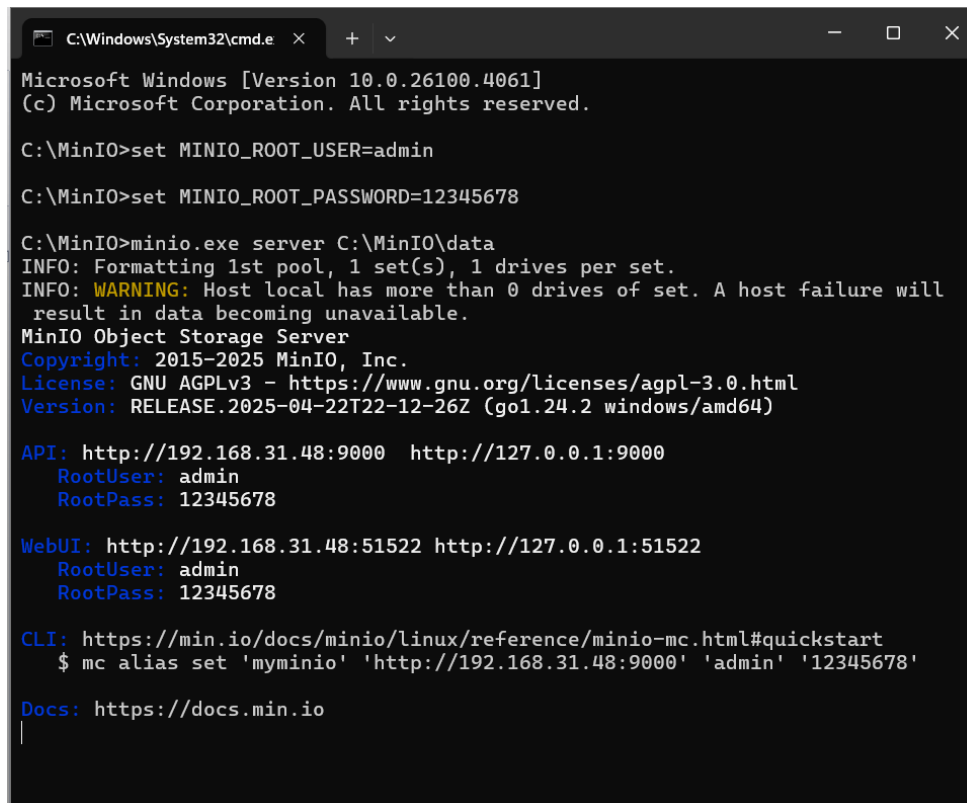
```
C:\Windows\System32\cmd.e  x  +  v

Microsoft Windows [Version 10.0.26100.4061]
(c) Microsoft Corporation. All rights reserved.

C:\MinIO>set MINIO_ROOT_USER=admin

C:\MinIO>set MINIO_ROOT_PASSWORD=12345678|
```

- Kết quả thực hiện:



```
C:\Windows\System32\cmd.e  x  +  v

Microsoft Windows [Version 10.0.26100.4061]
(c) Microsoft Corporation. All rights reserved.

C:\MinIO>set MINIO_ROOT_USER=admin

C:\MinIO>set MINIO_ROOT_PASSWORD=12345678

C:\MinIO>minio.exe server C:\MinIO\data
INFO: Formatting 1st pool, 1 set(s), 1 drives per set.
INFO: WARNING: Host local has more than 0 drives of set. A host failure will
result in data becoming unavailable.
MinIO Object Storage Server
Copyright: 2015-2025 MinIO, Inc.
License: GNU AGPLv3 - https://www.gnu.org/licenses/agpl-3.0.html
Version: RELEASE.2025-04-22T22-12-26Z (go1.24.2 windows/amd64)

API: http://192.168.31.48:9000 http://127.0.0.1:9000
RootUser: admin
RootPass: 12345678

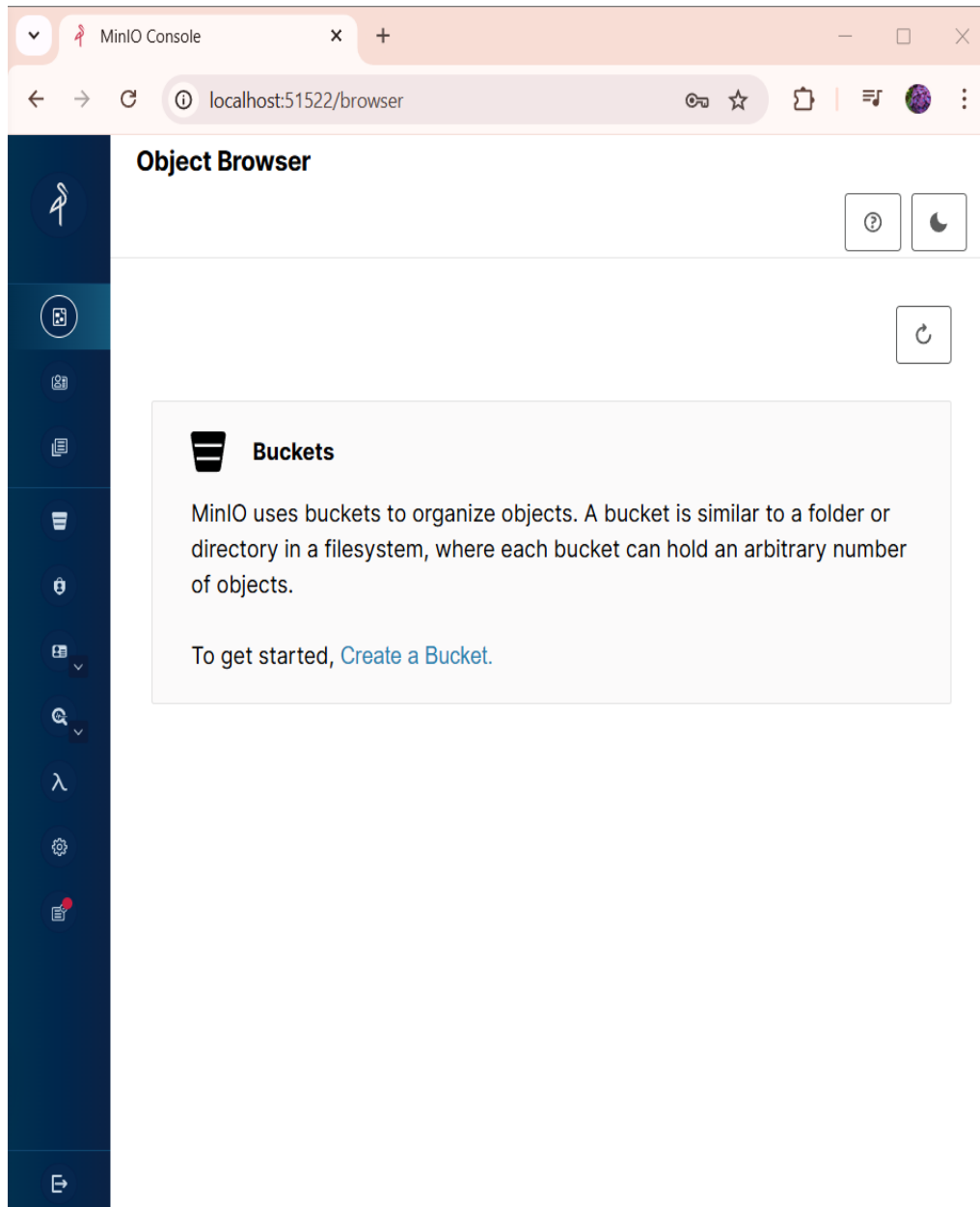
WebUI: http://192.168.31.48:51522 http://127.0.0.1:51522
RootUser: admin
RootPass: 12345678

CLI: https://min.io/docs/minio/linux/reference/minio-mc.html#quickstart
$ mc alias set 'myminio' 'http://192.168.31.48:9000' 'admin' '12345678'

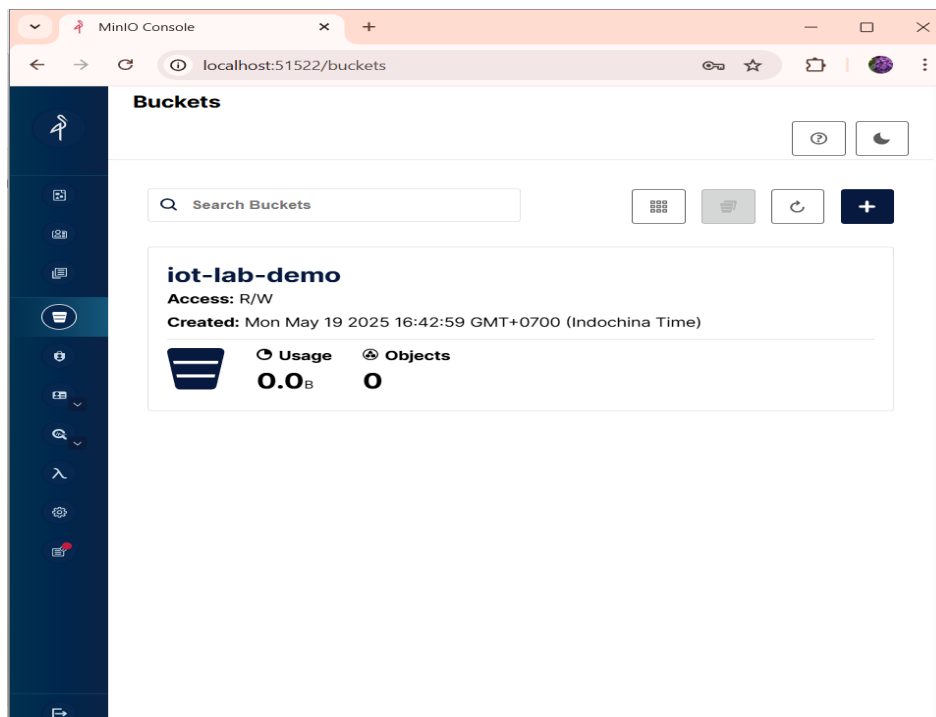
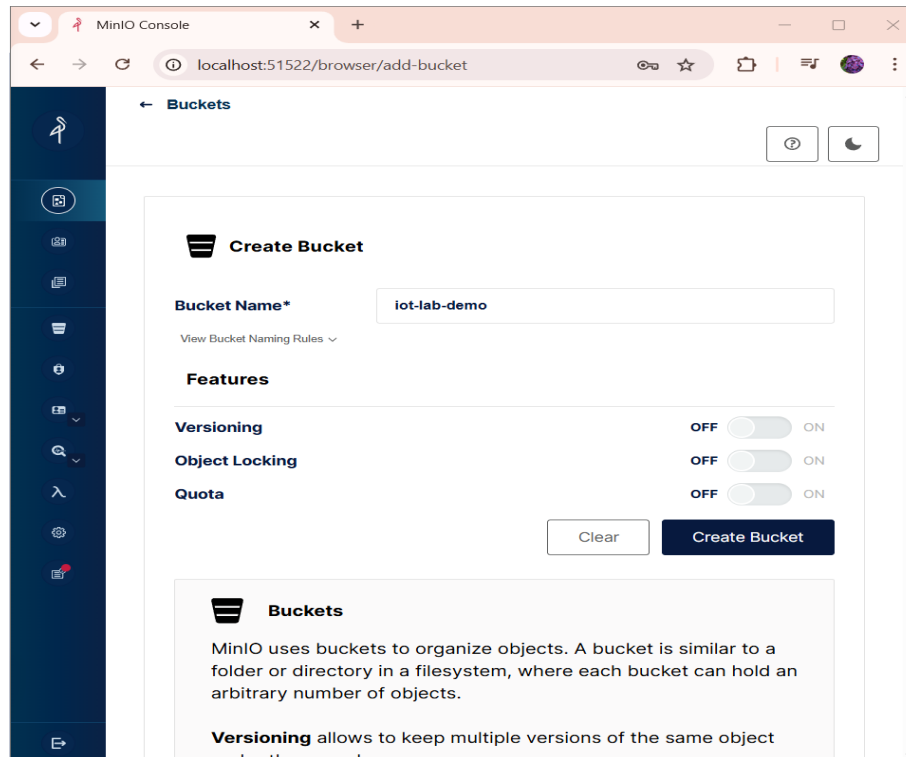
Docs: https://docs.min.io
|
```

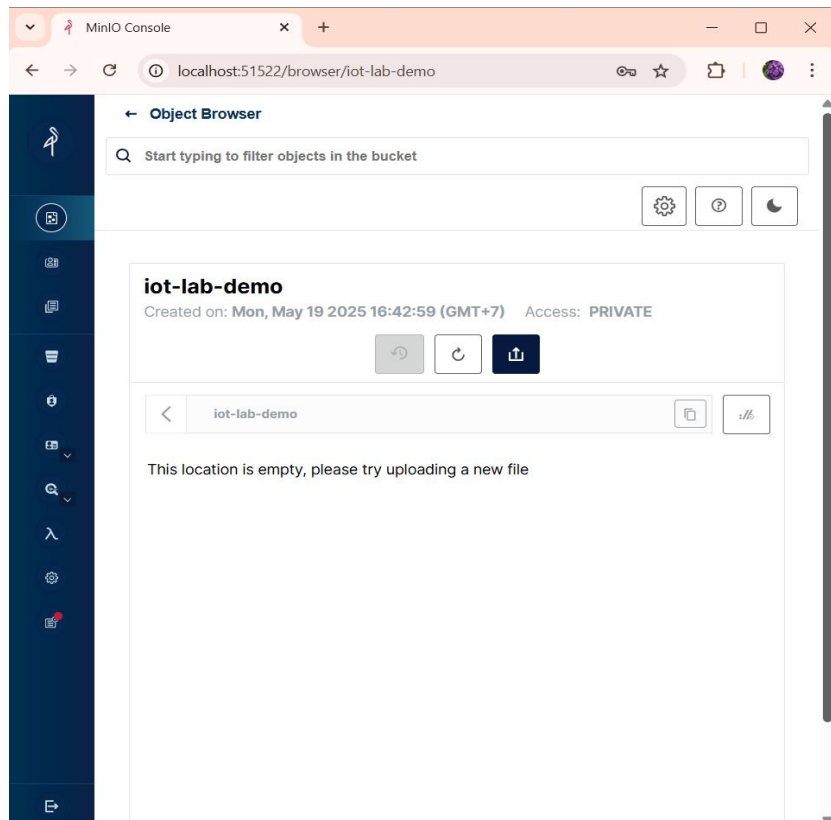
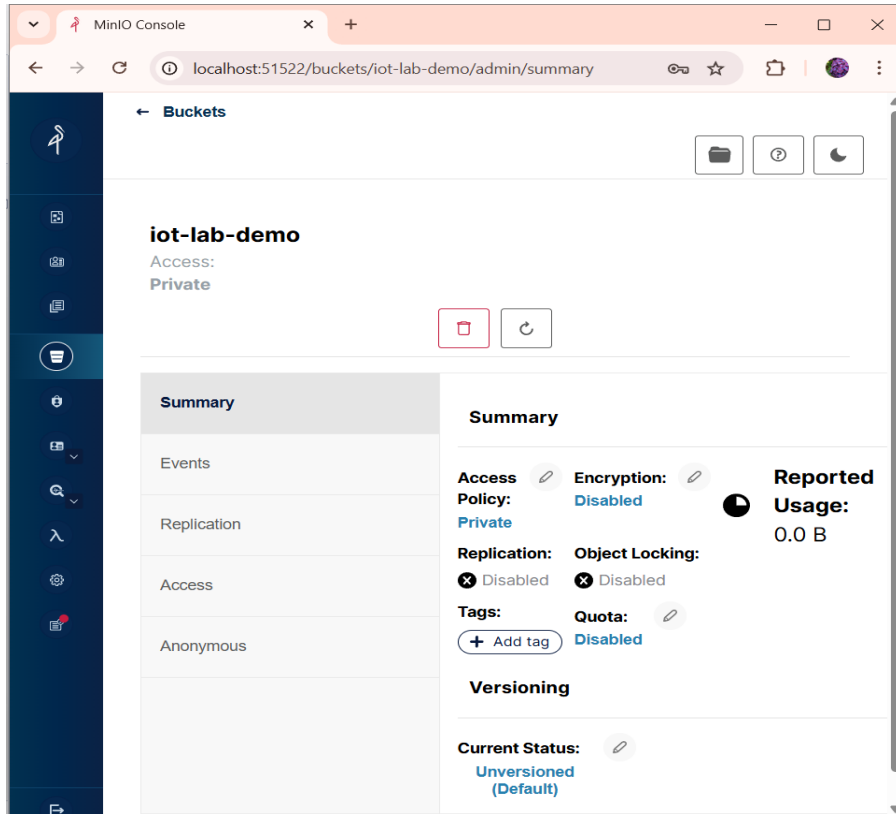
Bước 4: Tạo bucket và tải file lên:

- Truy cập `http://localhost:9000` bằng trình duyệt.
- Đăng nhập với tài khoản: admin, mật khẩu: 12345678

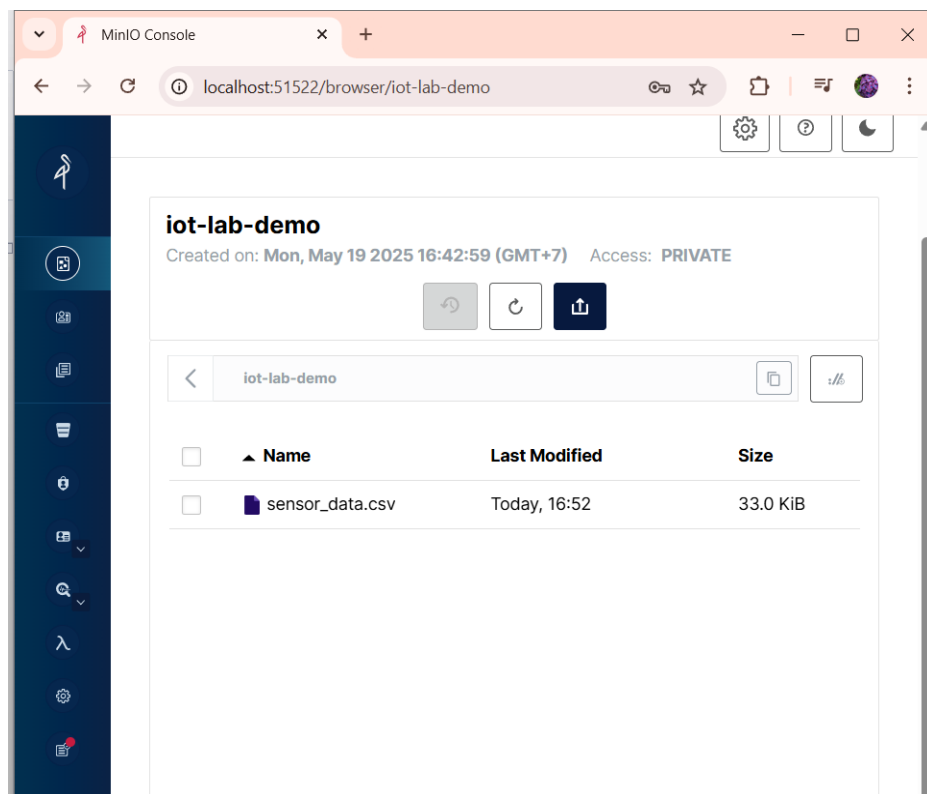
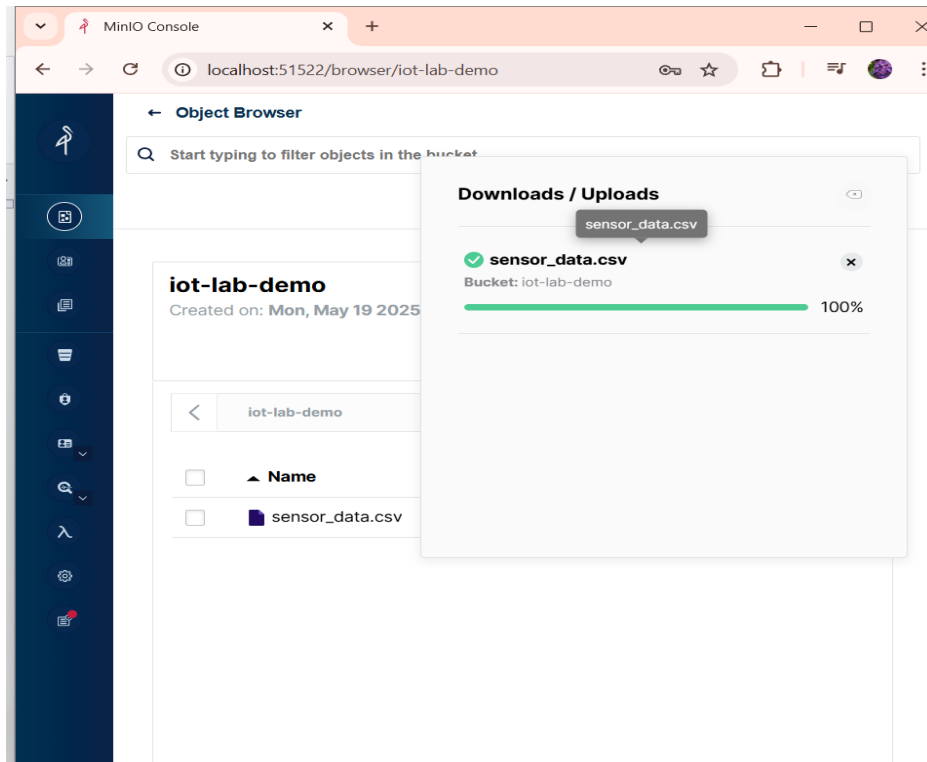


- Chọn **Create Bucket** → đặt tên (ví dụ: **iot-lab-demo**)





- Mở bucket vừa tạo, nhấn Upload → chọn file từ máy (VD: temperature.csv, sensor_data.csv).



Bước 5: Tạo user và gán quyền bằng Policies

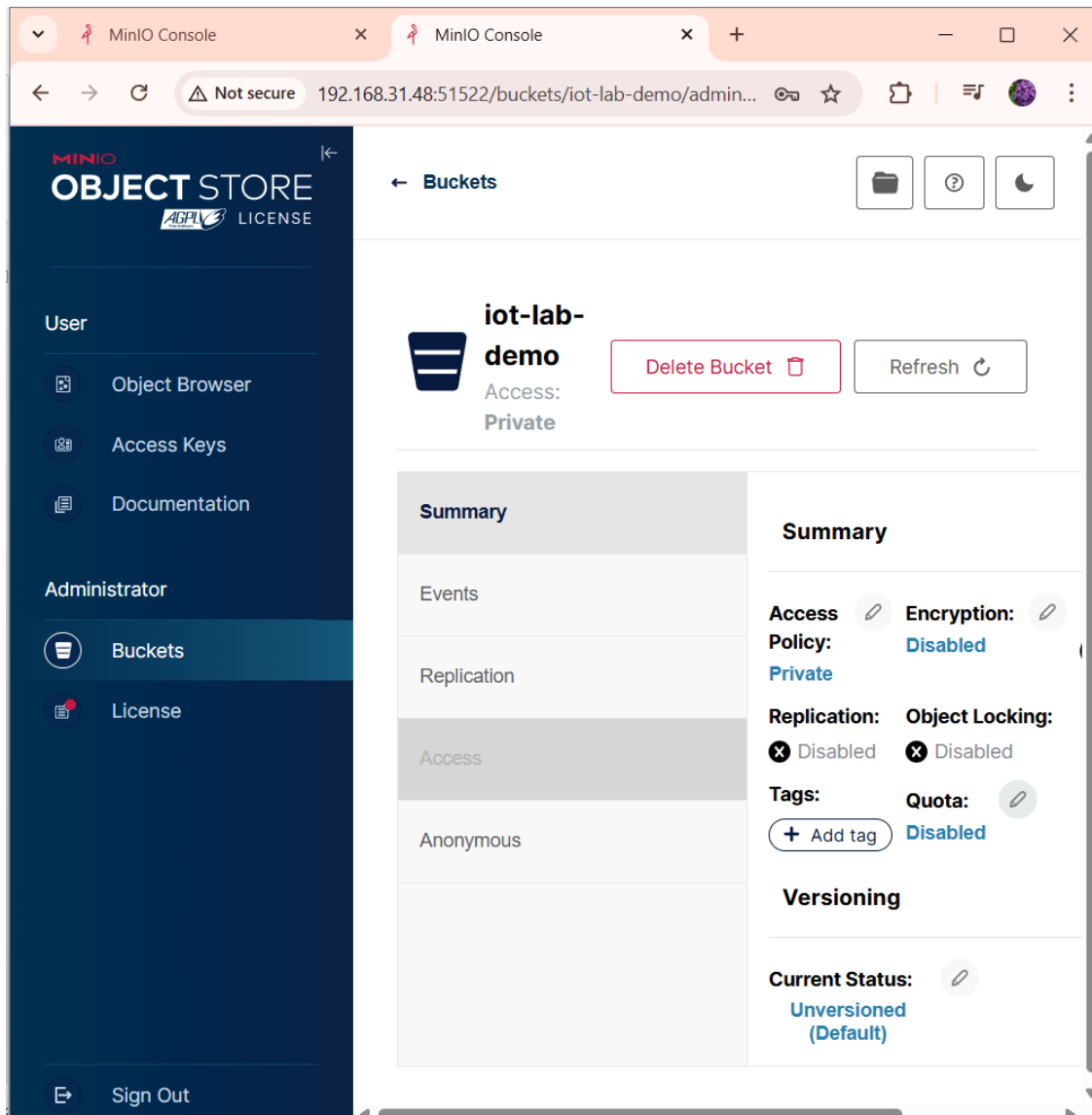
- Vào tab “Policies” → đảm bảo các policy như readonly, readwrite, writeonly đã có sẵn.
- Vào menu “Identity” > “Users” → nhấn “+ Create User”.
- Tạo user mới:
- Access Key: student01
- password: abc12345
- Policy: readonly B4.
- Nhấn “Create User”.

The screenshot shows the AWS IAM console interface for creating a new user. The left-hand navigation pane is visible, with the 'Users' option selected under the 'Identity' section. The main panel is titled 'Create User' and contains the following elements:

- User Name:** A text input field containing 'student01'.
- Password:** A text input field containing 'abc12345' with a toggle to show or hide the password.
- Assign Policies:** A search bar with the placeholder text 'Start typing to se'.
- Select Policy:** A list of available policies with checkboxes:
 - ☐ consoleAdmin
 - ☐ diagnostics
 - ☐ readonly
 - ☐ readwrite
- No Groups Available:** A message indicating that no groups are available for selection.
- Buttons:** 'Clear' and 'Save' buttons at the bottom right.

Bước 6: Download file qua GUI bằng tài khoản mới

- Đăng nhập lại bằng tài khoản student01



- **Nhận xét:** Khi đăng nhập bằng tài khoản student01, chúng ta không nhìn thấy được bucket iot-lab-demo! Do chỉ gán cho student01 quyền read logout sau đó đăng nhập lại và gán quyền read, write cho user student01 như sau:
- Đăng nhập lại với quyền admin trong giao diện GUI chọn identity--->user

MINIO

OBJECT STORE

ADDITIONAL LICENSE

User

Object Browser

Access Keys

Documentation

Administrator

Buckets

Policies

Identity

Users

Groups

Users

Search Users

Delete Selected

Add to Group

Create User +

Select Access Key

☐ student01

Set Policies

X

Assign Policies

Start typing to search for a Policy

Select Policy

☐ consoleAdmin

☐ diagnostics

☐ readonly

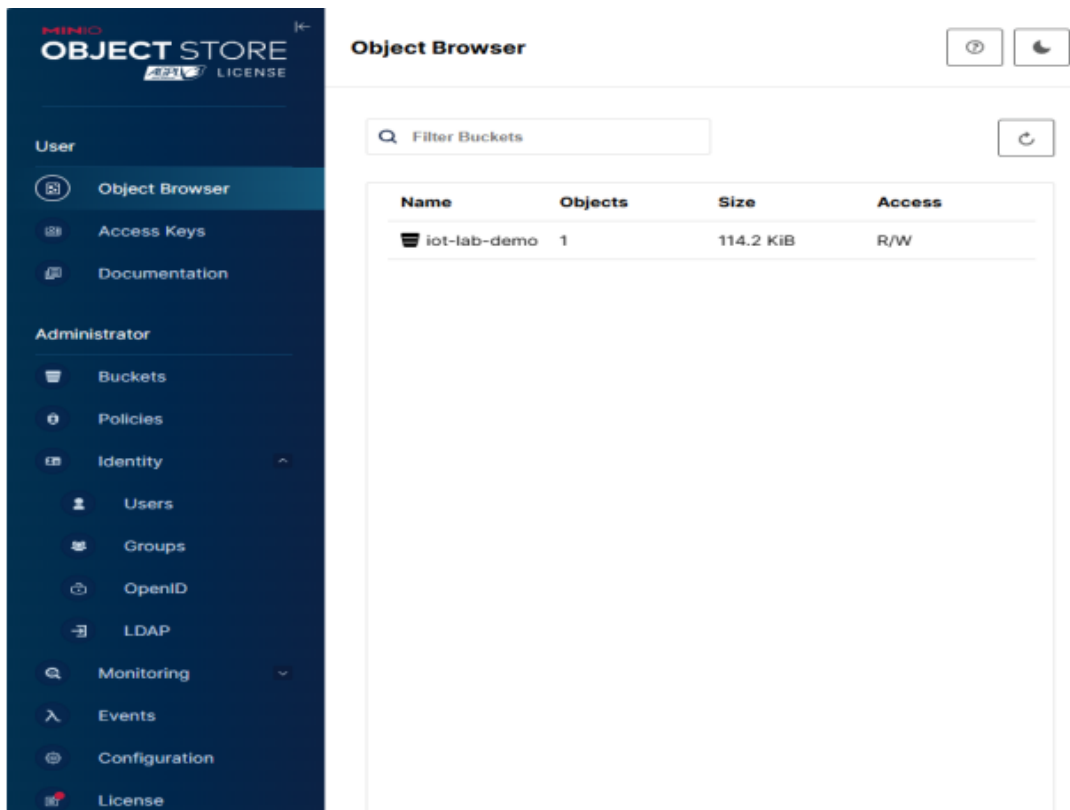
☒ readwrite

Reset

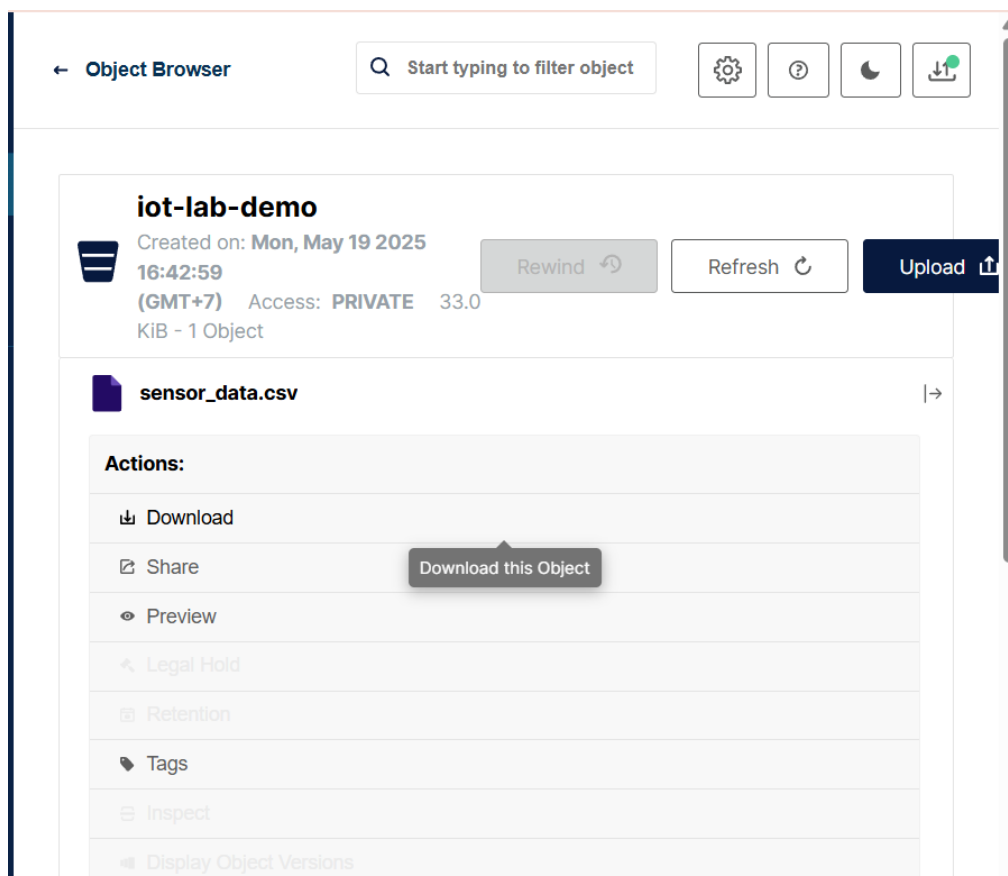
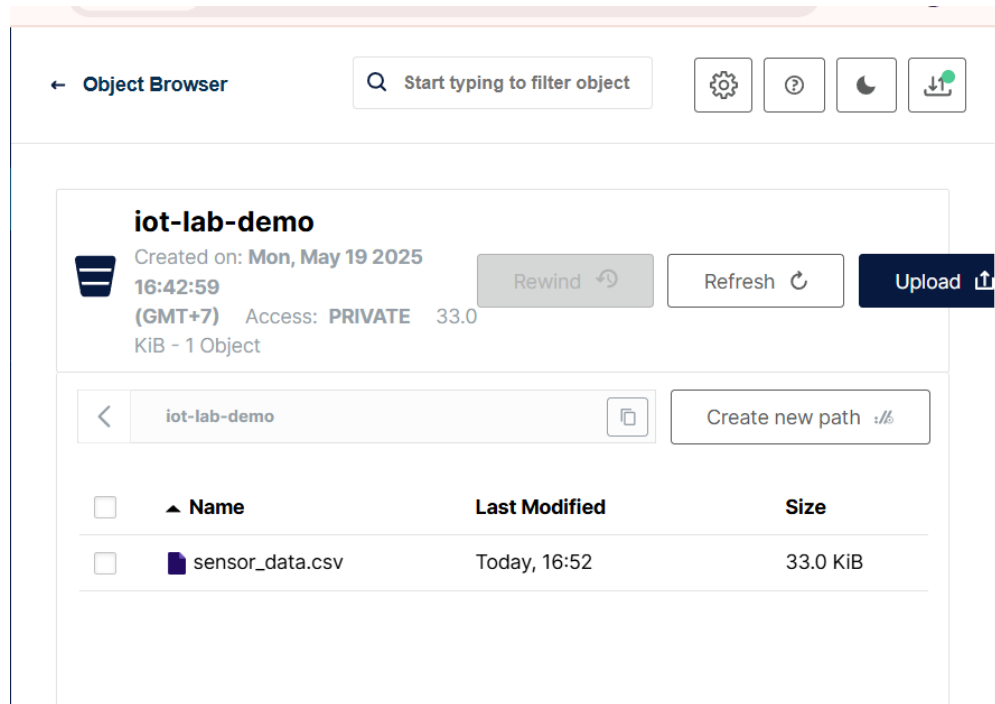
Save

- Sau khi gán quyền readwrite ◇ logout chế độ admin, sau đó đăng nhập lại bằng tài khoản student01. Vào lại bucket → click vào file → nhấn nút download để tải file về.

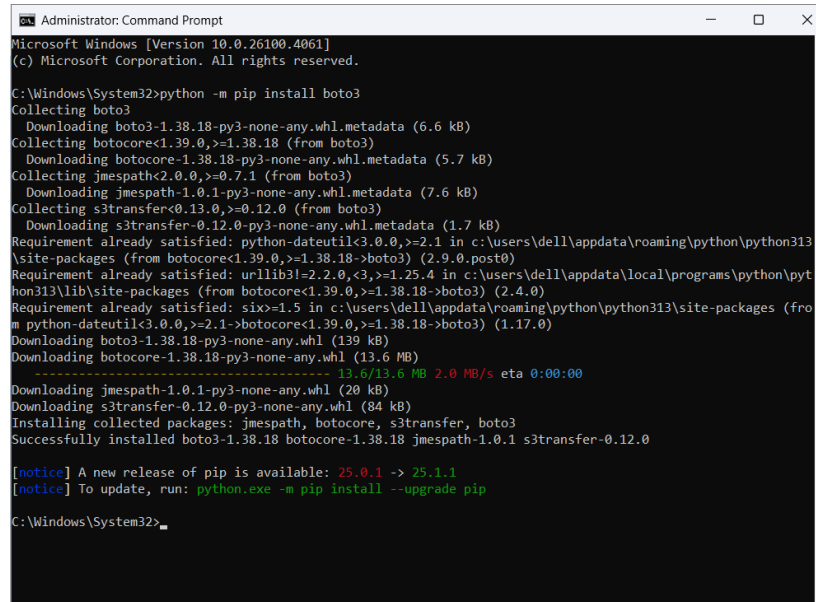
Trong giao diện chúng ta sẽ thấy có bucket: `iot-lab-demo`. Tiếp tục thực hiện các bước như sau để download file từ bucket.



- Click vào và xuất hiện giao diện :



- Cài thư viện boto3: (Mở cmd trong chế độ Administrator) gõ lệnh:
`pip install boto3`



```
Administrator: Command Prompt
Microsoft Windows [Version 10.0.26100.4061]
(c) Microsoft Corporation. All rights reserved.

C:\Windows\System32>python -m pip install boto3
Collecting boto3
  Downloading boto3-1.38.18-py3-none-any.whl.metadata (6.6 kB)
Collecting botocore<1.39.0,>=1.38.18 (from boto3)
  Downloading botocore-1.38.18-py3-none-any.whl.metadata (5.7 kB)
Collecting jmespath<2.0.0,>=0.7.1 (from boto3)
  Downloading jmespath-1.0.1-py3-none-any.whl.metadata (7.6 kB)
Collecting s3transfer<0.13.0,>=0.12.0 (from boto3)
  Downloading s3transfer-0.12.0-py3-none-any.whl.metadata (1.7 kB)
Requirement already satisfied: python-dateutil<3.0.0,>=2.1 in c:\users\dell\appdata\roaming\python\python313\site-packages (from botocore<1.39.0,>=1.38.18->boto3) (2.9.0.post0)
Requirement already satisfied: urllib3<2.2.0,<3,>=1.25.4 in c:\users\dell\appdata\local\programs\python\python313\lib\site-packages (from botocore<1.39.0,>=1.38.18->boto3) (2.4.0)
Requirement already satisfied: six>=1.5 in c:\users\dell\appdata\roaming\python\python313\site-packages (from python-dateutil<3.0.0,>=2.1->botocore<1.39.0,>=1.38.18->boto3) (1.17.0)
Downloading boto3-1.38.18-py3-none-any.whl (139 kB)
Downloading botocore-1.38.18-py3-none-any.whl (13.6 MB)
----- 13.6/13.6 MB 2.0 MB/s eta 0:00:00
Downloading jmespath-1.0.1-py3-none-any.whl (20 kB)
Downloading s3transfer-0.12.0-py3-none-any.whl (84 kB)
Installing collected packages: jmespath, botocore, s3transfer, boto3
Successfully installed boto3-1.38.18 botocore-1.38.18 jmespath-1.0.1 s3transfer-0.12.0

[notice] A new release of pip is available: 25.0.1 -> 25.1.1
[notice] To update, run: python.exe -m pip install --upgrade pip

C:\Windows\System32>
```

- Khởi chạy chương trình:



```
minio.py > ...
1  import boto3
2  from botocore.client import Config
3  s3 = boto3.client('s3',
4      endpoint_url='http://localhost:9000',
5      aws_access_key_id='student01',
6      aws_secret_access_key='abc12345',
7      config=Config(signature_version='s3v4'),
8      region_name='us-east-1')
9  s3.download_file('iot-lab-demo', 'sensor_data.csv', 'temp.csv')
10 print("Download thành công!")
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS
PS D:\MMT> & C:/Users/DELL/AppData/Local/Programs/Python/Python313/python.exe d:\MMT/minio.py
Download thành công!
PS D:\MMT>
```