How to Setup a Simple Storage Service, S3

In this documentation, we will be discussing the benefits, usage and setup/teardown of the Simple Storage Service, or S3. Let us begin with disclosing what the service S3 is.

S3, stands for ***Simple Storage Service***. *It is a global object storage service. S3 can be used to store and recover any amount of data, at anytime from anywhere utilizing a public internet connection.*

It is a ***global storage service***, that can be accessed anywhere from within AWS platform. The data/files that are stored using S3 stays within the region it was uploaded in, making S3 ***regionally based***. The data does NOT leave that region unless arranged to do so. It is ***regionally resilient***, meaning it can be accessed across all the availability zones, again, within a specific region. Therefore, if any zone goes down, the data is not lost.

It is a *public service, where an unlimited amount of data can be stored* and *reached by a multitude of users.*

S3 is *designed to hold large sets of data*. These files could be movies, audio, text, photos data for IoT devices, blog posts or website data. The data can be accessed through GUI's (graphical user interface) CLI (command line) AWS API (application programming interface) and HTTP (hypertext transfer protocol).

Objects are files or data that can be uploaded, stored, accessed and deleted from buckets. ***Buckets*** are the containers in which the objects are deposited.

Objects are made up of several parts, along with information about the data or *metadata.* One part of an Object is a ***key*** which is the file name of the object. If you have the file name, you can easily search to retrieve the second part of the object, which is the *value*. The ***value*** is the data/content itself. An objects value is its size and that *ranges from zero bytes to 5 terabytes.*

Buckets once created in a region, never leave that region unless made to do so by an authorized user. A bucket is identified by its name or *bucket name, which must be a unique name identifier in **ALL** the AWS core platform. This makes bucket names **globally unique.*** Buckets can hold an ***unlimited*** amount of data/objects. The objects are stored together, on the same level as other objects in the bucket. This type of storage is a *flat structure.* There are no file types in buckets, everything is an object or a piece of data.

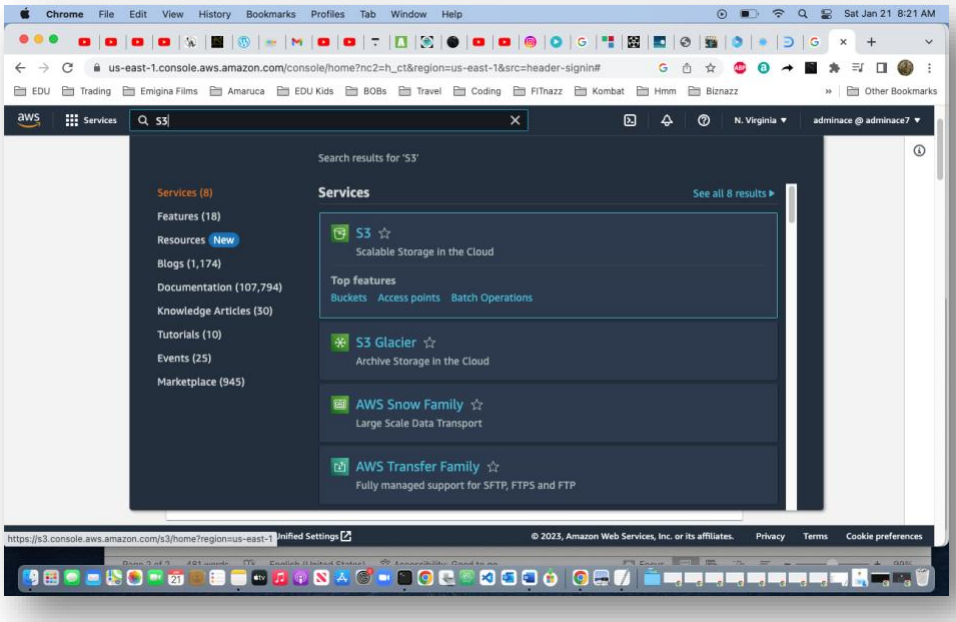
To create folders of objects within a bucket, you have to prefix the key of an object with a slash and then the intended folder name. An example of this is object key cowboy.jpg. To put this object in a folder (folder named west) prefix it with a slash then type west, followed by another slash: /west/cowboy.jpg.

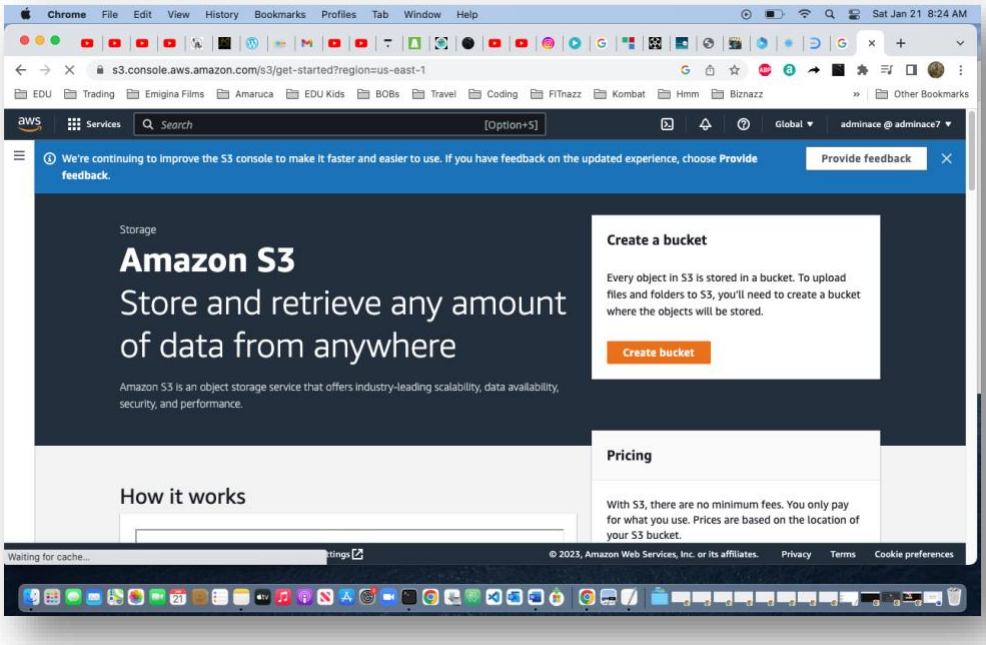
Buckets are the default area where options and permissions(rules) are set in S3.

Now we shall begin the setup process of an S3 bucket with objects, that will operate as a static website able to be reached by HTTP.

S3 Setup as a Static Website

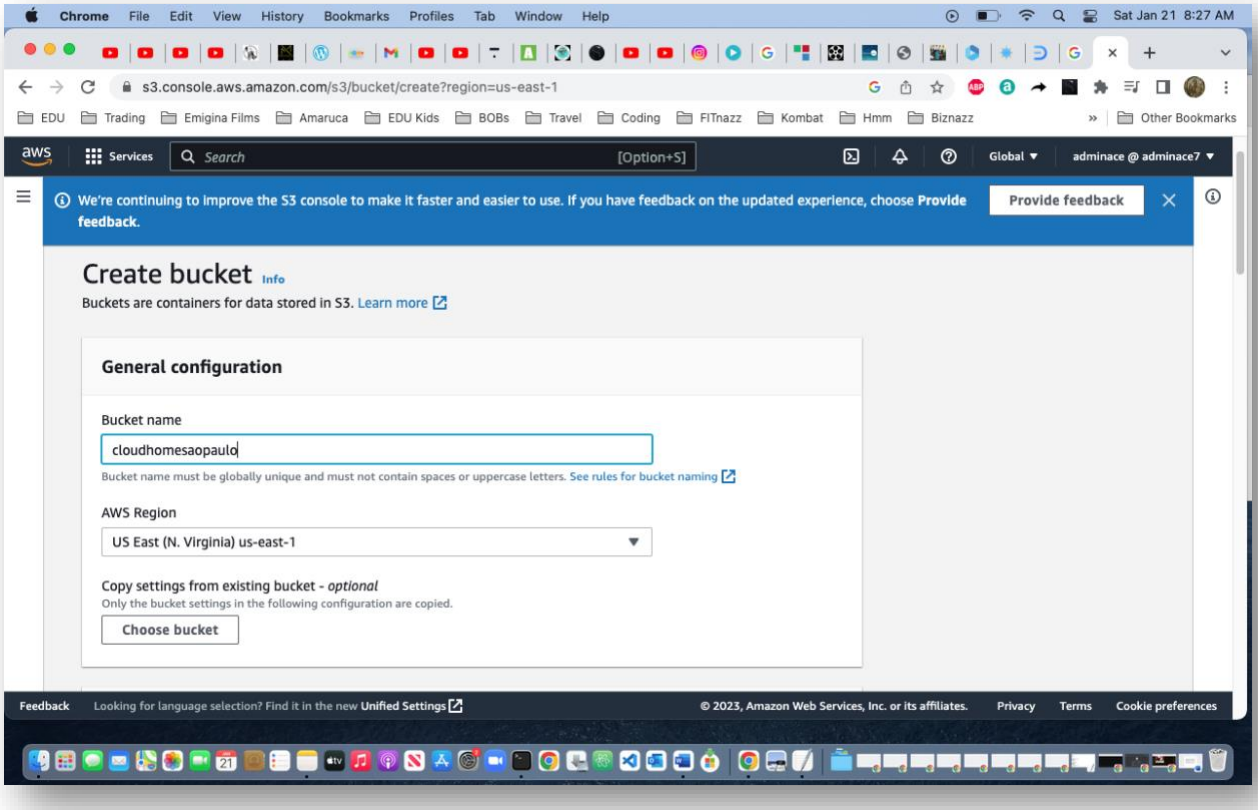
Go inside your AWS account and type “S3” in the ***find services search box***. Select the “**S3**” option to arrive at the ***S3*** *main page*. Select the “*create bucket”,* button.





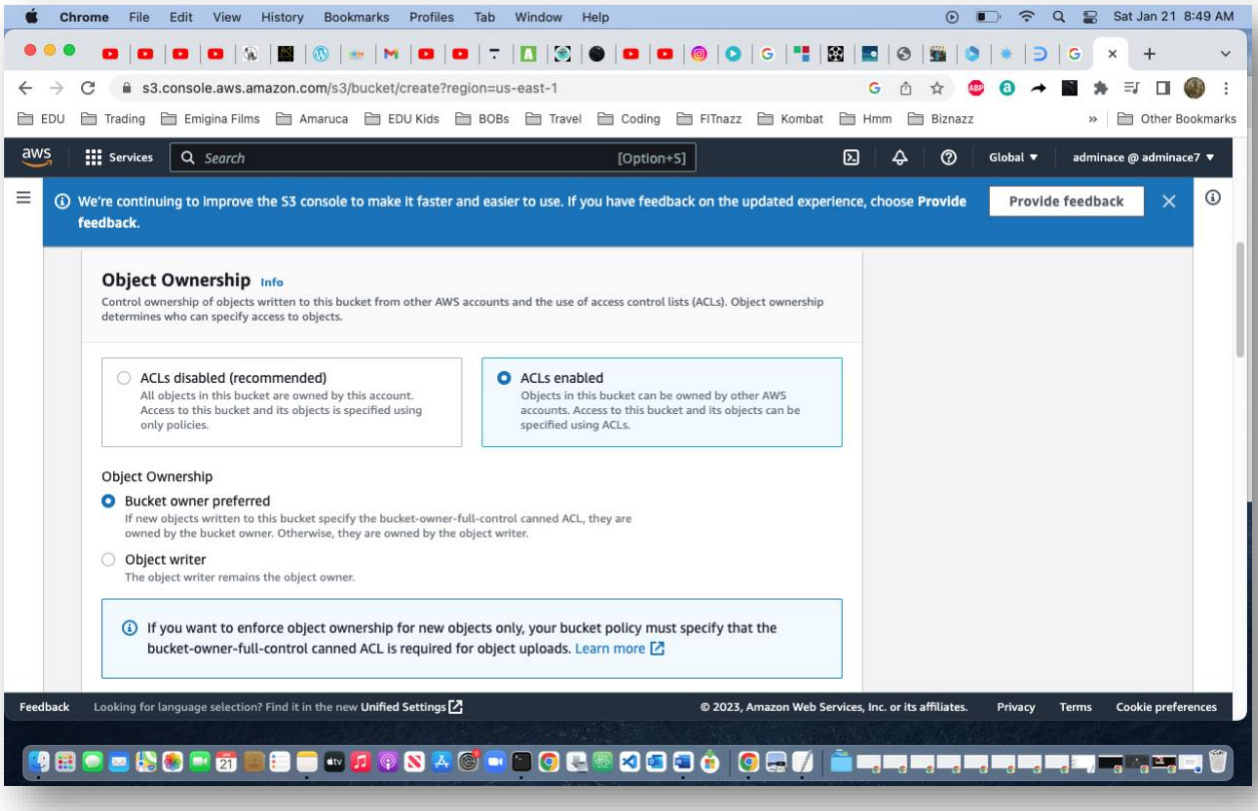
On the ***Create Bucket*** page, under the *General configuration* section, give your bucket a ***Globally Unique,*** name. To do so, use these best practices below in coming up with a bucket name:

- Use between 3-63 characters, that are all lower case and can start with a letter or number, except the prefix xn--.
- Permissible characters can be dots(.), and hyphens (-). No underscores.
- No adjacent periods.
- Cannot format the name in the same manner as an IP address.

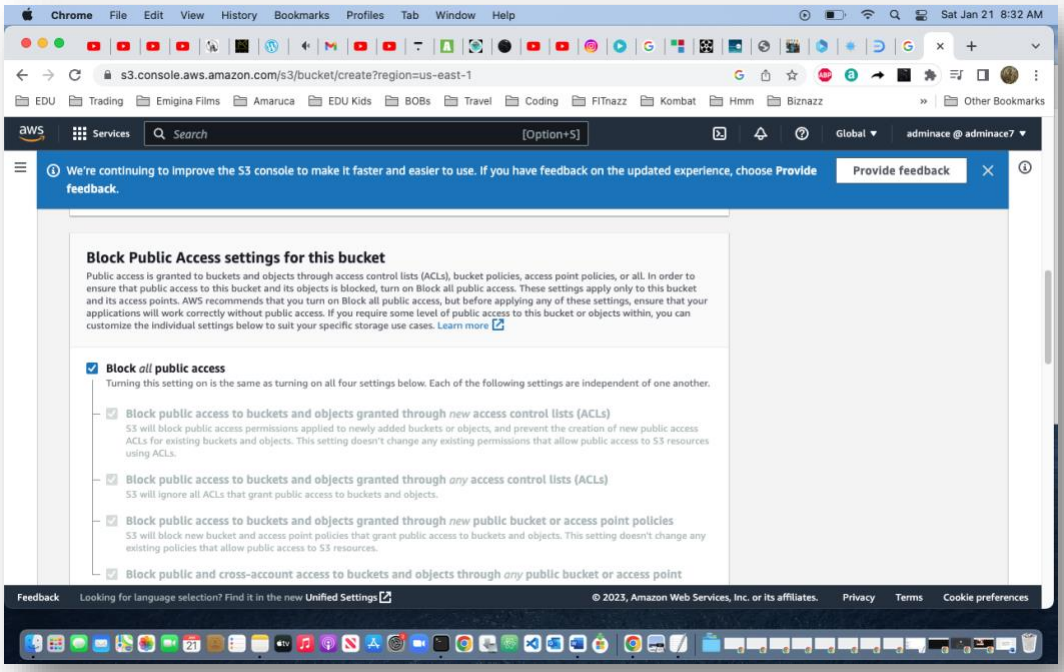


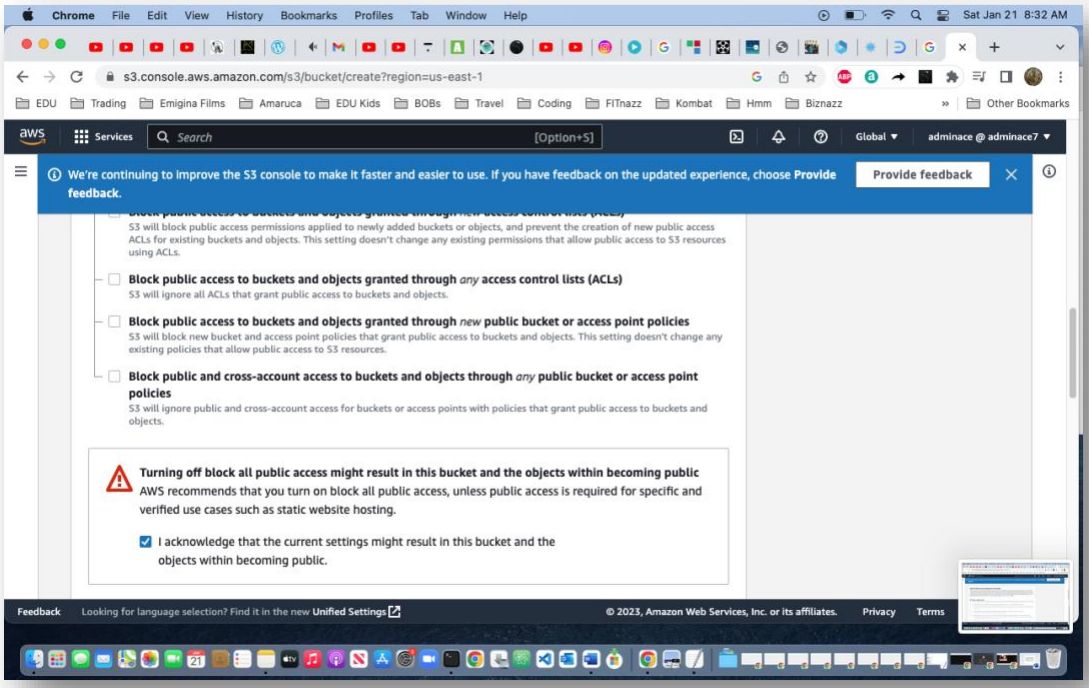
Next, in the *Object Ownership* section we will grant access to our bucket and objects. We do that through ***ACL's*** or ***Access Control Lists.*** *ACLs allows the user to set rules on which accounts/groups have access to the bucket and objects, as well the type of access permitted.*

We will select the "*ACLs enabled",* option. This option will be used to allow HTTP traffic access to our bucket, so we can access it through a public internet.



For the *Block Public Access settings for this bucket*, section, we will uncheck the "block *all* public access", box. This is ONE of the steps necessary to allow public access over HTTP to our bucket and objects. Then we will acknowledge our consent in allowing access in the warning dialog box below.

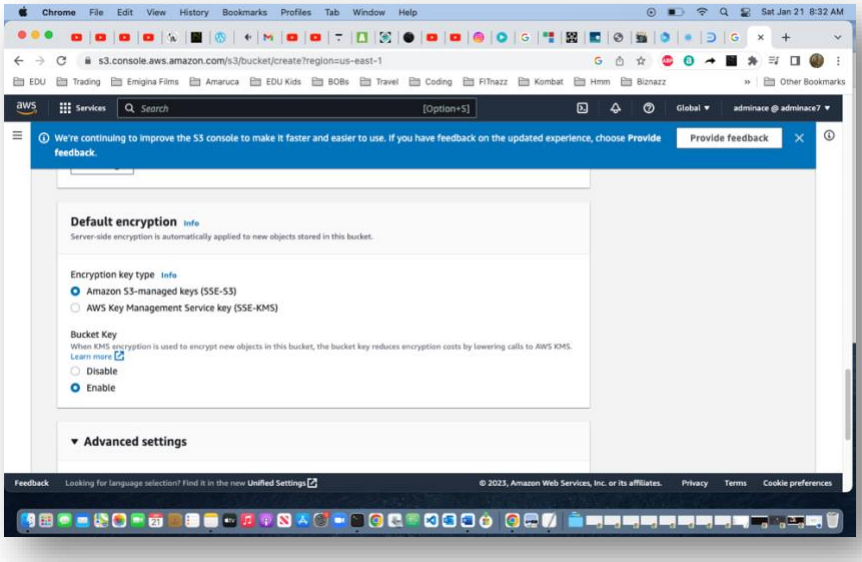


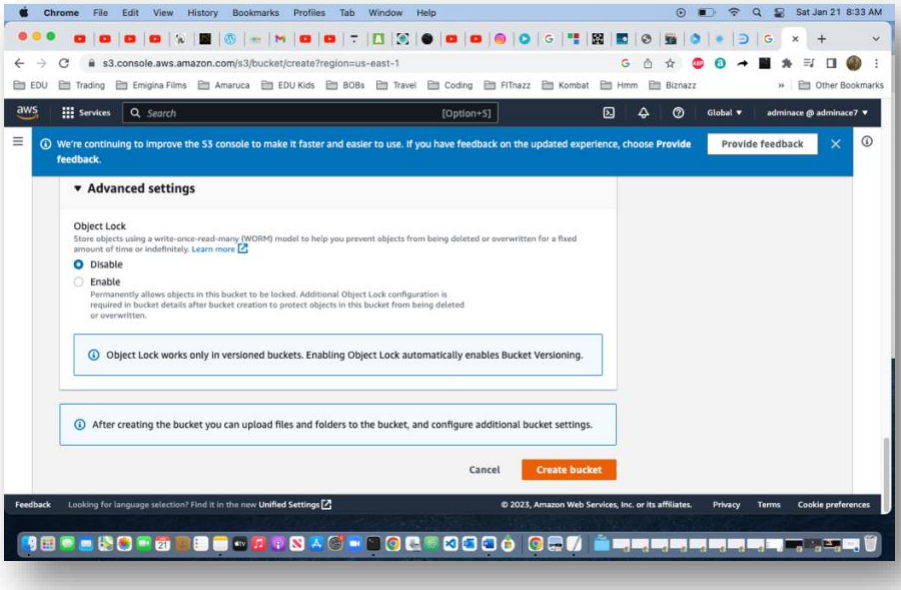


We can skip some sections as we are making a basic bucket with objects. At the *Default encryption* section we select the "*Amazon s3-managed keys" for Encryption key type* and the "*enable",* option under the *Bucket key* subsections.

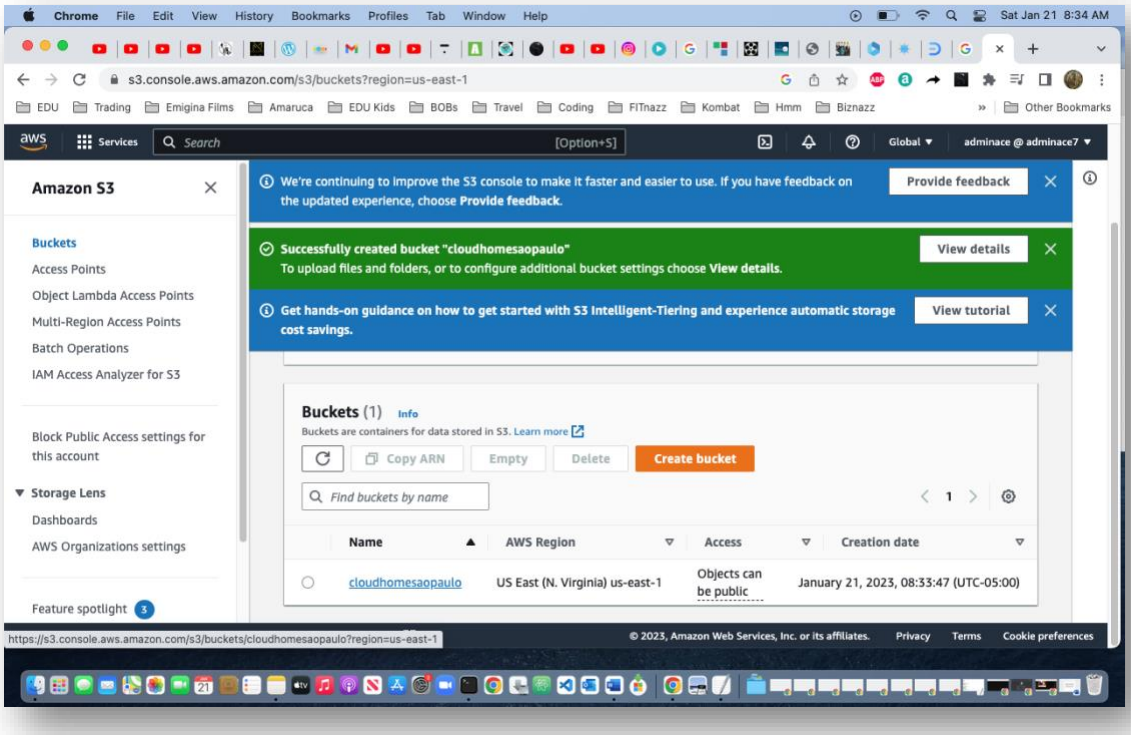
This section gives AWS authority to handle all encryption of data stored in your S3 bucket.

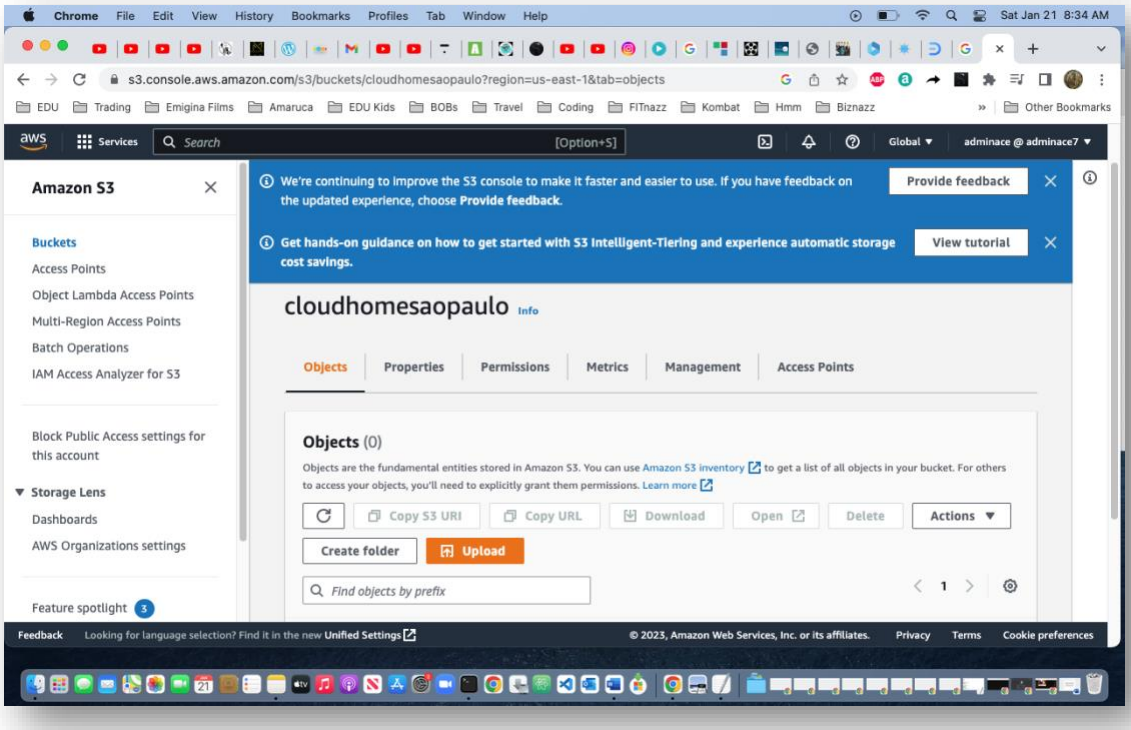
Then you can scroll to the bottom to select the "*create bucket",* button, to finish configuring the bucket.



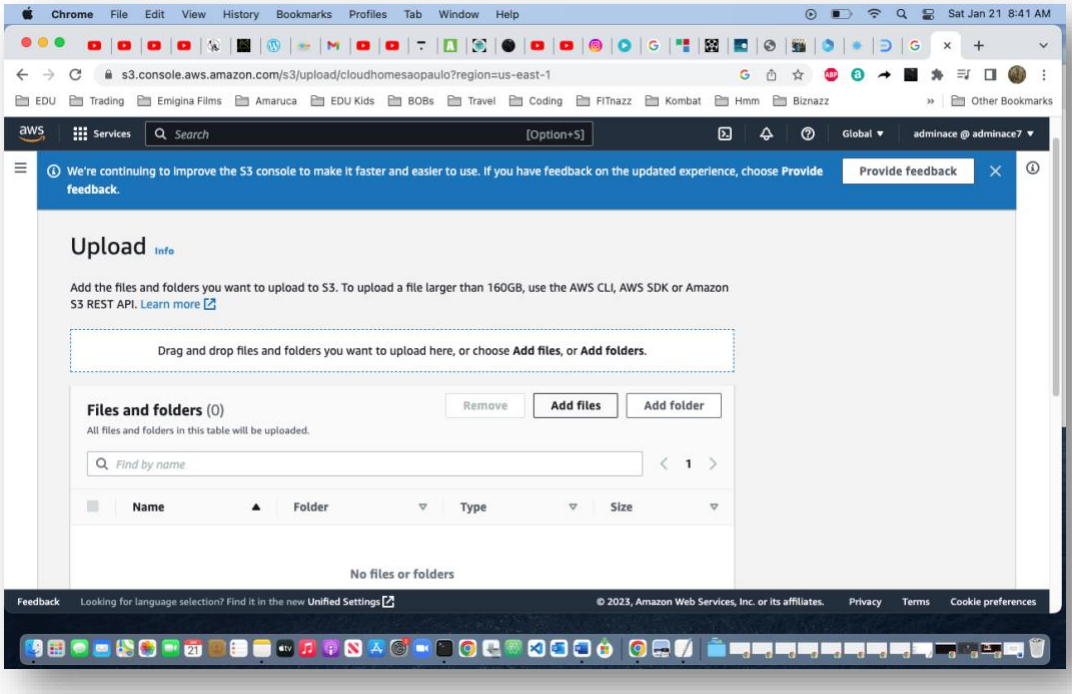


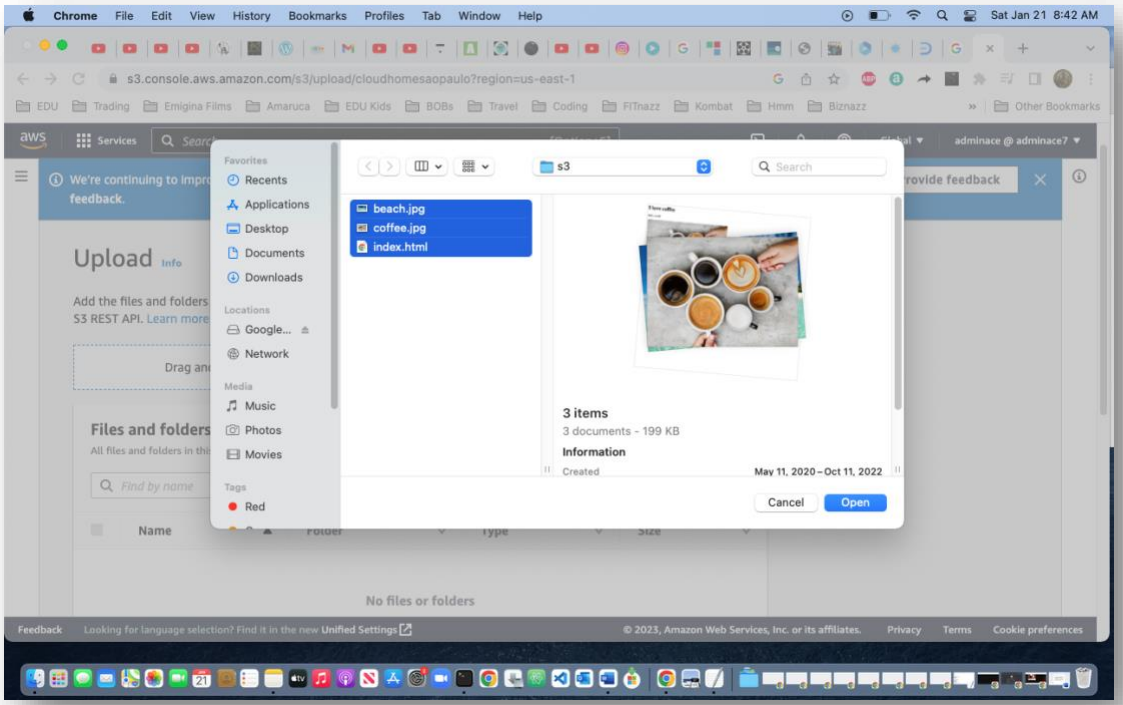
As you can see below, we have our first S3 bucket successfully completed. Now we can begin adding objects to it. Select the *"upload"* button to begin.



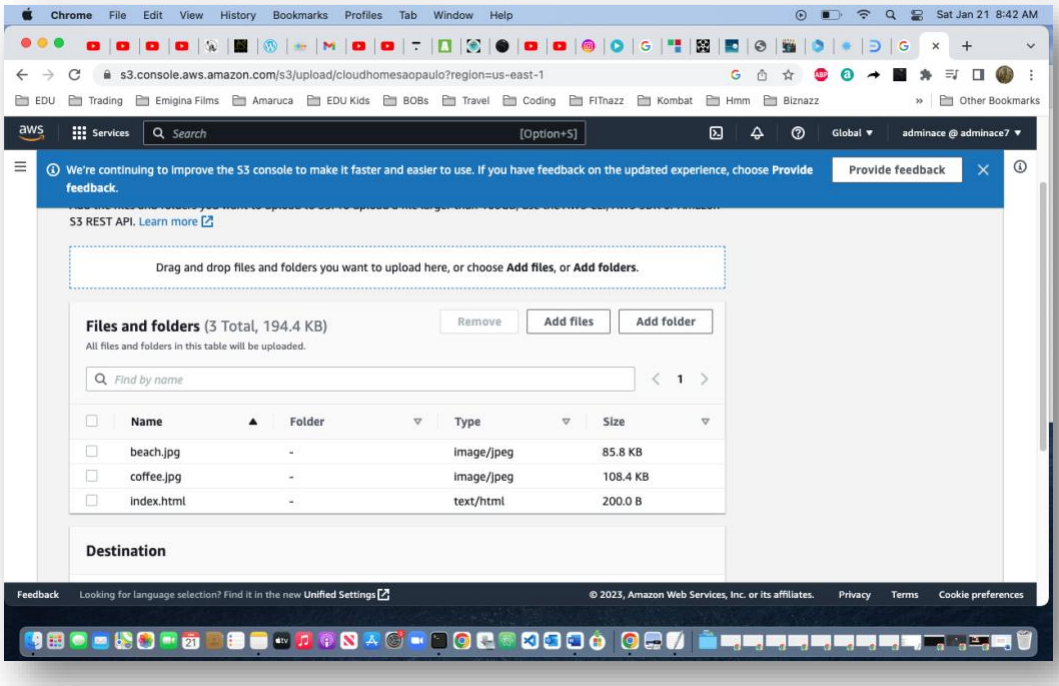


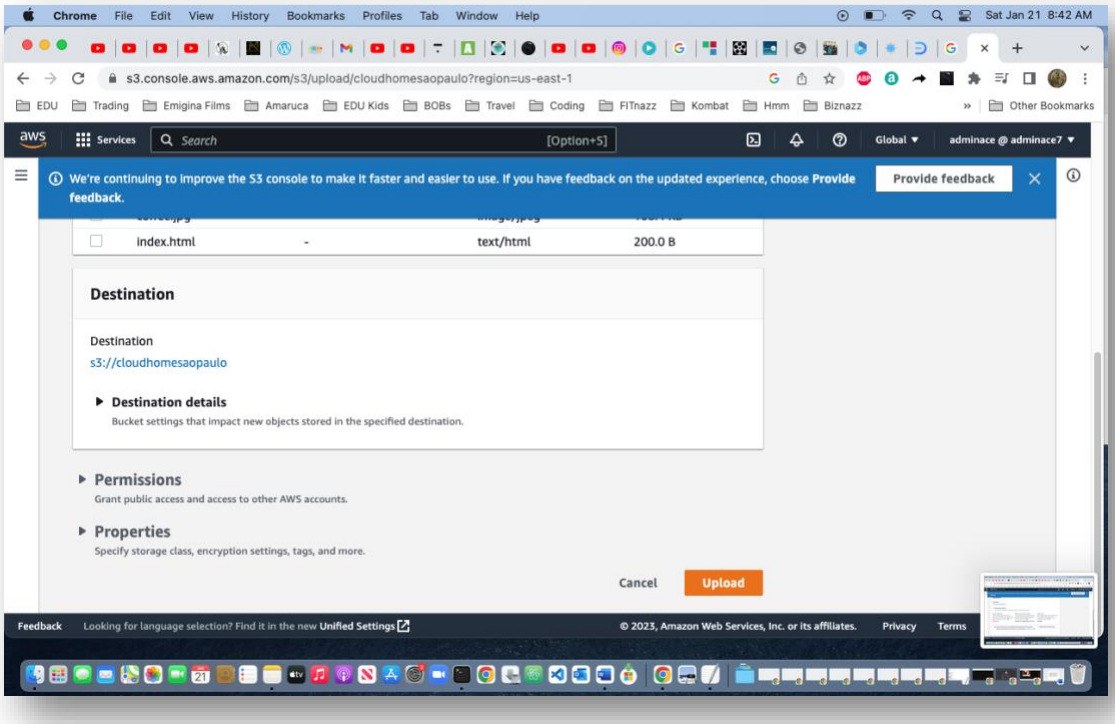
Here at the ***Upload*** page, we will go to the "*Files and folders"* section and select *"Add files"*. We will select the 3 files from the *S3 folder* donwloaded from our Stephane Maarek Udemy course.



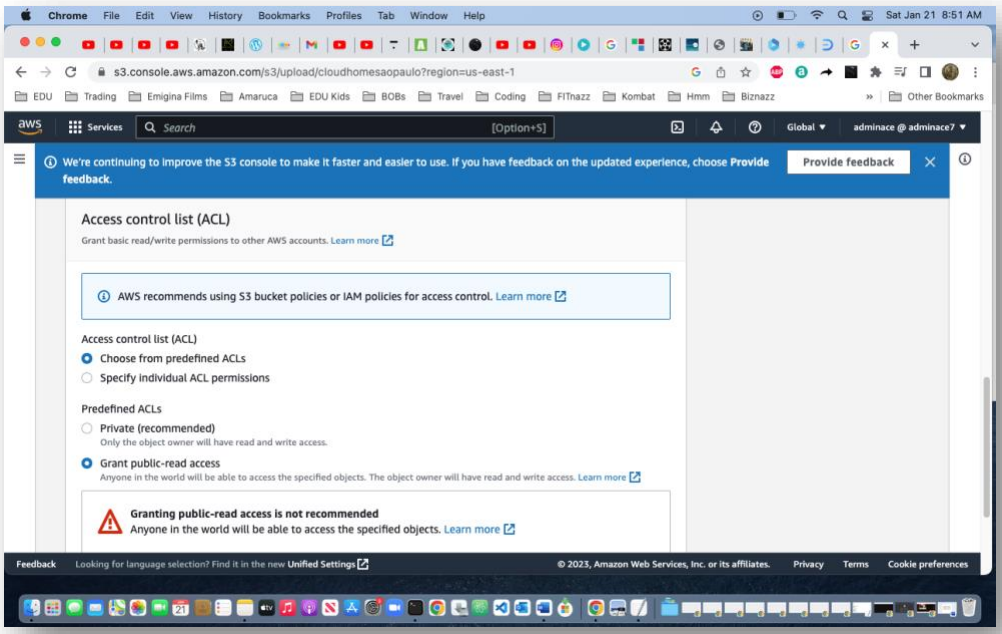


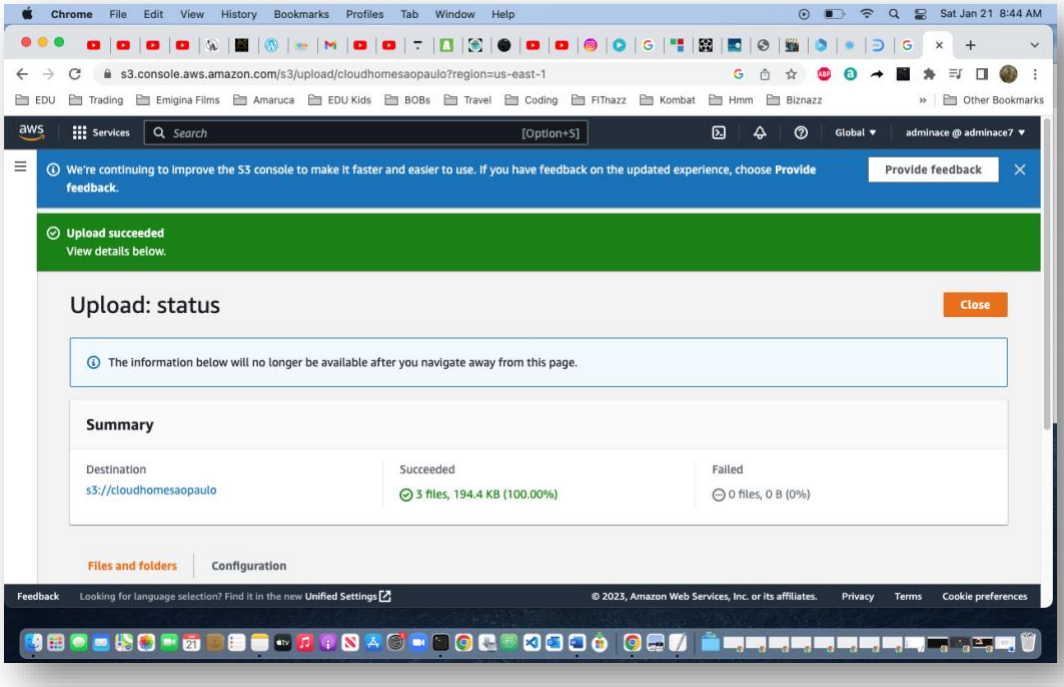
Next we scroll down to the *"Permissions"* section to enable our ACLs to allow acess to our newly added objects.



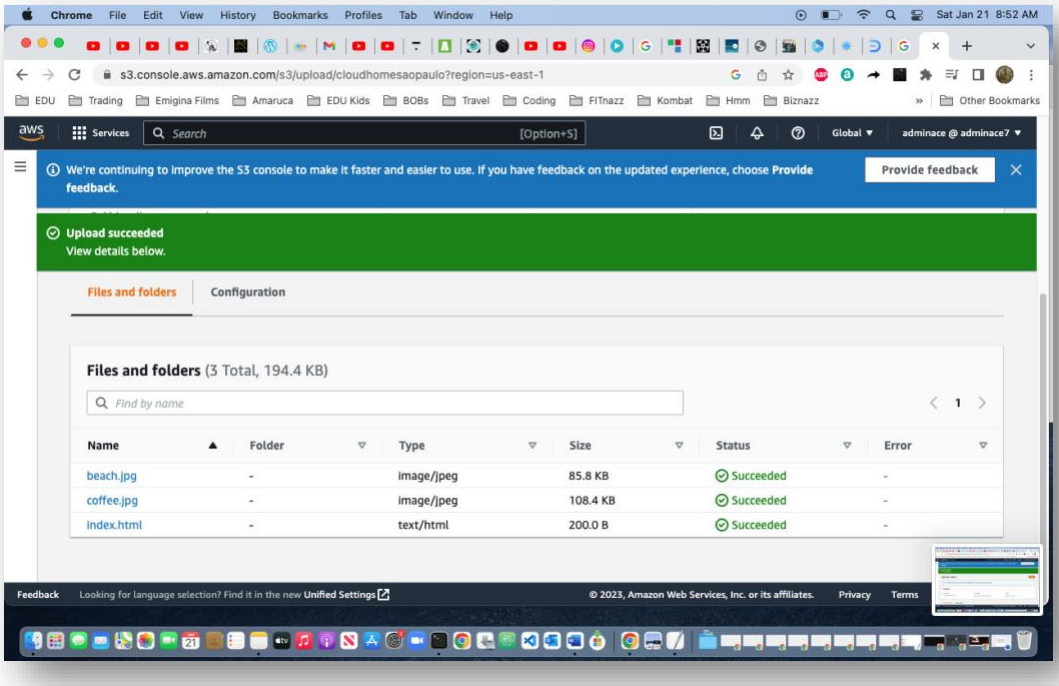


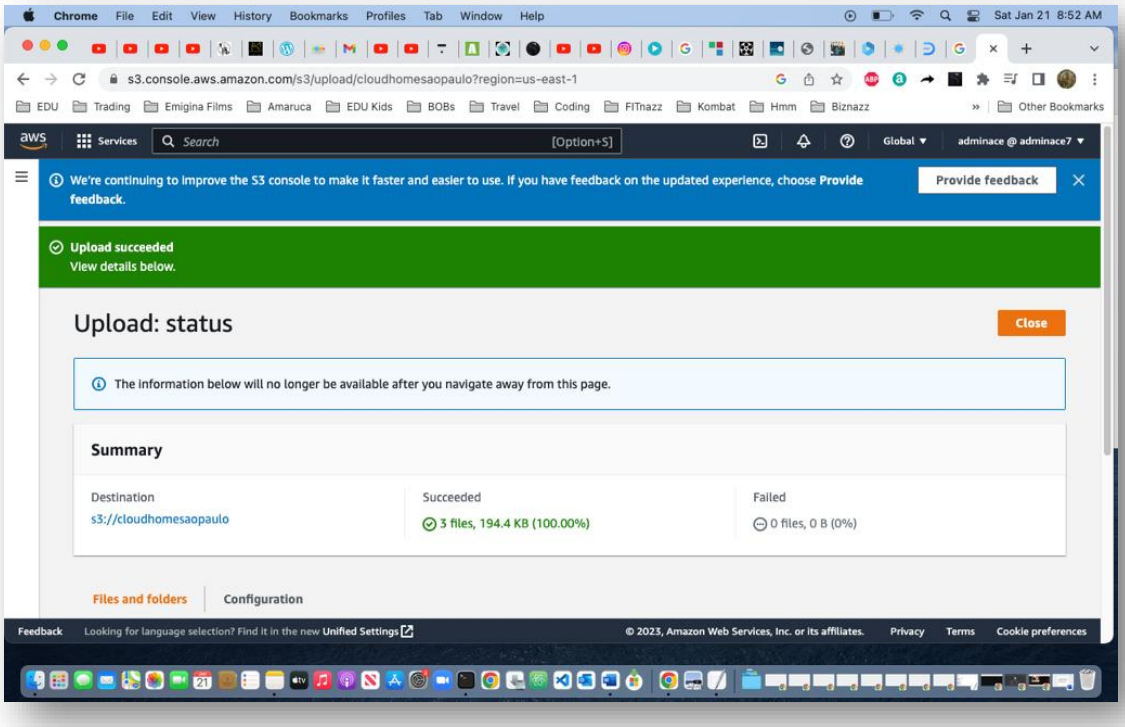
At the *"Access control list",* section we will select the "*choose from predefined ACLs",* under *Access control list* and "*grant public read access"* under the *Predefined ACLs.* Once this is done we can scroll to the bottom of the page, to select the "upload" button. The next will display a green banner success message for the uploads.





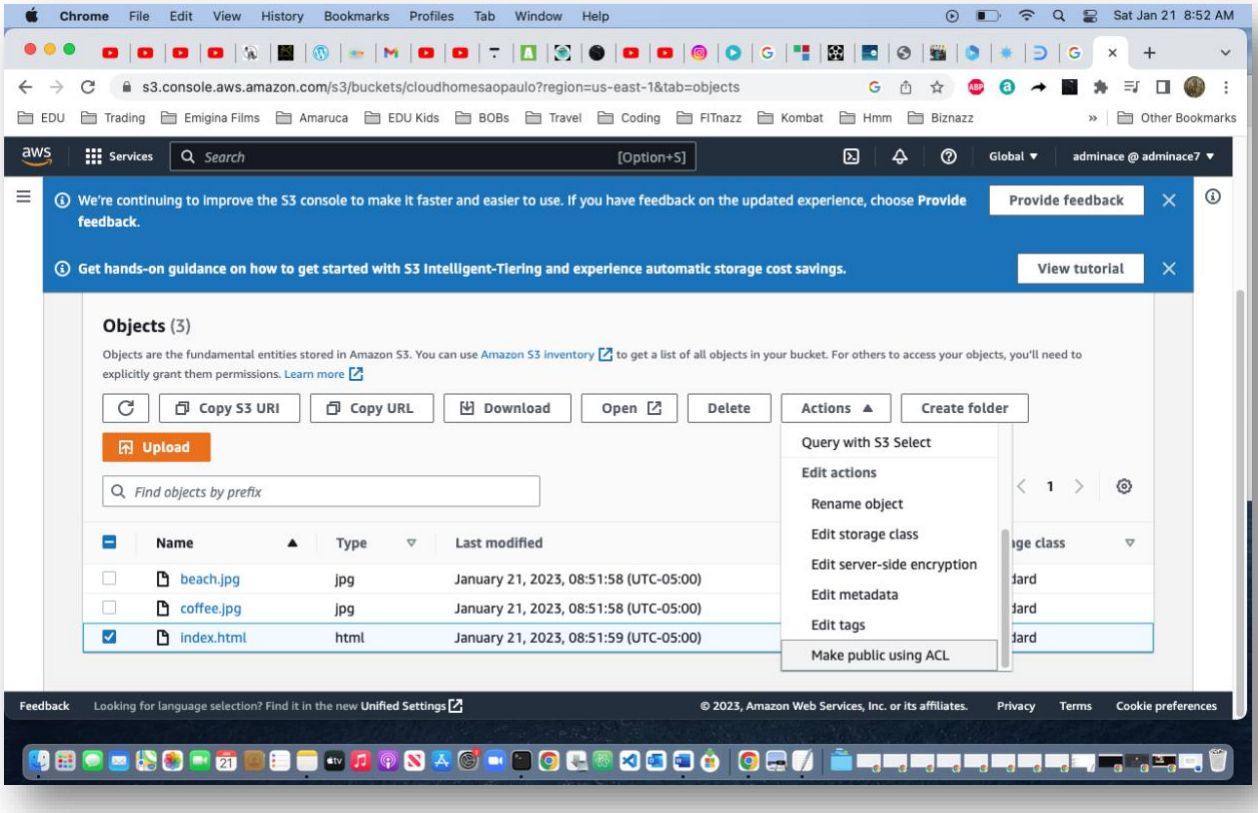
As shown below, we successfully upload our objects. On this page, we select the “close” button to arrive at our objects page.



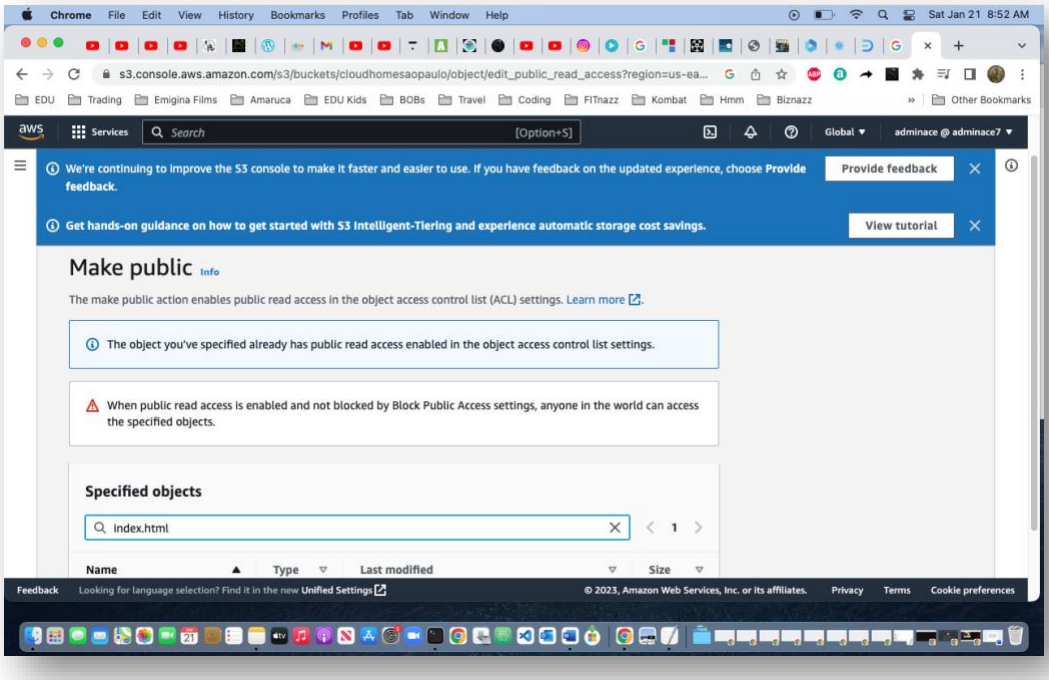


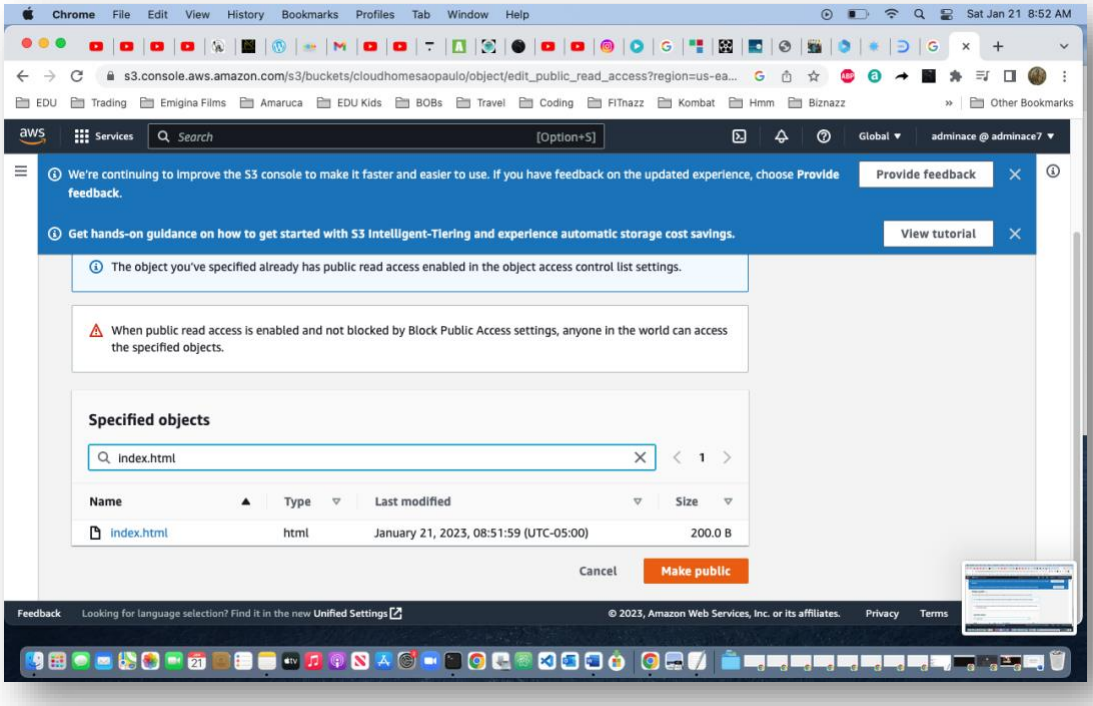
At the objects page, we can see the 3 files we have uploaded into the bucket.
It is at this stage we will begin making each object public through our ACLs.

Check the box next to the hypertext *index.html* object. Then go to the *"Actions"* button. Press it, then scroll to select the *"Make public using ACL"*, option.

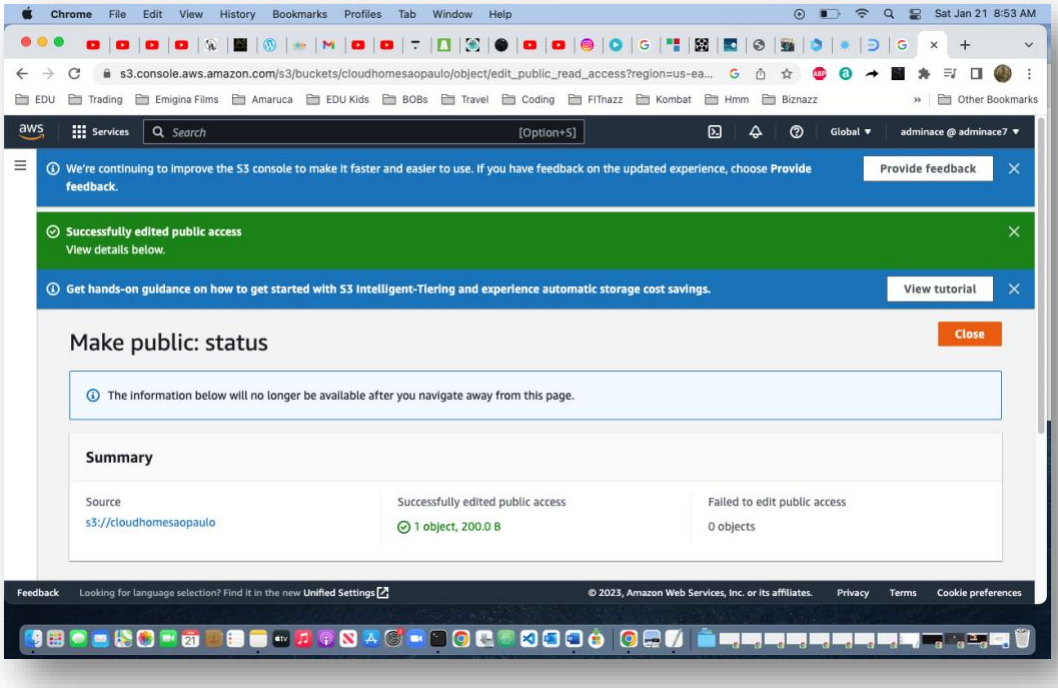


On the ***Make Public*** page, we individually make each object public, one at a time. Go to the *Specified Objects* section and type in the key or file name *index.html*, the object we previously selected from the last page. Then select the "*make public"* button at the bottom.

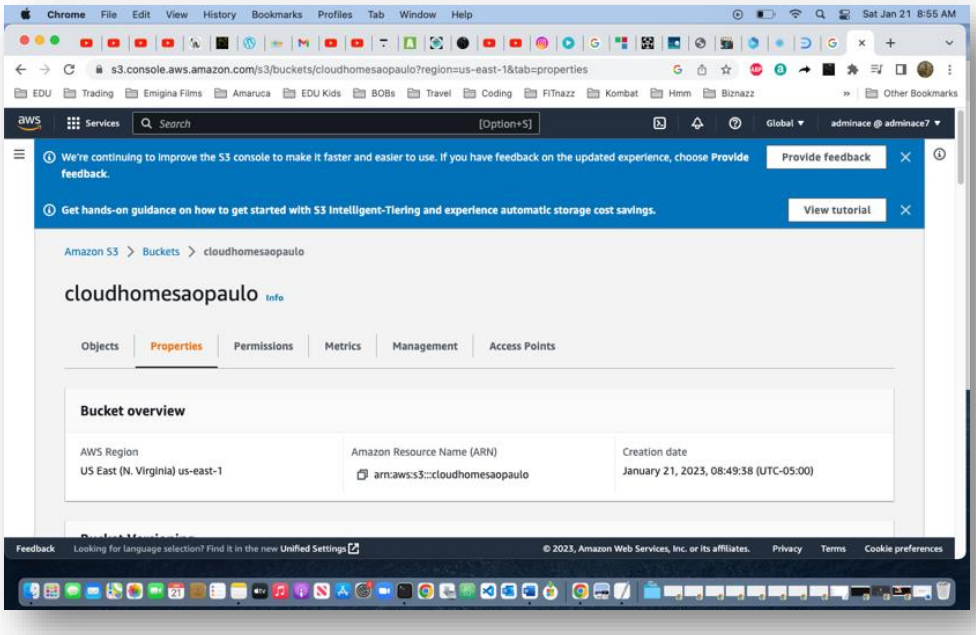




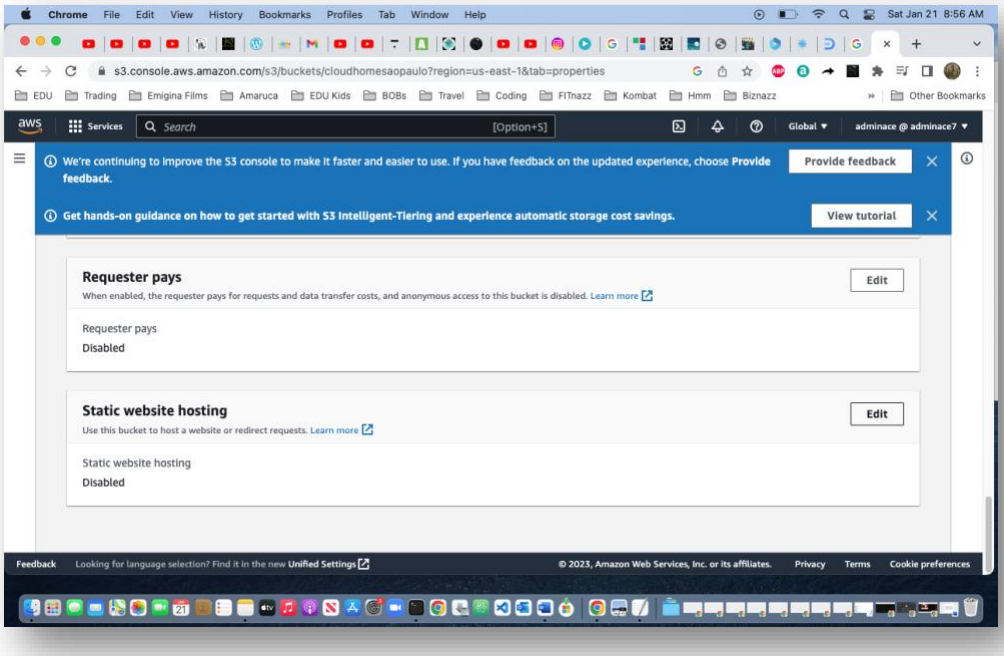
As seen below we successfully made our first object public. Click the *"close"* button to go back to the objects page. We will now repeat this same process to make the last two objects public.



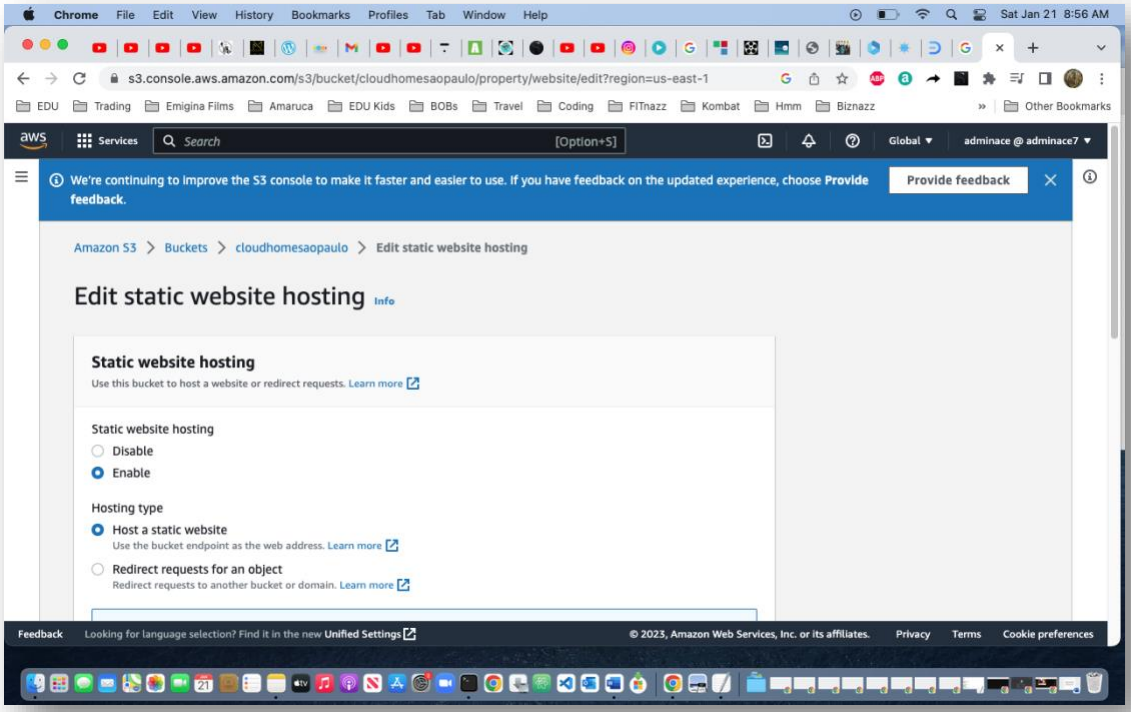
After making all our objects public, we will now enable our static website feature in order to view our objects over the internet. On our objects page, select the *Properties* tab.



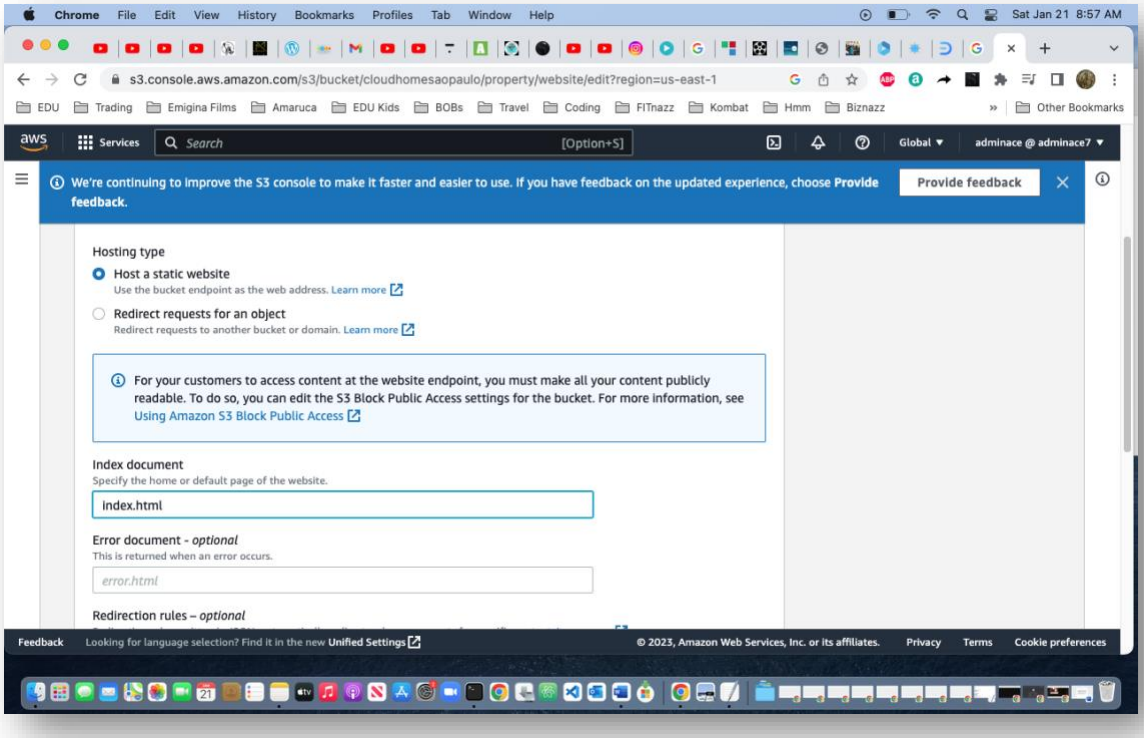
Scroll down the ***Properties*** page until you arrive at the "*static website hosting"* section. Click the edit button to start setup.

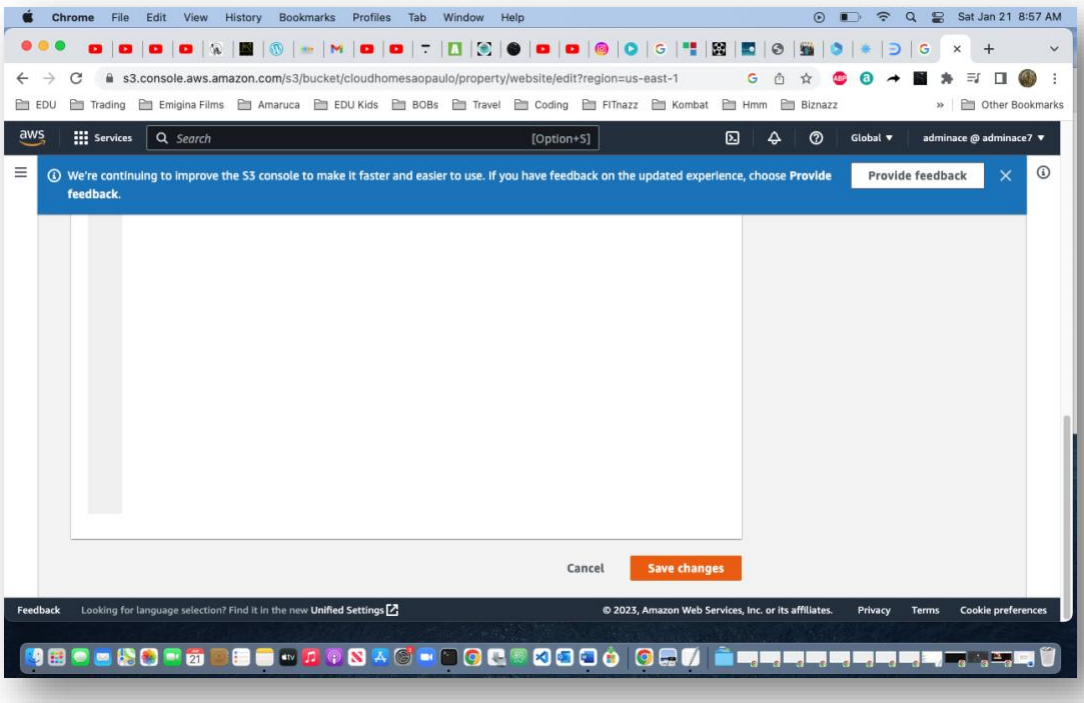


In this section, we will select "*enable",* static web hosting and *"host a static website"* for hosting type.

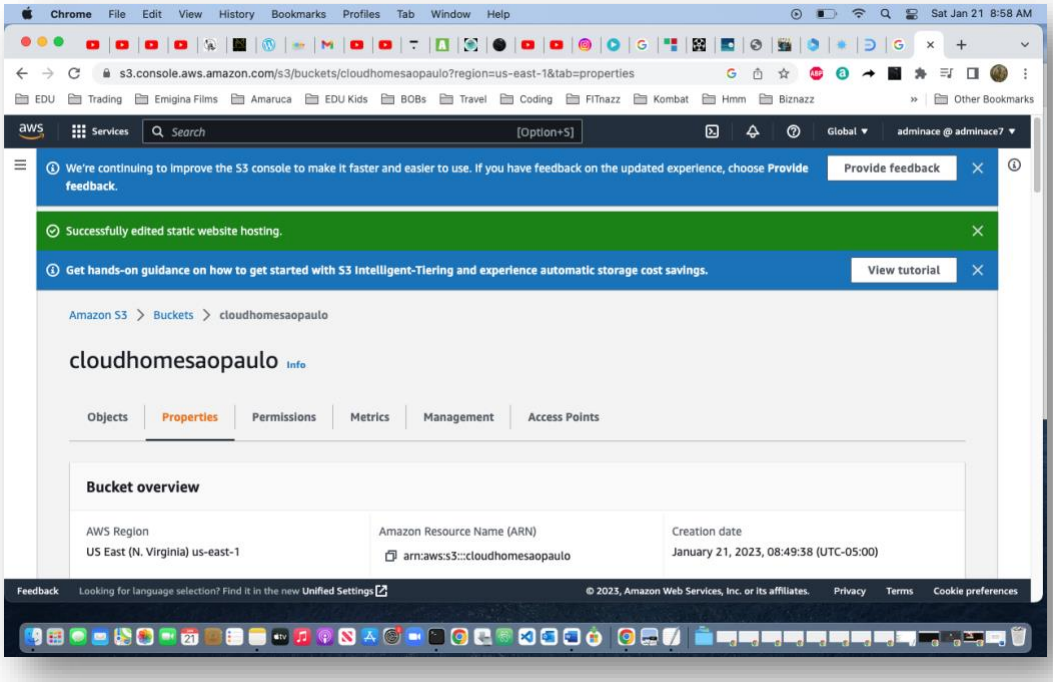


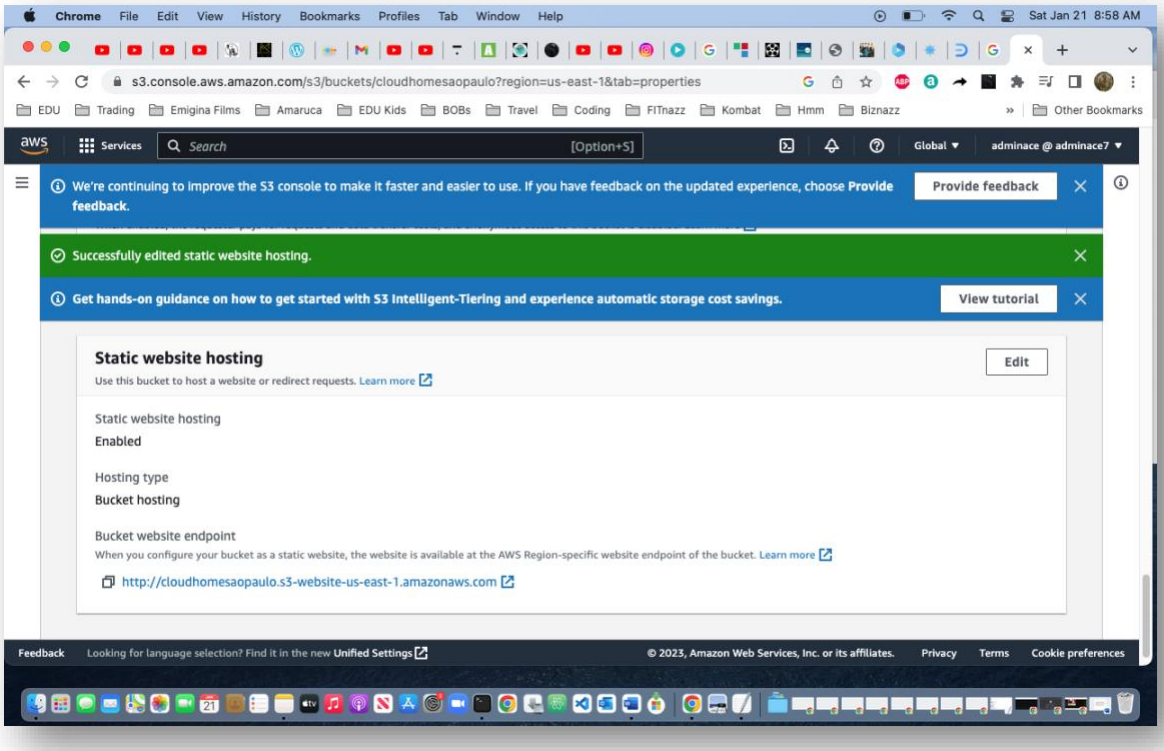
To direct traffic to our home page, we will type, *"index.html"* in the input field under the *index document* subsection. We then scroll to the bottom of the page to select the *"save changes"* button.



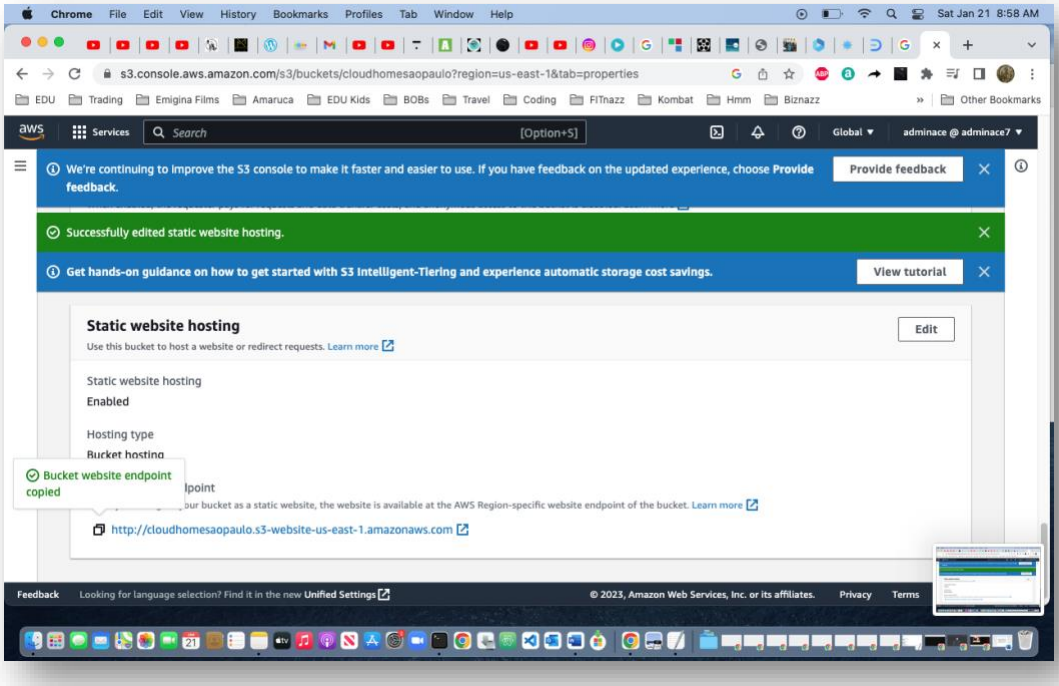


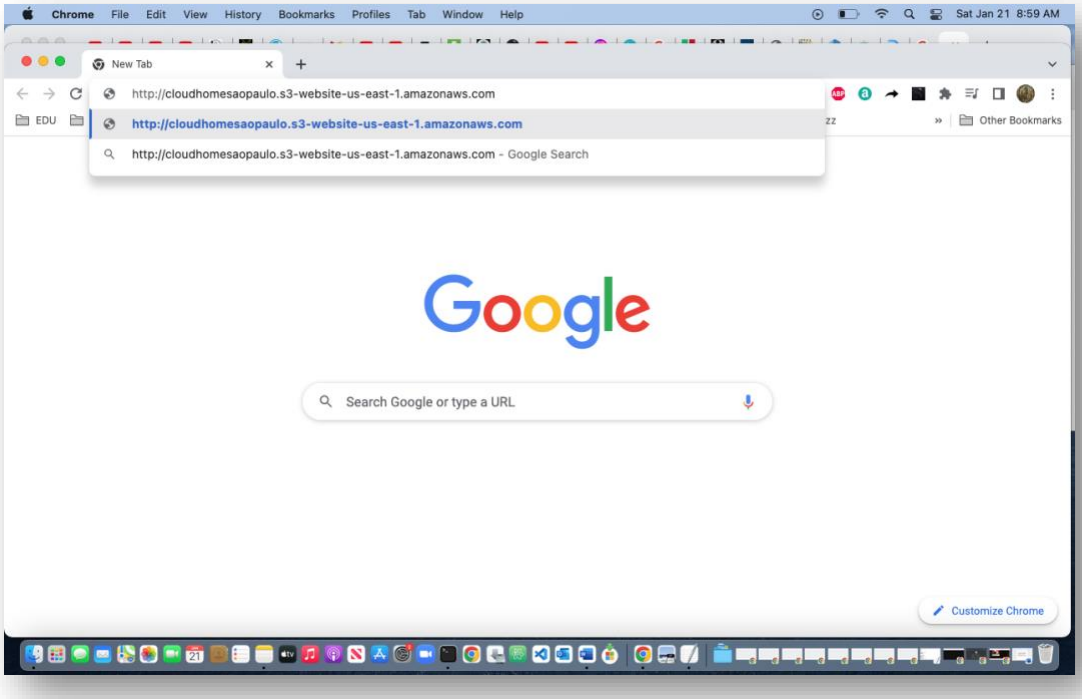
Below you can see the green success banner letting us know our website is up and running. Let us scroll, while under the ***Properties*** tab, back to the *Static Web Hosting* section.



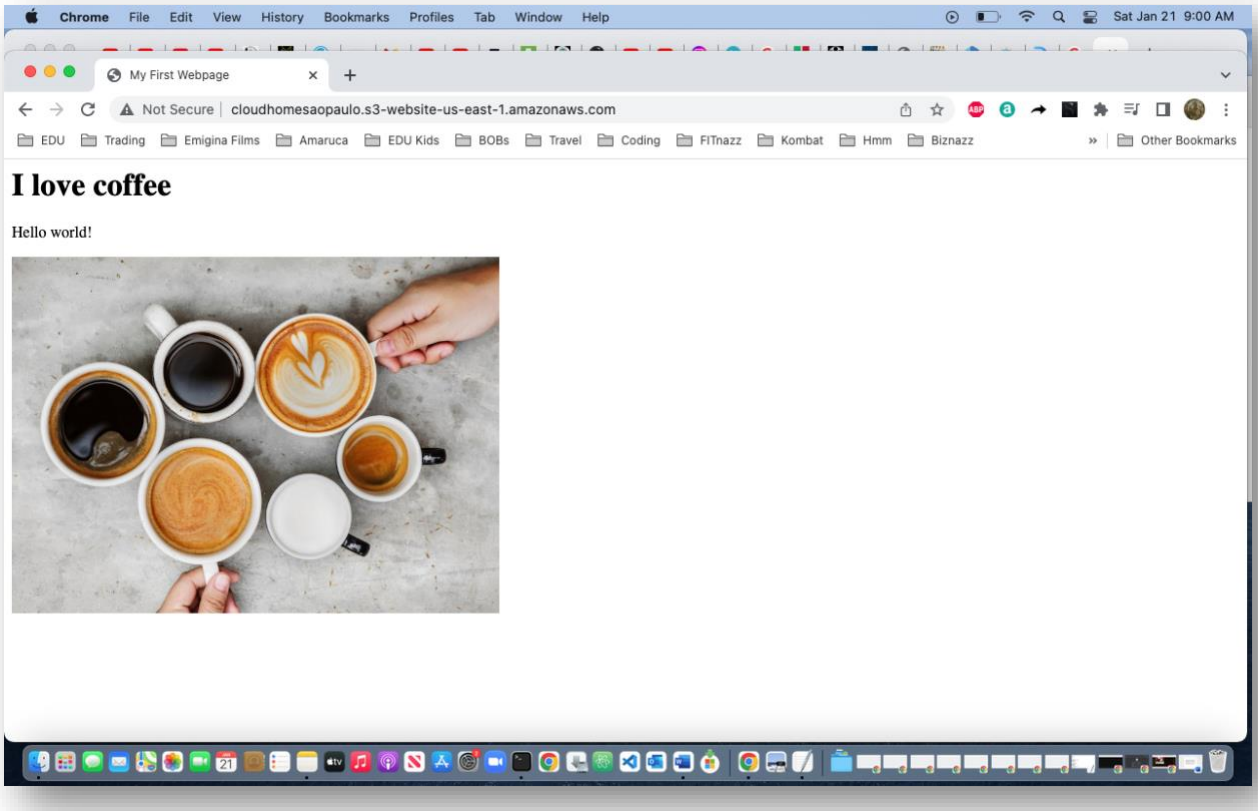


Here we will click on the double boxes, copying our *Bucket website endpoint* address. From here we can open up a new web browser window or tab to paste the bucket website endpoint in the address bar.



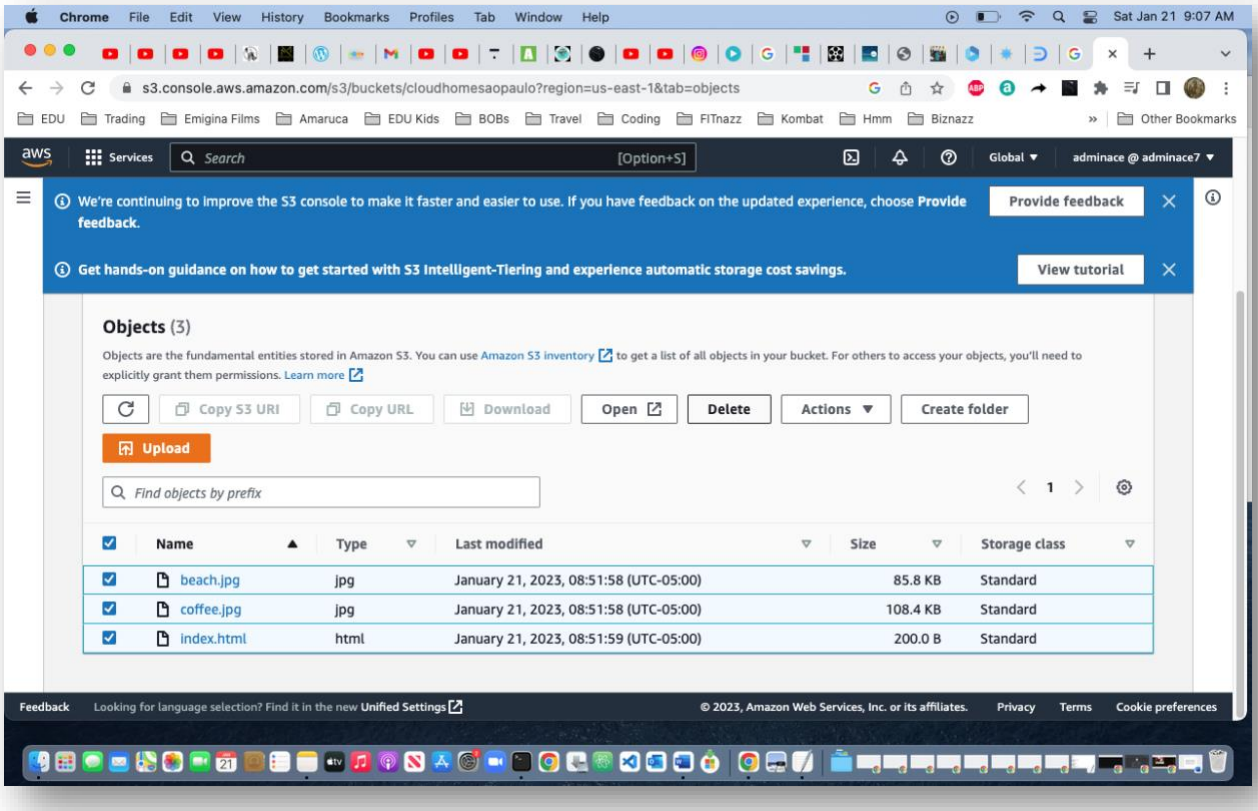


As we can see below, we are using the public internet to access our ACL, which allows traffic into our S3 bucket to see our objects on display on a web page.

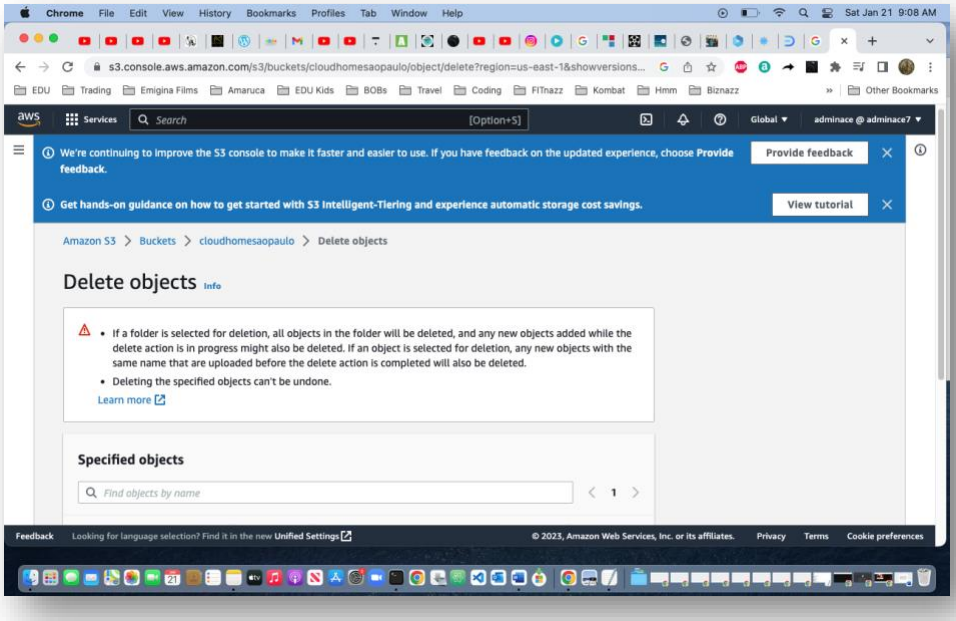


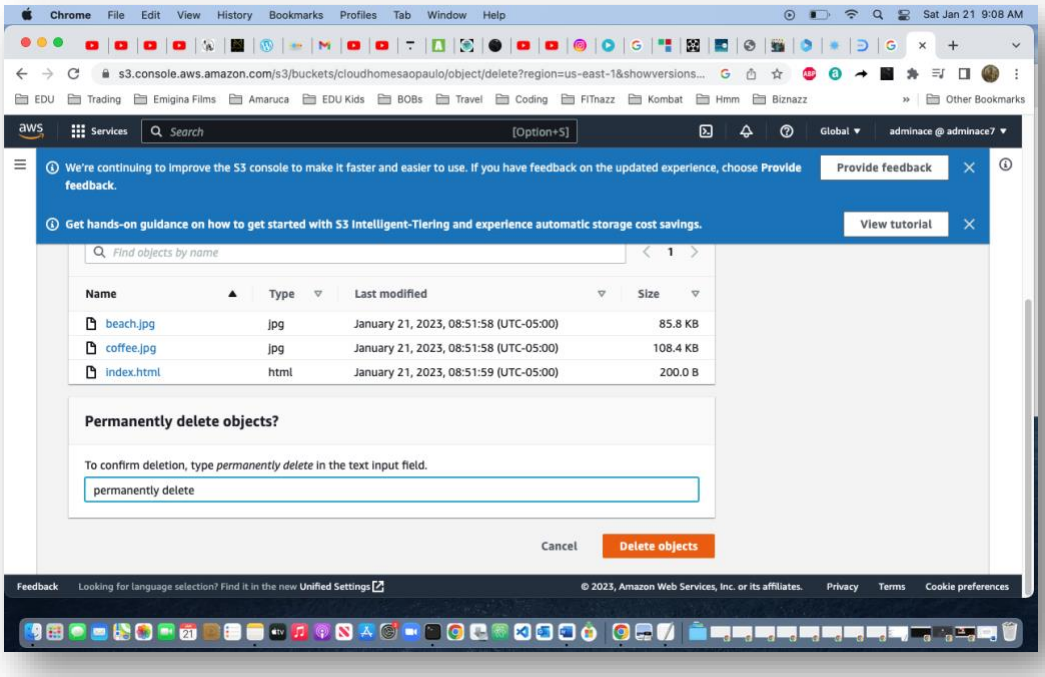
How to Terminate and S3

To terminate our S3, we will delete the objects and then delete the bucket. Go to the ***Objects*** page and select all the objects checkboxes. Next click the "*delete"* button.

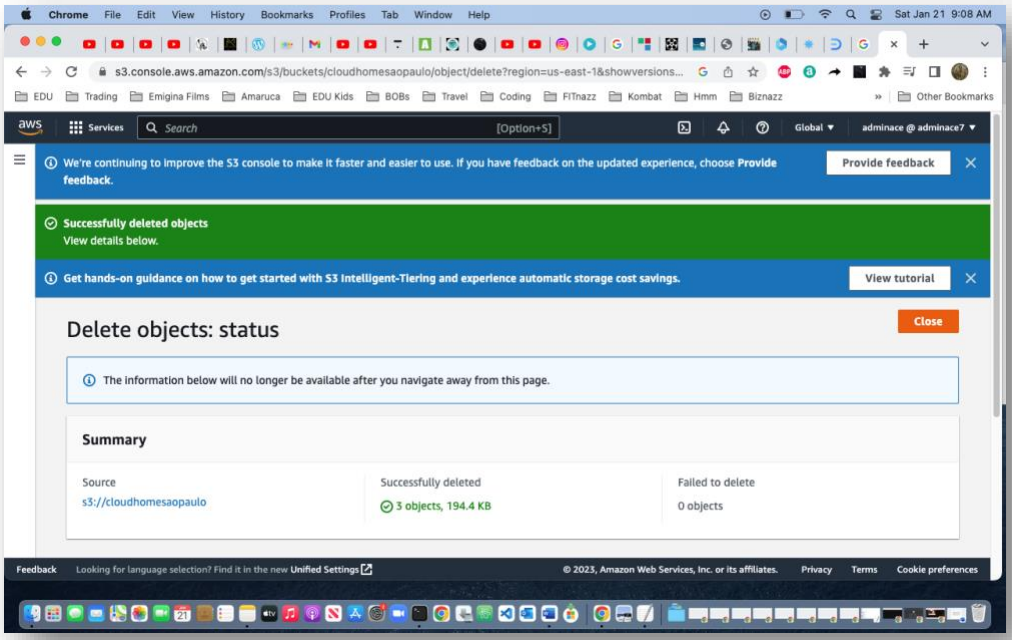


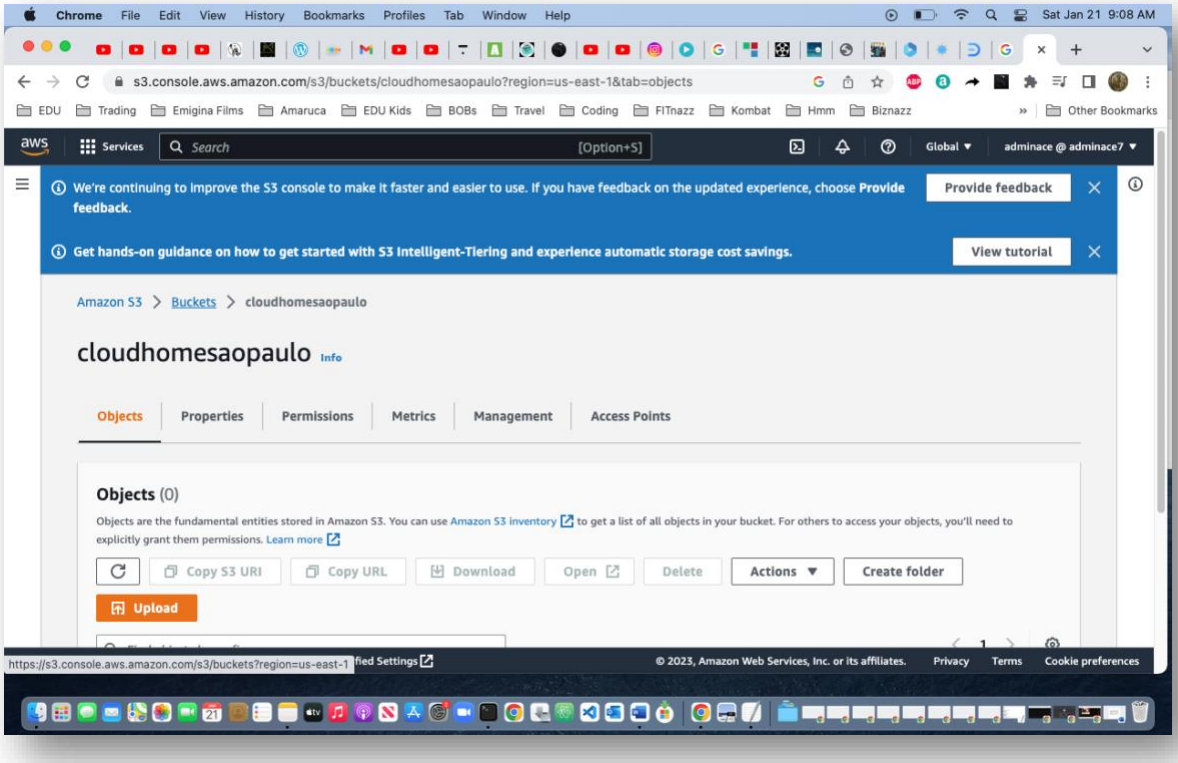
On the ***Delete Objects*** page, we will type *"permanently delete"* in the input field. Then select the "*delete objects"* button to confirm deletion. We will see a green success banner across the page on the next screen.



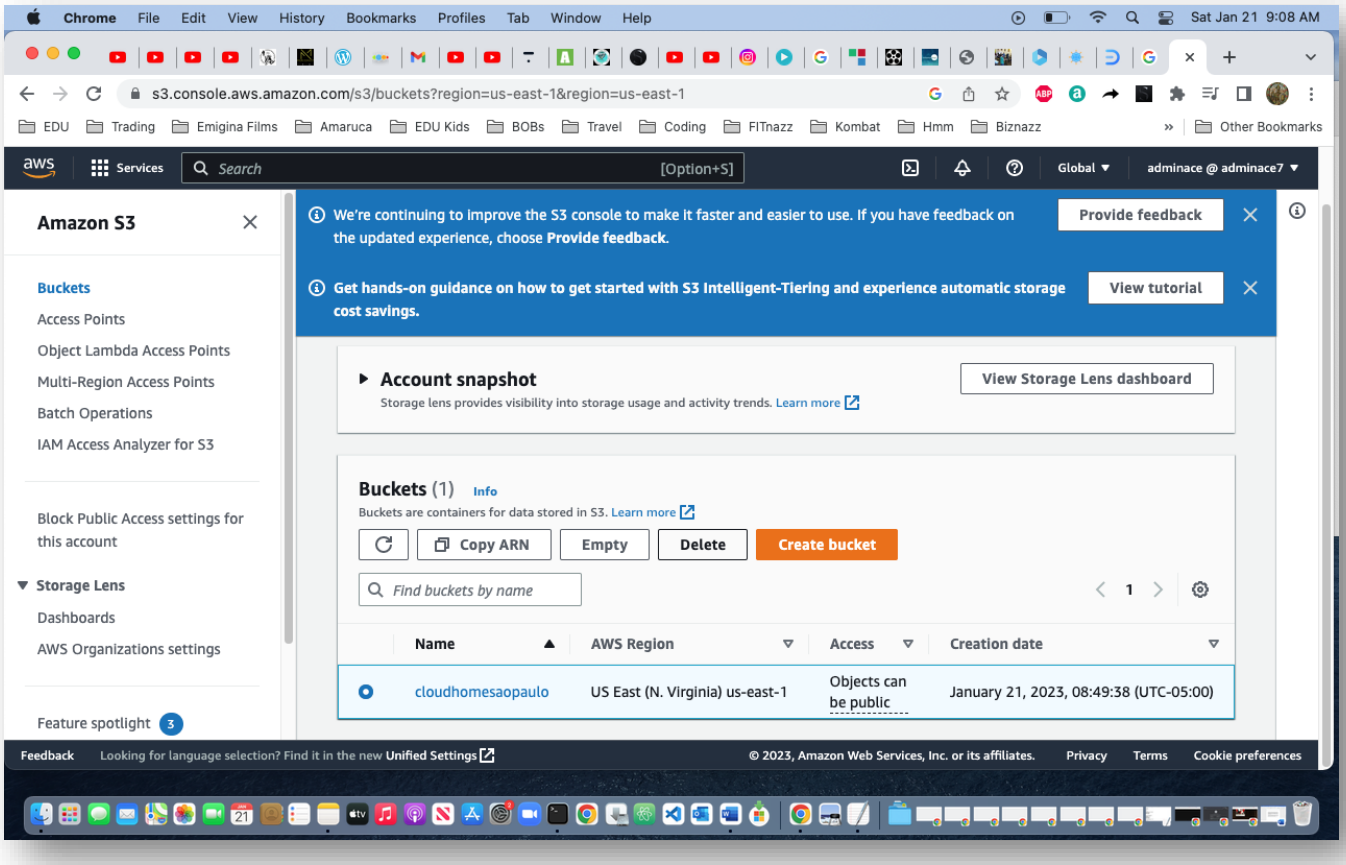


Select the "*close"* button to exit this page. On the objects page, we will click the *buckets* hyperlink to go to our buckets page.

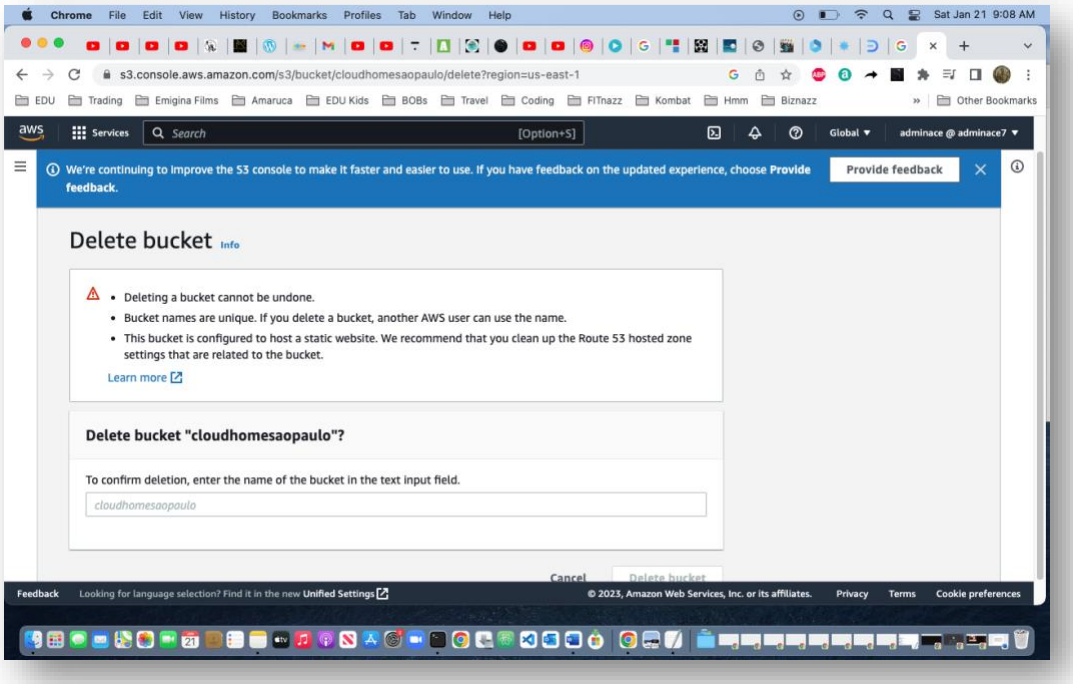


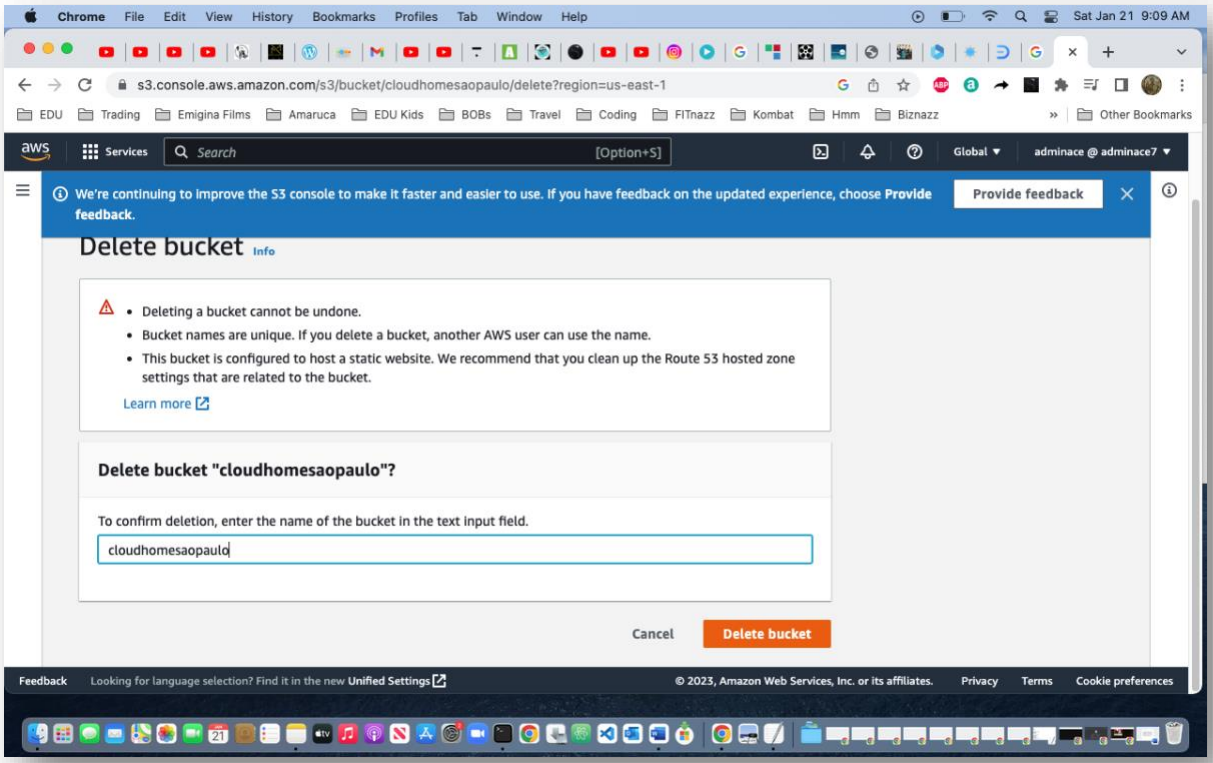


Here on the ***Buckets*** page, we will select the radio button next to the *bucket name.* Then we'll select the *"delete"* button.



On the ***Delete Bucket*** page, type the bucket name in the input field provided below. Lastly, select the *"delete bucket"*, button.





We have successfully setup and torn down an S3 bucket with objects.