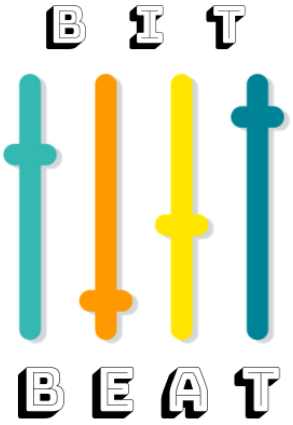
aws educate

Build a Static Website with Amazon S3 Activity Guide

VIRTUAL PRIVATE NETWORK

README



World Domination One Beat At A Time

Your company, **BitBeat,** is ready to share information with prospective customers. They will be launching their product, **BitBanger**, in a few months. Right now, they want to setup a static website where customers can learn about their product.

Amazon Simple Storage Service (Amazon S3) can host static websites without a need for a web server. The website performs well and can scale at a fraction of the cost of a traditional web server.

To host a static website, you configure an Amazon S3 bucket for website hosting and then upload your website content to the bucket. Amazon S3 is storage provides you with secure, durable, highly scalable object storage. A simple web services interface allows you to store and retrieve any amount of data from anywhere on the web.

GETTING STARTED
Here's some important information to know before starting this hands-on activity.

Requirements: You must have an AWS Educate account. If you have not registered for an AWS Educate account, follow the instructions provided on this page.

Activity Time: 60 minutes

Getting Help: If you experience any issues as you complete this activity, please ask your instructor for assistance.

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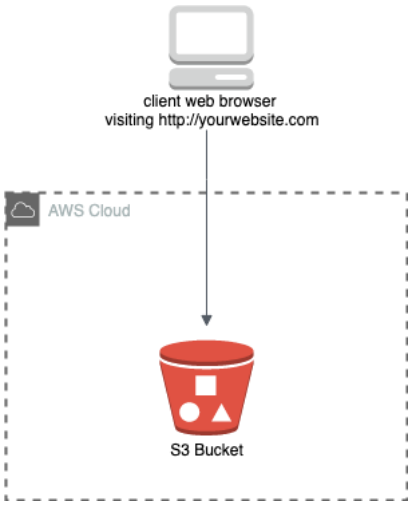

Task overview

In this hands-on activity, you are going to configure an Amazon S3 bucket to host a static website for BitBeat. You will need to enable the Amazon S3 bucket for website hosting, and you will need to set permissions to allow the general public to view the website.

Here is a list of tasks you will complete:

1. Create an Amazon S3 bucket.
2. Enable Amazon S3 bucket static web hosting.
3. Upload website files to the Amazon S3 bucket.
4. Set public access permissions.
5. Add a bucket policy.
6. Test and troubleshoot public access to the Amazon S3 bucket.

Learning outcomes

After completing this activity, you should be able host a static website for an organization using Amazon S3 by:

1. Creating an Amazon S3 bucket with most restrictive permissions.
2. Enabling static website hosting for an Amazon S3 bucket.
3. Defining the index document for the static website.
4. Set permissions require public permissions for website access.
5. Uploading object for a static website to Amazon S3.
6. Add a bucket policy to make objects in the Amazon S3 bucket readable.

Let's get started!

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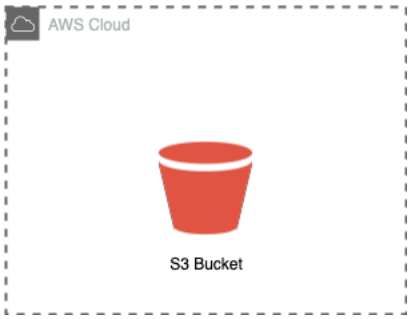
DID YOU KNOW?

A bucket is owned by the AWS account that created it. By default, you can create up to 100 buckets in each of your AWS accounts. After you create a bucket, you can't change its region. Buckets are not transferable.

Before you can upload data to Amazon S3, you must create a bucket in one of the AWS Regions to store your data in. After you create a bucket, you can upload an unlimited number of data objects to the bucket.



Create Amazon S3 Bucket

1. In the AWS Management Console Find and select Amazon S3.
2. In the Amazon S3 console, click + Create bucket .
3. Enter a name for your bucket. Note: Your bucket name must be unique across all existing bucket names in Amazon S3. You cannot change a buckets name after the buckets has been created. (Read more: Bucket Restrictions and Limitations.)
4. Review default General Configuration and Advanced settings. Click the external link icon to access and read AWS documentation. Then, scroll down the page and click Create bucket
5. Your new bucket will appear in your Amazon S3 dashboard.

Will someone be able to access your bucket from the internet? Why or why not?

Enable Amazon S3 bucket website hosting

Now that you have created an Amazon S3 bucket, you need to configure the bucket to host a static website.

Enable website hosting

1. Make sure you have your bucket selected, then select the Properties tab.
2. Select Static Website Hosting.

   Note: The endpoint URL for your bucket is displayed on the card. You will use this endpoint to access your website, so be sure to copy and paste the URL to a text file or Word document for later use.
3. On the Static Website Hosting card, select Use this bucket to host a website.
4. Enter the name of the Index document and then click Save. For this exercise the index document name is index.html. You will not create a custom error document for this activity or add any redirection rules. However, this is an option when creating a static website.

DID YOU KNOW?

On a static website, individual webpages are fixed and do not change. It may also have client- side scripts are used for page navigation, data validation, and formatting. By contrast, a dynamic website relies on server-side processing, including server-side scripts such as PHP, JSP, or ASP.NET. Amazon S3 does not support server- side scripting.

Upload website files to the Amazon S3 bucket

Now that you have created the Amazon S3 bucket and configured it for website hosting, you are ready to upload the BitBeat website files to the bucket. For this task you need to download the static website files we have created for you. Go to http://tinyurl.com/s3static and download and save these two files to your desktop: index.html and bitbangers.png.

Upload objects.

1. After you download the website files to your desktop, go to the Amazon S3 dashboard and click on the bucket name to open the bucket management page.
2. Click the Upload button at the top of the screen.
3. Drag and drop the website file you previously downloaded to your desktop to the bucket upload screen and then click Next.
4. Accept the defaults on the Manage User page and click Next.
5. Select the Standard storage class and click Next.
6. Review the upload data and then click Upload.

Your uploaded file appears as an object on the Amazon S3 bucket Overview tab.

DID YOU KNOW?

Amazon S3 applies the most restrictive combination of the bucket-level and account-level block public access settings. For example, if you allow public access for a bucket but block all public access at the account level, Amazon S3 will continue to block public access to the bucket. In this scenario, you would have to edit your bucket-level and account-level block public access settings.

Set public access permissions

It's time to make your bucket accessible to anyone who wants to view your static website. When you configure a bucket as a website, you must grant public read access to the bucket so that people can access the website. To make your bucket publicly readable, you must disable block public access settings for the bucket and write a bucket policy.

Let's begin by disabling the block public access settings

1. Select Bucket you just configured to host a static website.
2. Select the Permissions tab and select Block public access.
3. Select Edit in the bucket settings, uncheck the box next to Block all public access, and then click Save.
4. In the Edit block permission access window, type confirm in the text field and the click confirm.

Add a bucket policy

You've opened the Amazon S3 bucket to be readable by the public. To make the objects in your bucket publicly readable, you must write a bucket policy that grants everyone s3:GetObject permission.

1. Choose the bucket that you have configured as a static website.
2. Choose Permissions.
3. Choose Bucket Policy.
    4. In the Bucket policy editor, add a bucket policy (use policy provided below).
       Sample bucket policy:
       Copy and paste the bucket policy below. This sample bucket policy grants everyone access to the objects in the specified folder. You will need to change the Resource to match your bucket, this means that you need to copy your bucket ARN (Amazon Resource Name) found on the Bucket policy editor (i.e. arn:aws:s3:::example-bucket/).

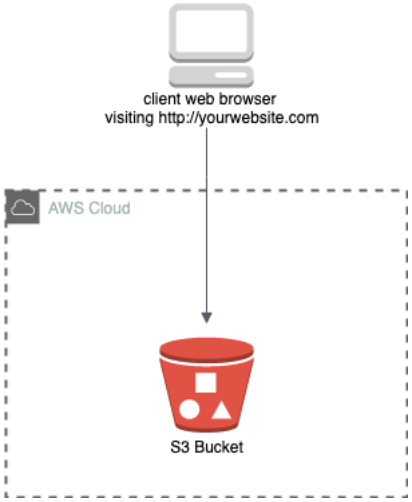
```
{
  "Version":"2012-10-17",
```

```
"Statement":[{
        "Sid":"PublicReadGetObject",
      "Effect":"Allow",
          "Principal": "*",
    "Action":["s3:GetObject"],
    "Resource":["arn:aws:s3:::example-bucket/*"
    ]
  }
 ]
}
```

5. And click Save.

Test and troubleshoot public access to the Amazon S3 bucket.
Now it's time to test the BitBeat website to make sure it's accessible.

Enter the following URL in the browser, replacing example-bucket with the name of your bucket



and website-region with the name of the AWS region where you deployed your bucket:

http://example-bucket.s3-website-region.amazonaws.com

Does your index.html page display in the web browser?

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GREAT JOB!

You have successfully hosted **BitBeat's** static website

Let's review

You were able to setup a static website hosted on Amazon S3. This website is available at the Amazon S3 website endpoint. Here are the tasks you successfully completed:

1. Create an Amazon S3 bucket.
2. Enable Amazon S3 bucket static web hosting.
3. Upload website files to the Amazon S3 bucket.
4. Set public access permissions.
5. Add a bucket policy.
6. Test and troubleshoot public access to the Amazon S3 bucket.

Test your knowledge

- [ ] What is your Amazon S3 bucket URL?_____
- [ ] What is your Amazon S3 bucket ARN?_____
- [ ] What is the default permission of an Amazon S3 bucket?_____

Resources

1. How to create an Amazon S3 bucket: https://docs.aws.amazon.com/AmazonS3/latest/user-guide/create-bucket.html
2. Permissions required for website access: https://docs.aws.amazon.com/AmazonS3/latest/dev/WebsiteAccessPermissionsReqd.html
3. Working with an Amazon S3 bucket: https://docs.aws.amazon.com/AmazonS3/latest/dev/UsingBucket.html#bucket-config-options- intro
4. Bucket restrictions and limitations : https://docs.aws.amazon.com/AmazonS3/latest/dev/BucketRestrictions.html

Assessments

Key concepts and terminology assessment

1. Amazon Simple Storage Service (Amazon S3) is storage for the Internet. It is designed to make web-scale computing easier for developers.
   True
   False
   Say: Amazon S3 is storage for the Internet. It is designed to make web-scale computing easier for developers. Is this true or false? Explain your reasoning.

2. Amazon S3 has a simple web services interface that you can use to store and retrieve a limited amount of data, at any time, from anywhere on the web.
   True
   False
   Say: Amazon S3 has a simple web services interface that you can use to store and retrieve a limited amount of data, at any time, from anywhere on the web. Is this true or false? Explain your reasoning.

3. Amazon S3 gives any developer access to the same highly scalable, reliable, fast, inexpensive data storage infrastructure that Amazon uses to run its own global network of web sites.
   True
   False
   Say: Amazon S3 gives any developer access to the same highly scalable, reliable, fast, inexpensive data storage infrastructure that Amazon uses to run its own global network of web sites. Is this true or false? Explain your reasoning.

4. Which of the following is a core concept of Amazon S3?
   Layers
   Buckets
   Lanes
   Ask: Which of the following is a core concept of Amazon S3? Explain your reasoning.

5. Which of the following is a container for objects stored in Amazon S3?
   A bucket
   A key
   A region
   Say: Which of the following is a container for objects stored in S3? Explain your reasoning.

6. Buckets organize the Amazon S3 namespace at the highest level.
   True
   False
   Say: Buckets organize the Amazon S3 namespace at the highest level. Is this true or false? Explain your reasoning.

7. Objects consist of object data and metadata.
   True
   False
   Say: Objects consist of object data and metadata. Is this true or false? Explain your reasoning.

8. Every object in a bucket has exactly two keys.
   True
   False
   Say: Every object in a bucket has exactly two keys. Is this true or false? Explain your reasoning.

9. A key is the unique identifier for an object within a bucket.
   True
   False
   Say: A key is the unique identifier for an object within a bucket. Is this true or false? Explain your reasoning.

10. You cannot choose the geographical AWS region where Amazon S3 will store the buckets that you create.
    True
    False
    Say: You cannot choose the geographical AWS Region where Amazon S3 will store the buckets that you create. Is this true or false? Explain your reasoning.

11. Objects stored in a region can leave the region without you transferring them to another region. For example, objects stored in the Europe (Ireland) Region can leave it.
    True
    False
    Say: Objects stored in a region can leave the region without you transferring them to another region. For example, objects stored in the Europe (Ireland) Region can leave it. Is this true or false? Explain your reasoning.

Task assessment

1. A bucket is owned by the AWS account that created it. By default, you can create up to 100 buckets in each of your AWS accounts. After you create a bucket, you can't change its region. Buckets are not transferable.
   True
   False
   Say: A bucket is owned by the AWS account that created it. By default, you can create up to 100 buckets in each of your AWS accounts. After you create a bucket, you can't change its Region. Buckets are not transferable. Is this true or false? Explain your reasoning.

2. Before you can upload data to Amazon S3, you must create a bucket in one of the AWS Regions to store your data in. After you create a bucket, you can upload a limited number of data objects to the bucket.
   True
   False
   Say: Before you can upload data to Amazon S3, you must create a bucket in one of the AWS Regions to store your data in. After you create a bucket, you can upload a limited number of data objects to the bucket. Is this true or false? Explain your reasoning.

3. When you name your bucket, the name must be unique across all existing bucket names in Amazon S3. You can change a buckets name after the bucket has been created.
   True
   False
   Say: When you name your bucket, the name must be unique across all existing bucket names in Amazon S3. You can change a buckets name after the bucket has been created. Is this true or false? Explain your reasoning.

4.

4. The difference between static and dynamic websites is that, on a static website, individual webpages are fixed and do not change, whereas, a dynamic website relies on server-side processing.
   True
   False
   Say: The difference between static and dynamic websites is that on a static website individual webpages are fixed and do not change, whereas, a dynamic website relies on server-side processing.
   Is this true or false? Explain your reasoning.

5. Amazon S3 applies the most restrictive combination of the bucket-level and account-level block public access settings. For example, if you allow public access for a bucket but block all public access at the account level, Amazon S3 will continue to block public access to the bucket.
   True
   False
   Say: Amazon S3 applies the most restrictive combination of the bucket-level and account-level block public access settings. For example, if you allow public access for a bucket but block all public access at the account level, Amazon S3 will continue to block public access to the bucket.
   Is this true or false? Explain your reasoning.

Performance-based assessment
Have students build a new static website using an Amazon S3 bucket.
As students create their sites, have them document their work with a diagram that includes labels and captions.

Please share your feedback by completing this short survey:
survey link

Thank you!