



AWS
re:Start
LAB

Creating a Website on Amazon S3



WEEK 8





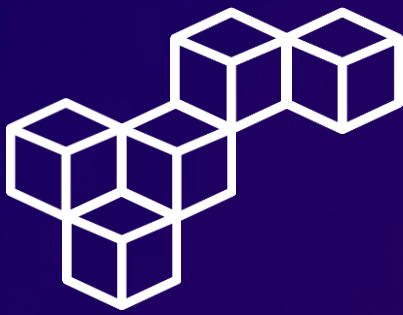
Overview

Creating a website on Amazon S3 is a straightforward and cost-effective way to host static web content. You'll start by setting up an Amazon S3 bucket to store all your web files, such as HTML, CSS, and JavaScript, making them accessible online. Configuring permissions is crucial; creating an IAM user with the necessary access to manage your S3 resources securely ensures that only authorized users can modify your website content.

After setting up the bucket and permissions, you can upload your website files to Amazon S3, making your site live quickly. To streamline updates, you can create a batch file that automates uploading changes to your S3 bucket whenever you modify local website files. This ensures your site remains current with minimal effort. By leveraging these AWS services, you can efficiently host and maintain a static website with robust security and scalability.

Topics covered

- Create an Amazon Simple Storage Service (Amazon S3) bucket.
- Create a new AWS Identity and Access Management (IAM) user that has full access to the Amazon S3 service.
- Upload files to Amazon S3 to host a simple website
- Create a batch file that can be used to update the static website when you change any of the website files locally.



Task 1

Connect to an Amazon Linux EC2 instance using SSM

Connect to your EC2 instance

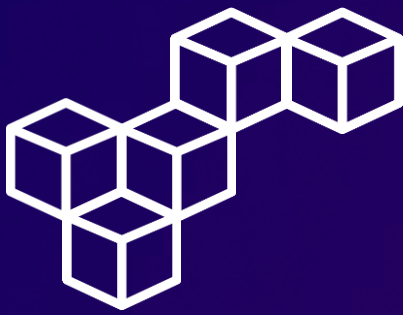
Connect to your Amazon EC2 Instance using AWS Systems Manager Session Manager.

```
Session ID: user3195341=Cristhian_Becerra-  
m2oi3lqwsoakfqnlgytygweiu Instance ID: i-004f052f7712ca749  
sh-4.2$
```

Change the user and home directory

Run the following commands to change the user and home directory.

```
sh-4.2$ sudo su -l ec2-user  
[ec2-user@ip-10-200-0-19 ~]$ pwd  
/home/ec2-user  
[ec2-user@ip-10-200-0-19 ~]$
```



Task 2

Configure the AWS CLI

The configure command

In the session terminal window, run the [aws configure](#) command to update the AWS CLI software with credentials.

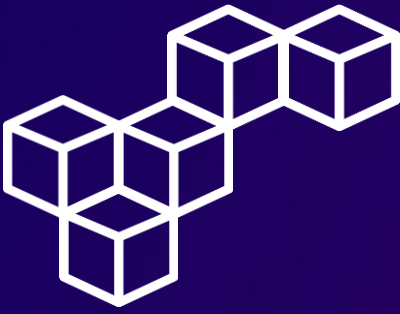
```
[ec2-user@ip-10-200-0-19 ~]$ aws configure
```

Set configuration variables

At the prompt, configure the following:

- AWS Access Key ID
- AWS Secret Access Key
- Default region name
- Default output format

```
[ec2-user@ip-10-200-0-19 ~]$ aws configure
AWS Access Key ID [None]: AKIA6GBMH06NIXPFTNGO
AWS Secret Access Key [None]: xAMWwNbCHec8+Cpd0t2UGfmpOYS1/RflwmP5jMuB
Default region name [None]: us-west-2
Default output format [None]: json
[ec2-user@ip-10-200-0-19 ~]$
```



Task 3

Create an S3 bucket using the AWS CLI

Create a new S3 bucket

To create a bucket in Amazon S3, you use the `aws s3api create-bucket` command.

```
[ec2-user@ip-10-200-0-19 ~]$ aws s3api create-bucket --bucket twhitlock128 --region us-west-2  
--create-bucket-configuration LocationConstraint=us-west-2
```

Review command output

If the command is successful, you will get a JSON-formatted response with a **Location** name-value pair, where the value reflects the bucket name.

```
[ec2-user@ip-10-200-0-19 ~]$ aws s3api create-bucket --bucket twhitlock128 --region us-west-2  
--create-bucket-configuration LocationConstraint=us-west-2  
{  
  "Location": "http://twhitlock128.s3.amazonaws.com/"  
}  
[ec2-user@ip-10-200-0-19 ~]$
```



Task 4

Create a new IAM user that has full access to Amazon S3

Step 1: Create a new IAM user

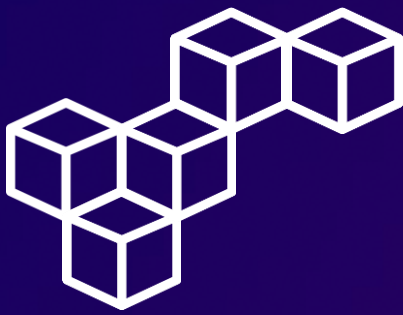
Using the AWS CLI, create a new IAM user with the command `aws iam create-user` and username **awsS3user**.

```
[ec2-user@ip-10-200-0-19 ~]$ aws iam create-user --user-name awsS3user
{
  "User": {
    "UserName": "awsS3user",
    "Path": "/",
    "CreateDate": "2024-05-18T22:18:42Z",
    "UserId": "AIDA66BMHO6NG7HY256N3",
    "Arn": "arn:aws:iam::975050340250:user/awsS3user"
  }
}
[ec2-user@ip-10-200-0-19 ~]$
```

Step 2: Create a login profile

Create a login profile for the new user by running the following `aws iam create-login-profile` command.

```
[ec2-user@ip-10-200-0-19 ~]$ aws iam create-login-profile --user-name awsS3user --password Training123!
{
  "LoginProfile": {
    "UserName": "awsS3user",
    "CreateDate": "2024-05-18T22:19:12Z",
    "PasswordResetRequired": false
  }
}
```



Task 4

Create a new IAM user that has full access to Amazon S3

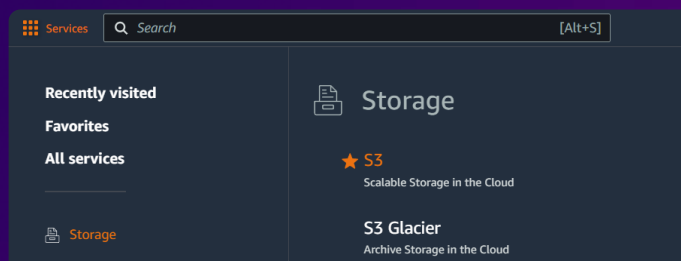
Step 3: Log in as the new IAM user

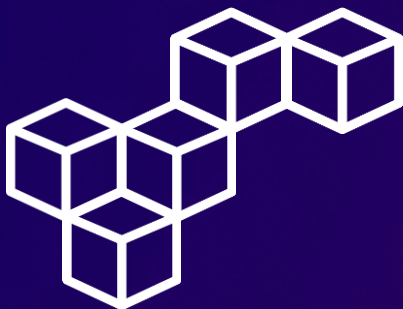
Log in to the AWS Management Console as the new **awsS3user** user.

A screenshot of the AWS IAM user login interface. It features the AWS logo at the top, followed by the heading "Sign in as IAM user". Below this are three input fields: "Account ID (12 digits) or account alias" with the value "975050340250", "IAM user name" with the value "awsS3user", and "Password" with masked characters. A blue "Sign in" button is at the bottom.

Step 4: Access the S3 service

In the AWS Management Console, select the S3 service.



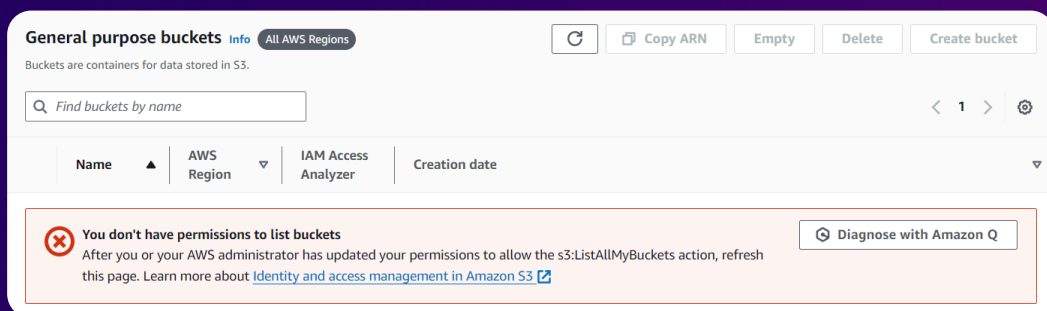


Task 4

Create a new IAM user that has full access to Amazon S3

Step 5: Review new bucket

Navigate to the **Buckets** section. The **awsS3user** user does not have Amazon S3 access to the bucket that you created.



Step 6: Review AWS managed policies

To find the AWS managed policy that grants full access to Amazon S3, run the following `aws iam list-policies` command.

```
[ec2-user@ip-10-200-0-19 ~]$ aws iam list-policies --query "Policies[?contains(PolicyName,'S3')]"
[
  {
    "PolicyName": "AmazonS3FullAccess",
    "PermissionsBoundaryUsageCount": 0,
    "CreateDate": "2015-02-06T18:40:58Z",
    "AttachmentCount": 0,
    "IsAttachable": true,
    "PolicyId": "ANPAIFIR6V6BVTRAHWINE",
    "DefaultVersionId": "v2",
    "Path": "/",
    "Arn": "arn:aws:iam::aws:policy/AmazonS3FullAccess",
    "UpdateDate": "2021-09-27T20:16:37Z"
  },
  {
    "PolicyName": "AmazonS3ReadOnlyAccess",
```




Task 4

Create a new IAM user that has full access to Amazon S3

Step 7: Grant full access to S3

Run the following `aws iam attach-user-policy` command to grant the **awsS3user** user full access to Amazon S3.

```
[ec2-user@ip-10-200-0-19 ~]$ aws iam attach-user-policy --policy-arn arn:aws:iam::aws:policy/AmazonS3FullAccess --user-name awsS3user
[ec2-user@ip-10-200-0-19 ~]$
```

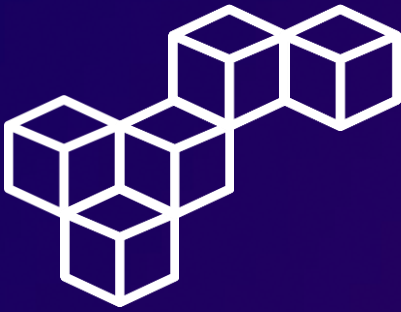
Step 8: Access the bucket

The new IAM user **awsS3user** now has full access to all Amazon S3 buckets. Select your bucket name.

General purpose buckets (1) [Info](#) All AWS Regions Refresh Copy ARN Empty Delete Create bucket

Buckets are containers for data stored in S3.

Name	AWS Region	IAM Access Analyzer	Creation date
twitlock128	US West (Oregon) us-west-2	View analyzer for us-west-2	May 18, 2024, 17:18:00 (UTC-05:00)



Task 5


Adjust S3 bucket permissions

Edit Block public access

Go to permissions, under **Block public access (bucket settings)**, choose **Edit**, and **UnSelect** Block all public access.

Block public access (bucket settings) Edit

Public access is granted to buckets and objects through access control lists (ACLs), bucket policies, access point policies, or all. In order to ensure that public access to all your S3 buckets and objects is blocked, turn on Block all public access. These settings apply only to this bucket and its access points. AWS recommends that you turn on Block all public access, but before applying any of these settings, ensure that your applications will work correctly without public access. If you require some level of public access to your buckets or objects within, you can customize the individual settings below to suit your specific storage use cases. [Learn more](#)

Block all public access
 Off
► Individual Block Public Access settings for this bucket

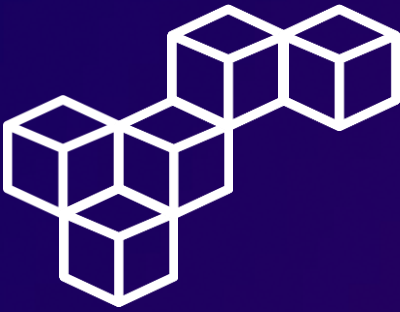
Edit Object Ownership

Under **Object Ownership**, choose **Edit**, and choose **ACLs enabled**, and choose **I acknowledge that ACLs will be restored**.

Object Ownership
Control ownership of objects written to this bucket from other AWS accounts and the use of access control lists (ACLs). Object ownership determines who can specify access to objects.

☐ **ACLs disabled (recommended)**
All objects in this bucket are owned by this account. Access to this bucket and its objects is specified using only policies.

☒ **ACLs enabled**
Objects in this bucket can be owned by other AWS accounts. Access to this bucket and its objects can be specified using ACLs.



Task 6

Extract the files that you need for this lab

Extract the website files

In the Session terminal, extract the files that you need for this lab by running the following commands.

```
[ec2-user@ip-10-200-0-19 ~]$ cd ~/sysops-activity-files
[ec2-user@ip-10-200-0-19 sysops-activity-files]$ tar xvfz static-website-v2.tar.gz
static-website/
static-website/css/
static-website/css/styles.css
static-website/images/
static-website/images/Cafe-Owners.png
static-website/images/Cake-Vitrine.png
static-website/images/Coffee-and-Pastries.png
static-website/images/Coffee-Shop.png
static-website/images/Cookies.png
static-website/images/Cup-of-Hot-Chocolate.png
static-website/images/Strawberry-&-Blueberry-Tarts.png
static-website/images/Strawberry-Tarts.png
static-website/index.html
[ec2-user@ip-10-200-0-19 sysops-activity-files]$
```

Review the extracted files

To confirm that the files were extracted correctly, run the following commands.

```
[ec2-user@ip-10-200-0-19 sysops-activity-files]$ cd static-website
[ec2-user@ip-10-200-0-19 static-website]$ ls
css  images  index.html
[ec2-user@ip-10-200-0-19 static-website]$
```



Task 7

Upload files to Amazon S3 by using the AWS CLI

Step 1: Enable Static website hosting

To ensure that the bucket can function as a website run the following `aws s3 website` command. Also, to upload the files to the bucket, run the following `aws s3 cp` command.

```
[ec2-user@ip-10-200-0-19 static-website]$ aws s3 website s3://twhitlock128/ --index-document index.html
[ec2-user@ip-10-200-0-19 static-website]$ aws s3 cp /home/ec2-user/sysops-activity-files/static-website/ s3://twhitlock128/ --recursive --acl public-read
upload: css/styles.css to s3://twhitlock128/css/styles.css
upload: images/Coffee-Shop.png to s3://twhitlock128/images/Coffee-Shop.png
upload: ./index.html to s3://twhitlock128/index.html
upload: images/Cookies.png to s3://twhitlock128/images/Cookies.png
upload: images/Coffee-and-Pastries.png to s3://twhitlock128/images/Coffee-and-Pastries.png
upload: images/Cafe-Owners.png to s3://twhitlock128/images/Cafe-Owners.png
upload: images/Cake-Vitrine.png to s3://twhitlock128/images/Cake-Vitrine.png
upload: images/Cup-of-Hot-Chocolate.png to s3://twhitlock128/images/Cup-of-Hot-Chocolate.png
upload: images/Strawberry-&-Blueberry-Tarts.png to s3://twhitlock128/images/Strawberry-&-Blueberry-Tarts.png
upload: images/Strawberry-Tarts.png to s3://twhitlock128/images/Strawberry-Tarts.png
[ec2-user@ip-10-200-0-19 static-website]$
```

Step 2: Review uploaded files

To verify that the files were uploaded, run the following `aws s3 ls` command.

```
[ec2-user@ip-10-200-0-19 static-website]$ aws s3 ls twhitlock128
PRE css/
PRE images/
2024-05-18 22:36:45 2980 index.html
[ec2-user@ip-10-200-0-19 static-website]$
```



Task 7

Upload files to Amazon S3 by using the AWS CLI

Step 3: Review Static website hosting

To open the website URL, select the **Bucket website endpoint**.

Static website hosting

Use this bucket to host a website or redirect requests. [Learn more](#)

Static website hosting

Enabled

Hosting type

Bucket hosting

Bucket website endpoint

When you configure your bucket as a static website, the website is available at the AWS Region-specific website endpoint of the bucket. [Learn more](#)

<http://twhitlock128.s3-website-us-west-2.amazonaws.com>

Step 4: Review the website

The static website is now available to the public for viewing.

The Café offers an assortment of delicious and delectable pastries and coffees that will put a smile on your face. From cookies to croissants, tarts and cakes, each treat is specially prepared to excite your tastebuds and brighten your day!

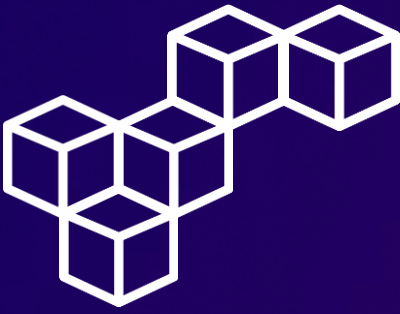
Frank bakes a rich variety of cookies. Try them all!



Tea
Coffee
Latte
Hot
Chocolate
Yes, we
have it!

Our tarts are always a customer favorite!





Task 8

Create a batch file to make updating the website repeatable

Step 1: Create a batch file

To create a repeatable deployment, use the [vi](#) editor to create a batch file, add the following [aws s3 cp](#) command, and make the batch file executable.

```
[ec2-user@ip-10-200-0-19 static-website]$ cd ~  
[ec2-user@ip-10-200-0-19 ~]$ vi update-website.sh  
[ec2-user@ip-10-200-0-19 ~]$
```

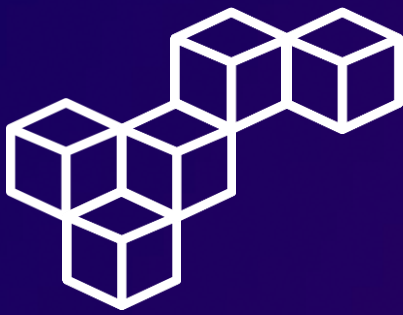
```
#!/bin/bash  
  
aws s3 cp /home/ec2-user/sysops-activity-files/static-website/ s3://twhitlock128/ --recursive --acl public-read  
~
```

```
[ec2-user@ip-10-200-0-19 ~]$ chmod +x update-website.sh  
[ec2-user@ip-10-200-0-19 ~]$
```

Step 2: Edit a local file

Open the local copy of the **index.html** file in a text editor, and edit some HTML color codes.

```
[ec2-user@ip-10-200-0-19 ~]$ vi sysops-activity-files/static-website/index.html  
[ec2-user@ip-10-200-0-19 ~]$
```

Task 8

Create a batch file to make updating the website repeatable

Step 3: Update the website

To update the website, run the batch file.

```
[ec2-user@ip-10-200-0-19 ~]$ ./update-website.sh
upload: sysops-activity-files/static-website/css/styles.css to s3://twhitlock128/css/styles.css
upload: sysops-activity-files/static-website/images/Coffee-Shop.png to s3://twhitlock128/images/Coffee-Shop.png
upload: sysops-activity-files/static-website/index.html to s3://twhitlock128/index.html
upload: sysops-activity-files/static-website/images/Cake-Vitrine.png to s3://twhitlock128/images/Cake-Vitrine.png
upload: sysops-activity-files/static-website/images/Cafe-Owners.png to s3://twhitlock128/images/Cafe-Owners.png
upload: sysops-activity-files/static-website/images/Strawberry-&-Blueberry-Tarts.png to s3://twhitlock128/images/Strawberry-&-Blueberry-Tarts.png
upload: sysops-activity-files/static-website/images/Cookies.png to s3://twhitlock128/images/Cookies.png
upload: sysops-activity-files/static-website/images/Cup-of-Hot-Chocolate.png to s3://twhitlock128/images/Cup-of-Hot-Chocolate.png
upload: sysops-activity-files/static-website/images/Strawberry-Tarts.png to s3://twhitlock128/images/Strawberry-Tarts.png
upload: sysops-activity-files/static-website/images/Coffee-and-Pastries.png to s3://twhitlock128/images/Coffee-and-Pastries.png
[ec2-user@ip-10-200-0-19 ~]$
```

Step 4: Review the update

Review the changes in the website page.

The Café offers an assortment of delicious and delectable pastries and coffees that will put a smile on your face. From cookies to croissants, tarts and cakes, each treat is specially prepared to excite your tastebuds and brighten your day!

Frank bakes a rich variety of cookies. Try them all!



Tea
Coffee
Latte
Hot
Chocolate
Yes, we
have it!

Our tarts are always a customer favorite!





Task 9

Optional challenge

The aws s3 sync command

Notice that the batch file uploads every file to Amazon S3 every time you run it even when most of the files have no changes to them. To help make the script more efficient, replace the `aws s3 cp` command that you've been using with the following `aws s3 sync` command.

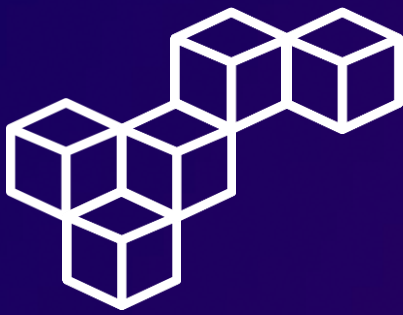
```
#!/bin/bash

aws s3 sync /home/ec2-user/sysops-activity-files/static-website/ s3://twhitlock128/ --acl public-read
~
~
```

Run the batch file again

Make some minor changes to the local copy of the **index.html** file. Then, to update the website, run the batch file again. Notice that this time, only the modified file is uploaded.

```
[ec2-user@ip-10-200-0-19 ~]$ vi sysops-activity-files/static-website/index.html
[ec2-user@ip-10-200-0-19 ~]$ ./update-website.sh
upload: sysops-activity-files/static-website/index.html to s3://twhitlock128/index.html
[ec2-user@ip-10-200-0-19 ~]$ █
```

Conclusions

The aws configure command

The aws configure command simplifies setting up AWS CLI credentials and default configurations for seamless interaction with AWS services.

The aws iam commands

The aws iam commands enable secure management of AWS IAM resources, allowing precise control over user permissions and access.

The aws s3api commands

The aws s3api commands provide detailed control over Amazon S3 operations, enabling advanced configuration and management of S3 buckets and objects.

The aws s3 commands

The aws s3 commands facilitate easy file operations like upload, download, and synchronization between local storage and S3 buckets.

Static website hosting

Static website hosting utilizes Amazon S3 to serve static websites, offering a scalable, reliable, and cost-effective solution for web hosting.



Cristhian Becerra



[cristhian-becerra-espinoza](#)



+51 951 634 354



cristhianbecerra99@gmail.com



Lima, Peru

