

Lab 3: Static Website with AWS S3

Tutorial and Instructions

Type your answers and paste your screenshots directly in Lab3_Submission_File.docx in the indicated spots. Save the file with a filename in this format Lab3_FirstName_LastName.docx and upload it to D2L.

When asked to paste screenshots, please format screenshot so that your toolbar and system time are visible.

In this lab, you are going to learn how to host a static website with AWS S3.¹ You will also need the following to complete this assignment.

1. A web browser that you are comfortable using.
2. Make sure you properly go through the instructions before you follow all the steps for the deliverables.
3. You don't have to worry about **Pricing** for using AWS Services because you are using your AWS Academy account (\$100 limit). You don't need to enter your credit card details with AWS Academy account.
4. Please **Sign-up for AWS Academy** before starting the assignment. Follow the AWS Educate Sign-up document available on D2L.

A. Host a Static Website

In this section, you configure a bucket for website hosting, upload a sample index document, and test the website using the Amazon S3 website endpoint for the bucket. You can configure an Amazon S3 bucket to function like a website. This example walks you through the steps of hosting a website on Amazon S3.

Note: Amazon S3 requires that you give your bucket the same name as your domain. This is so that Amazon S3 can properly resolve the host headers sent by web browsers when a user requests content from your website.

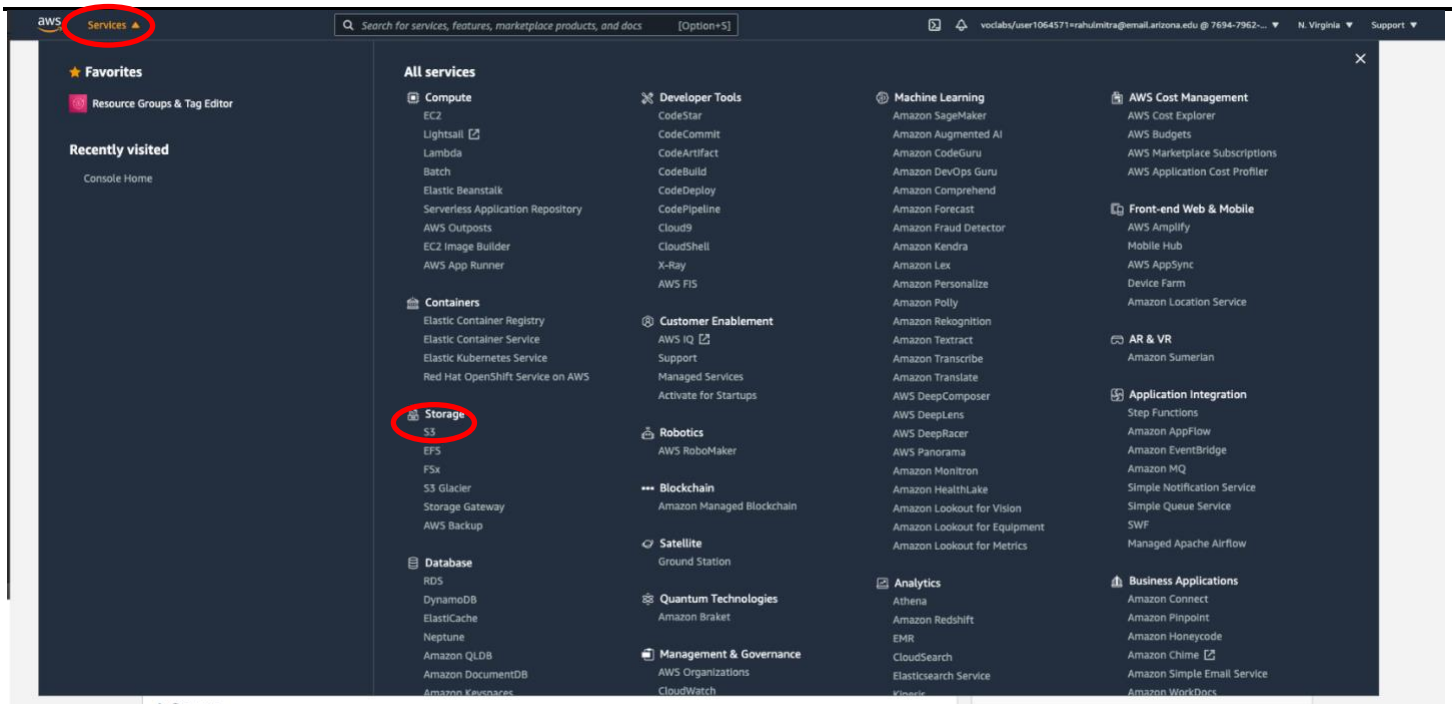
Step 1: Creating a Bucket and Configuring It as a Website

1. Open your Amazon S3 console by selecting S3 from the 'Services' tab on the top.

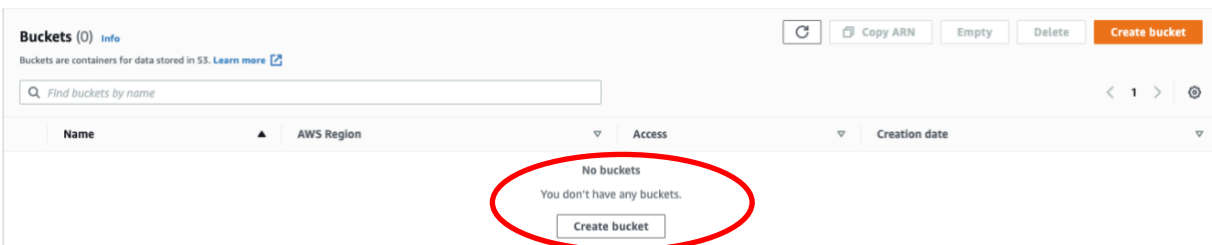
¹ This assignment was adapted from <http://docs.aws.amazon.com/AmazonS3/latest/dev/s3-dg.pdf>.

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2. Click **Create Bucket**.



3. In the **Create a Bucket** dialog box, do the following:

- In the **Bucket Name** box, enter a name for the bucket where you'll upload the files for your website (that is, the bucket for the root domain). You can name the bucket as **"netid.mis543.com"** (we do not own the domain name mis543.com. So do not be surprised when you were redirected to it.)
- In the **Region** box, select a US standard region pre-filled by default.
- Click **Create**.

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Amazon S3 > Create bucket

Create bucket [Info](#)

Buckets are containers for data stored in S3. [Learn more](#)

General configuration

Bucket name

rahulmitra.mis543.com

Bucket name must be unique and must not contain spaces or uppercase letters. [See rules for bucket naming](#)

AWS Region

US East (N. Virginia) us-east-1

Copy settings from existing bucket - *optional*
Only the bucket settings in the following configuration are copied.

[Choose bucket](#)

After creating the bucket you can upload files and folders to the bucket, and configure additional bucket settings.

Cancel [Create bucket](#)

4. After Amazon S3 creates your bucket, the console displays it in the **Buckets** pane, similar to the following:

Name	AWS Region	Access	Creation date
rahulmitra.mis543.com	US East (N. Virginia) us-east-1	Bucket and objects not public	September 6, 2021, 23:54:27 (UTC-07:00)

5. Repeat step 3 to create two additional subdomain buckets, **logs.netid.mis543.com** (for the log files) and **www.netid.mis543.com** (for the www subdomain). When you are finished, the console displays all three buckets, similar to the following.

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Buckets (3) Info					Refresh	Copy ARN	Empty	Delete	Create bucket
Buckets are containers for data stored in S3. Learn more									
<input type="text" value="Find buckets by name"/>					< 1 > ⚙				
	Name	AWS Region	Access	Creation date					
<input type="radio"/>	logs.rahulmitra.mis543.com	US East (N. Virginia) us-east-1	Bucket and objects not public	September 6, 2021, 23:56:03 (UTC-07:00)					
<input type="radio"/>	rahulmitra.mis543.com	US East (N. Virginia) us-east-1	Bucket and objects not public	September 6, 2021, 23:54:27 (UTC-07:00)					
<input type="radio"/>	www.rahulmitra.mis543.com	US East (N. Virginia) us-east-1	Bucket and objects not public	September 6, 2021, 23:56:50 (UTC-07:00)					

Step 2: Configure Your Buckets

1. Add Permissions:


- In the Buckets pane, click on your root domain bucket (netid.mis543.com), click **Permissions**, and then click on **Bucket Policy**.

The screenshot shows the AWS S3 console interface. At the top, a table lists three buckets: logs.rahulmitra.mis543.com, rahulmitra.mis543.com (selected), and www.rahulmitra.mis543.com. Below the table, the 'Permissions' tab is active for the selected bucket. The 'Permissions overview' section shows 'Access: Bucket and objects not public'. The 'Bucket policy' section is visible below, with a message indicating that public access is blocked because 'Block Public Access' settings are turned on.

- Click on **Block public access** to check if the bucket has public access. If not, click on Edit and uncheck the 'Block all public access' option and save the settings.

The screenshot shows the 'Block public access (bucket settings)' dialog box. The 'Edit' button is circled in red. The settings show 'Block all public access' is turned on, with sub-settings for 'new access control lists (ACLs)', 'any access control lists (ACLs)', 'new public bucket or access point policies', and 'any public bucket or access point policies' all set to 'On'.

Edit Block public access (bucket settings) [Info](#)**Block public access (bucket settings)**

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**

Turning this setting on is the same as turning on all four settings below. Each of the following settings are independent of one another.

☐ **Block public access to buckets and objects granted through *new* access control lists (ACLs)**

S3 will block public access permissions applied to newly added buckets or objects, and prevent the creation of new public access ACLs for existing buckets and objects. This setting doesn't change any existing permissions that allow public access to S3 resources using ACLs.

☐ **Block public access to buckets and objects granted through *any* access control lists (ACLs)**

S3 will ignore all ACLs that grant public access to buckets and objects.

☐ **Block public access to buckets and objects granted through *new* public bucket or access point policies**

S3 will block new bucket and access point policies that grant public access to buckets and objects. This setting doesn't change any existing policies that allow public access to S3 resources.

☐ **Block public and cross-account access to buckets and objects through *any* public bucket or access point policies**

S3 will ignore public and cross-account access for buckets or access points with policies that grant public access to buckets and objects.

Cancel

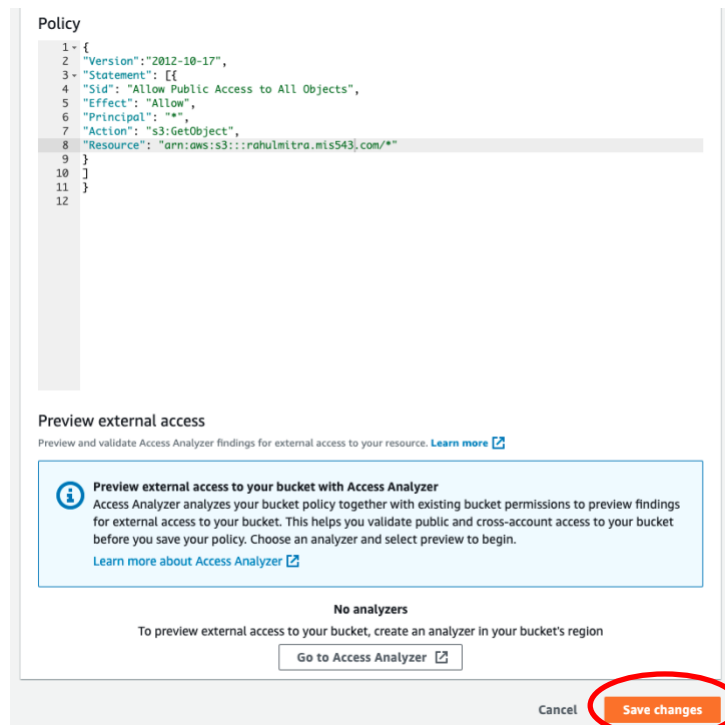
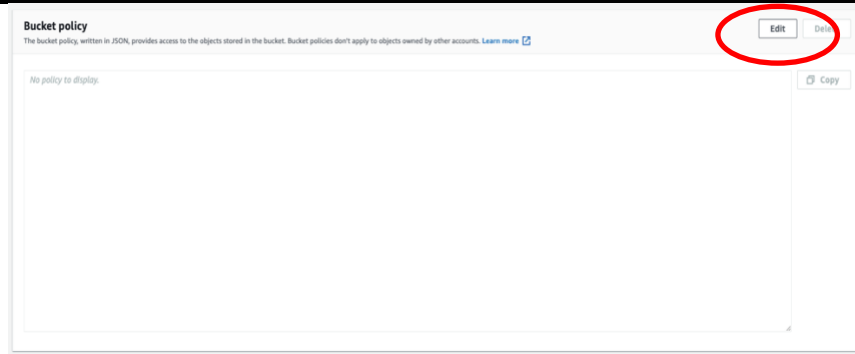
Save changes

- c. The following policy gives everyone permission to view any file in the *netid.mis543.com* bucket. Copy the policy and then paste it into the **Bucket Policy Editor**. Replace '*example.com*' with the name of your bucket, i.e. *netid.mis543.com* and then click **Save**.

```
{
  "Version": "2012-10-17",
  "Statement": [{
    "Sid": "Allow Public Access to All Objects",
    "Effect": "Allow",
    "Principal": "*",
    "Action": "s3:GetObject",
    "Resource": "arn:aws:s3:::example.com/*"
  }]
}
```

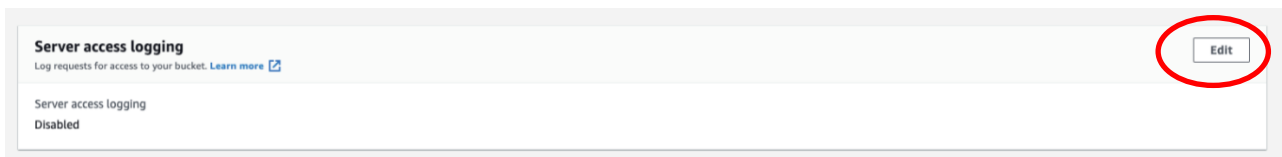
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2. Enable Logging:

- a. Next click on the **properties** tab and go to 'server access logging'.



- b. Complete the **Logging** pane as follows:
- Select the **Enable Logging** option.
 - In the **Target Bucket** list, select the bucket that you created for the log files, *logs.netid.mis543.com*.
- c. Click **Save changes**.

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Edit server access logging Info

Server access logging
Log requests for access to your bucket. [Learn more](#)

Server access logging
☐ Disable
☒ Enable

Warning By enabling server access logging, S3 console will automatically update your bucket access control list (ACL) to include access to the S3 log delivery group.

Target bucket
 [Browse S3](#)
Format: s3://bucket/prefix

[Cancel](#) [Save changes](#)

Go back to the S3 buckets and check if you see **public** against your root bucket. Click on the bucket to see the bucket properties and the permissions.

Buckets (3) Info

Buckets are containers for data stored in S3. [Learn more](#)

Name	AWS Region	Access	Creation date
<input type="radio"/> logs.rahulmitra.mis543.com	US East (N. Virginia) us-east-1	Bucket and objects not public	September 6, 2021, 23:56:03 (UTC-07:00)
<input checked="" type="radio"/> rahulmitra.mis543.com	US East (N. Virginia) us-east-1	Public	September 6, 2021, 23:54:27 (UTC-07:00)
<input type="radio"/> www.rahulmitra.mis543.com	US East (N. Virginia) us-east-1	Bucket and objects not public	September 6, 2021, 23:56:50 (UTC-07:00)

Step 3: Deploy Your Website

1. Create an Index Document and a Custom Error Document

The index document is the default page of a website. When you configure your website with a custom error document, Amazon S3 returns that error document for HTTP 4xx error codes. Create these files on your computer with the names **index.html** and **error.html** and save them where you can easily find them.

For instructions on how to create an HTML file on Windows/MAC follow this link:
https://www.w3schools.com/html/html_editors.asp

You can also type the following code snippets in Notepad and save them with '.html' extension.

- Add the following HTML code to **index.html**:

```
<html>
<body>
<p>Hello, World! I'm (Your name)'s MIS 543 website.</p>
</body>
</html>
```

b. Add the following HTML code to **error.html**:

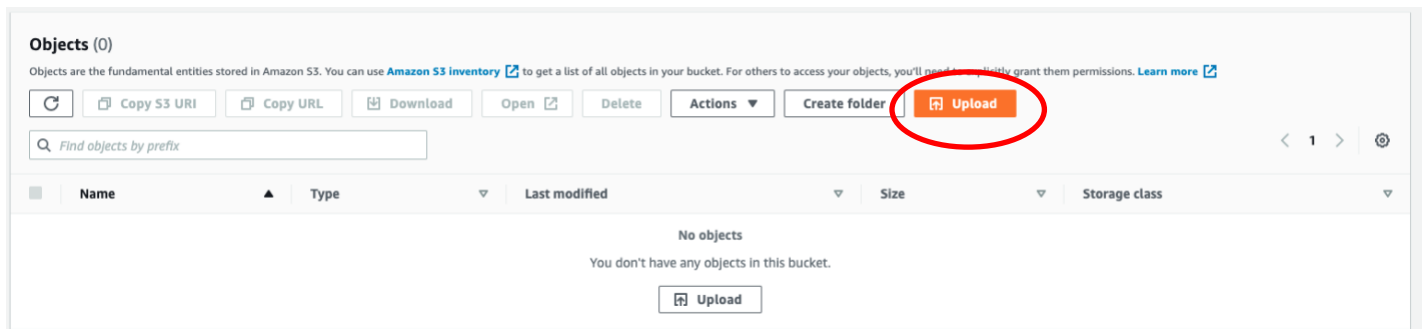
```
<html>
<body>
  <p>This is an error page.</p>

</body>

</html>
```

2. Upload Files to Your Bucket

- Click on the root bucket i.e. '**netid.mis543.com**' properties.
- Under the **Objects** tab click on the **Upload** option. Then click on **Add files**.



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Files and folders (2 Total, 150.0 B)
All files and folders in this table will be uploaded.

Remove

Add files

Add folder

Find by name

< 1 >

<input type="checkbox"/>	Name	Folder	Type	Size
<input type="checkbox"/>	error.html	-	text/html	64.0 B
<input type="checkbox"/>	index.html	-	text/html	86.0 B

Destination

Destination
s3://rahulmitra.mis543.com

► Destination details

Bucket settings that impact new objects stored in the specified destination.

► Permissions

Grant public access and access to other AWS accounts.

► Properties

Specify storage class, encryption settings, tags, and more.

Cancel

Upload

c. In the **File Upload** dialog box, select the index.html and error.html files that you created, and then click **Open**. Then click Upload in the **Upload** dialog box. When your files have finished uploading, they appear as follows:

Summary

Destination
s3://rahulmitra.mis543.com

Succeeded

2 files, 150.0 B (100.00%)

Failed

0 files, 0 B (0%)

Files and folders

Configuration

Files and folders (2 Total, 150.0 B)

Find by name

< 1 >

Name	Folder	Type	Size	Status	Error
error.html	-	text/html	64.0 B	✓ Succeeded	-
index.html	-	text/html	86.0 B	✓ Succeeded	-

3. Configure Your Bucket as a Website

a. In the **Buckets** pane, select your root domain bucket, click **Properties**, and then click **Static Website Hosting**.

Static website hosting

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

Static website hosting

Disabled

Edit

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- b. Make a note of the value of **Endpoint**; for example, *netid.mis543.com.s3-website-us-east-1.amazonaws.com*. You'll need this value when you visit the bucket or set up a redirection.
- c. Complete the **Static Website Hosting** pane as follows:
 - i. Select **Enable**.
 - ii. Select 'Host a static website' under Hosting type.
 - iii. In the **Index Document** box, enter index.html.
 - iv. In the **Error Document** box, enter error.html.
 - v. Click **Save changes**.

Edit static website hosting [Info](#)

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

Static website hosting
☐ Disable
☒ Enable

Hosting type
☒ Host a static website
Use the bucket endpoint as the web address. [Learn more](#)
☐ Redirect requests for an object
Redirect requests to another bucket or domain. [Learn more](#)

Index document
Specify the home or default page of the website.

Error document - optional
This is returned when an error occurs.

[Cancel](#) [Save changes](#)

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://rahulmitra.mis543.com.s3-website-us-east-1.amazonaws.com>

4. Set Up a Redirect

- a. Click the subdomain bucket you created i.e., *www.netid.mis543.com*, then click on **Properties** then on **Static Website Hosting**.
- b. Complete the Static Website Hosting pane as follows:
 - i. Click **Redirect requests**.
 - ii. In the Target bucket or domain box, enter the endpoint of your root domain. For example, *netid.mis543.com.s3-website-us-east-1.amazonaws.com*.
 - iii. Click **Save changes**

Edit static website hosting [Info](#)

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

Static website hosting

☐ Disable

☒ Enable

Hosting type

☐ Host a static website
Use the bucket endpoint as the web address. [Learn more](#)

☒ Redirect requests for an object
Redirect requests to another bucket or domain. [Learn more](#)

Host name

Target bucket website address or personal domain

Protocol - *Optional*

☒ none

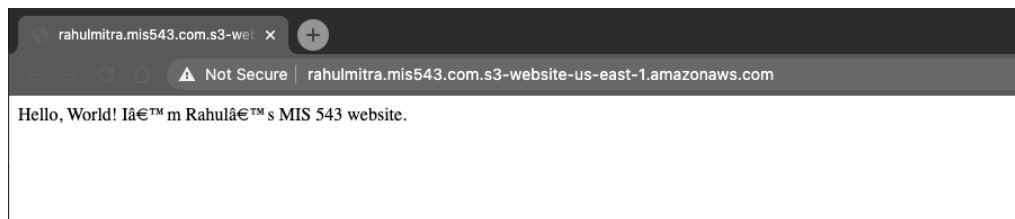
☐ http

☐ https

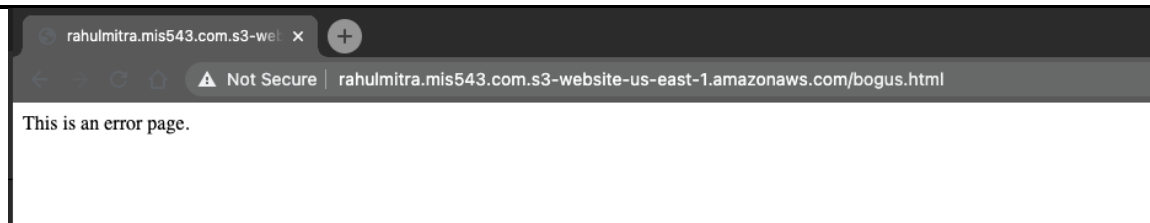
Cancel **Save changes**

5. Test Your Website

- a. The default URL assigned by AWS is the **Endpoint** (in this case) ***netid.mis543.com.s3-website-us-east-1.amazonaws.com***. Click the endpoint. If your website is correctly deployed, you'll see its home page such as follows:



- b. To verify that the subdomain bucket is properly redirecting visitors, try to access ***http://www.netid.mis543.com.s3-website-us-east-1.amazonaws.com***. If your website is correctly deployed, you are redirected to ***http://netid.mis543.com.s3-website-us-east-1.amazonaws.com***. The format that you see on the page is what you mentioned in the index file. In order to change it, try saving and uploading the index file again.
- c. To verify that the error page is working, try to access a page on your new website that doesn't exist, such as ***http://netid.mis543.com.s3-website-us-east-1.amazonaws.com/bogus.html***. If your website is correctly deployed, you are redirected to your custom error page as follows:



6. Check the Log Files

- Open the Amazon S3 console at <https://console.aws.amazon.com/s3/>.
- Click on the logging bucket for your website i.e., logs.netid.mis543.com.
- Click 'root' to view the log files stored within.