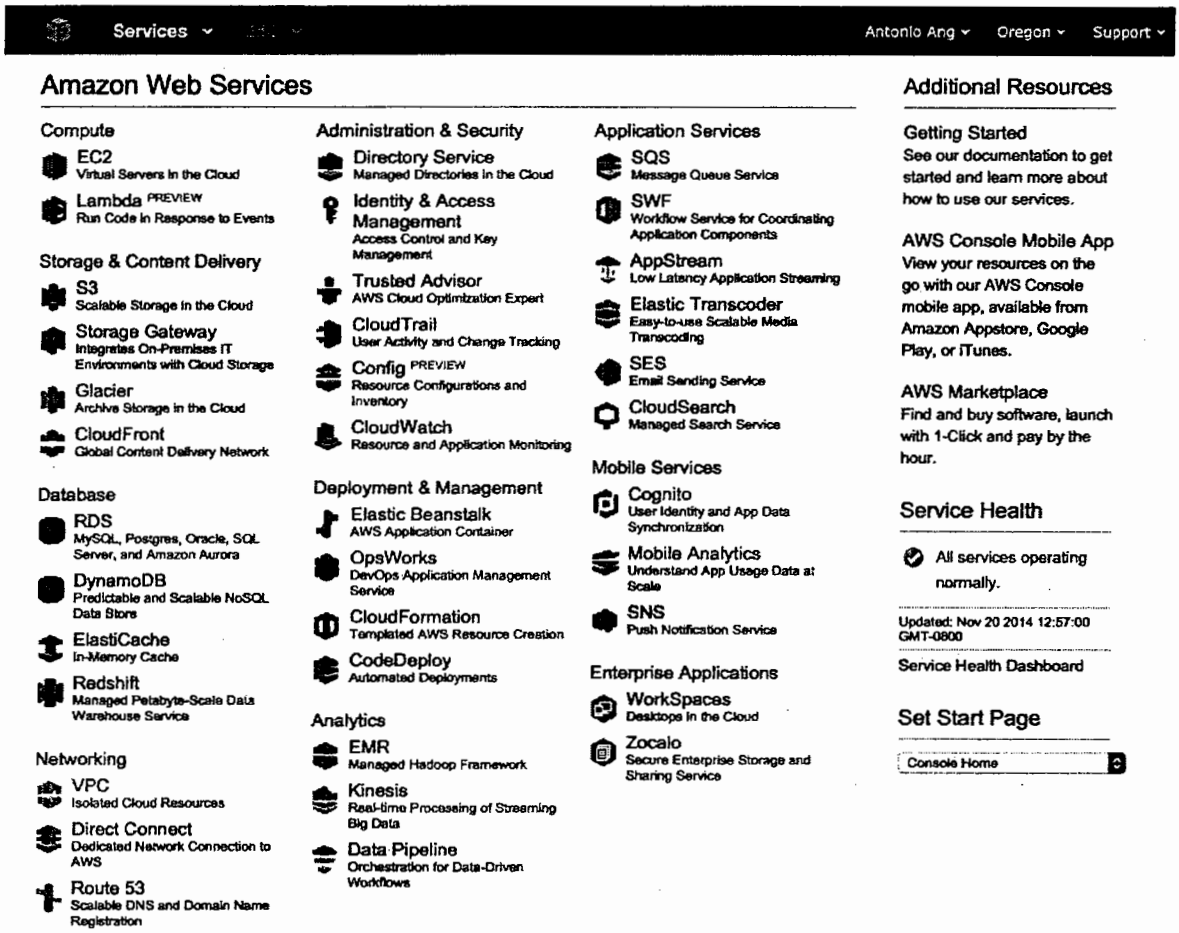
Lab 14

SERVE YOUR FILES USING THE CLOUDFRONT CDN

STEP 1: Log In to the Amazon Web Service Console

This laboratory experience is about Amazon Web Services and you will use the AWS Management Console in order to complete all the lab steps.



The AWS Management Console is a web control panel for managing all your AWS resources, from EC2 instances to SNS topics. The console enables cloud management for all aspects of the AWS account, including managing security credentials, or even setting up new IAM Users.

Log in to the AWS Management Console

In order to start the laboratory experience, open the Amazon Console by clicking this button:

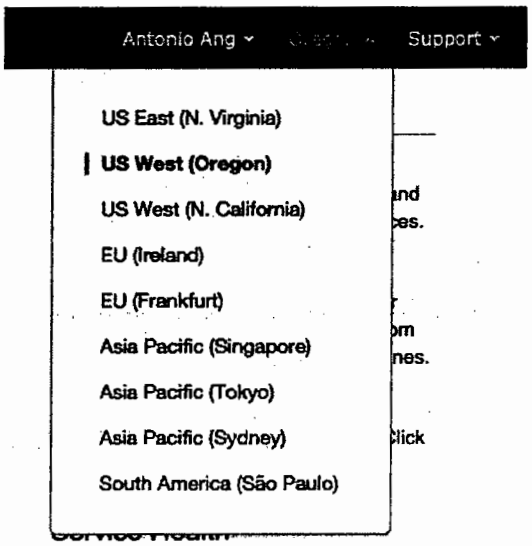
Open AWS Console

Log in with the username `xxxx` and the password `xxxx`

Select the right AWS Region

Amazon Web Services is available in different regions all over the world, and the console lets you provision resources across multiple regions. You usually choose a region that best suits your business needs to optimize your customer's experience, but you must use the region **US West (Oregon)** for this laboratory.

You can select the **US West (Oregon)** region using the upper right dropdown menu on the AWS Console page.



STEP 2: Create an S3 bucket

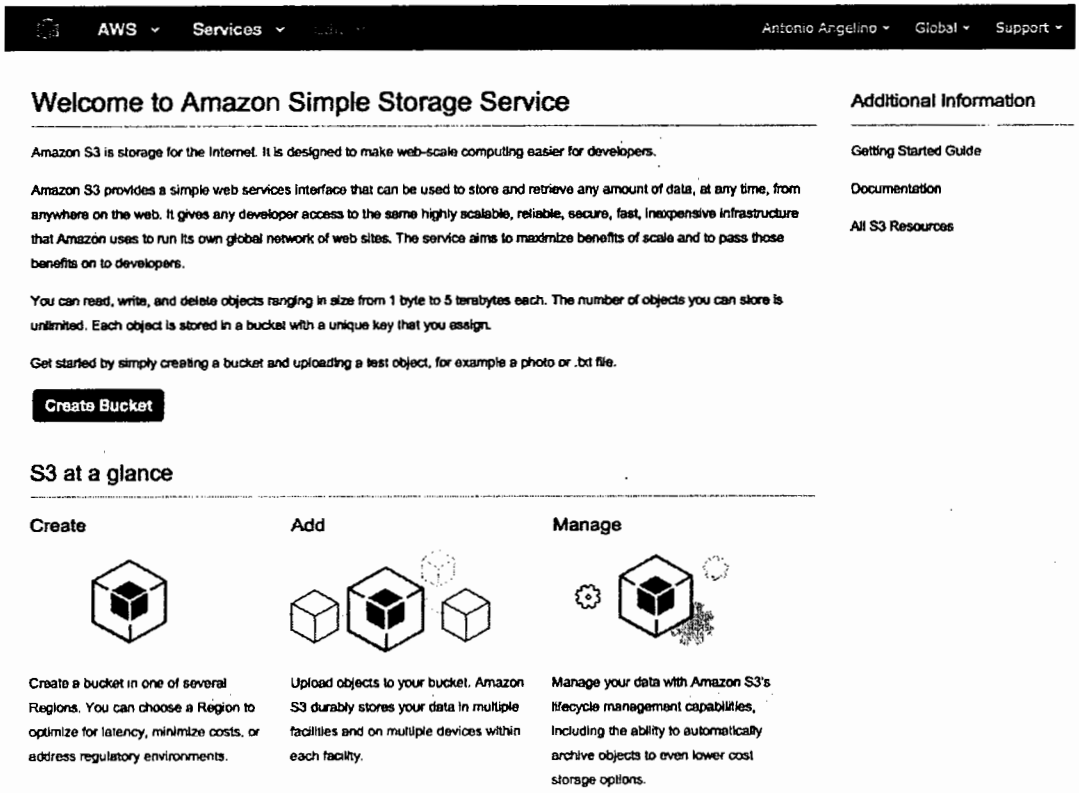
Amazon Simple Storage Service (Amazon S3) provides secure, durable, and highly scalable object storage. To upload data (photos, videos, documents etc.), you first create a logical storage bucket in one of the AWS regions. Then you can upload any number of objects to it. Buckets and objects are resources, and Amazon S3 provides APIs and a web management console to manage them.

Amazon S3 can be used alone or together with other AWS services such as Amazon EC2, Amazon Elastic Block Store (Amazon EBS), and Amazon Glacier, as well as third-party storage repositories and gateways. Amazon S3 provides cost-effective object storage for a wide variety of use cases including web applications, content distribution, backup and archiving, disaster recovery, and big data analytics.

You can create an S3 bucket using the S3 dashboard.

Select the S3 service from the Management Console dashboard:

From the S3 console dashboard, click the blue **Create Bucket** button.



The **Create a Bucket** dialog box appears and you have to enter the **Bucket Name** and select a **Region** from the selection box.

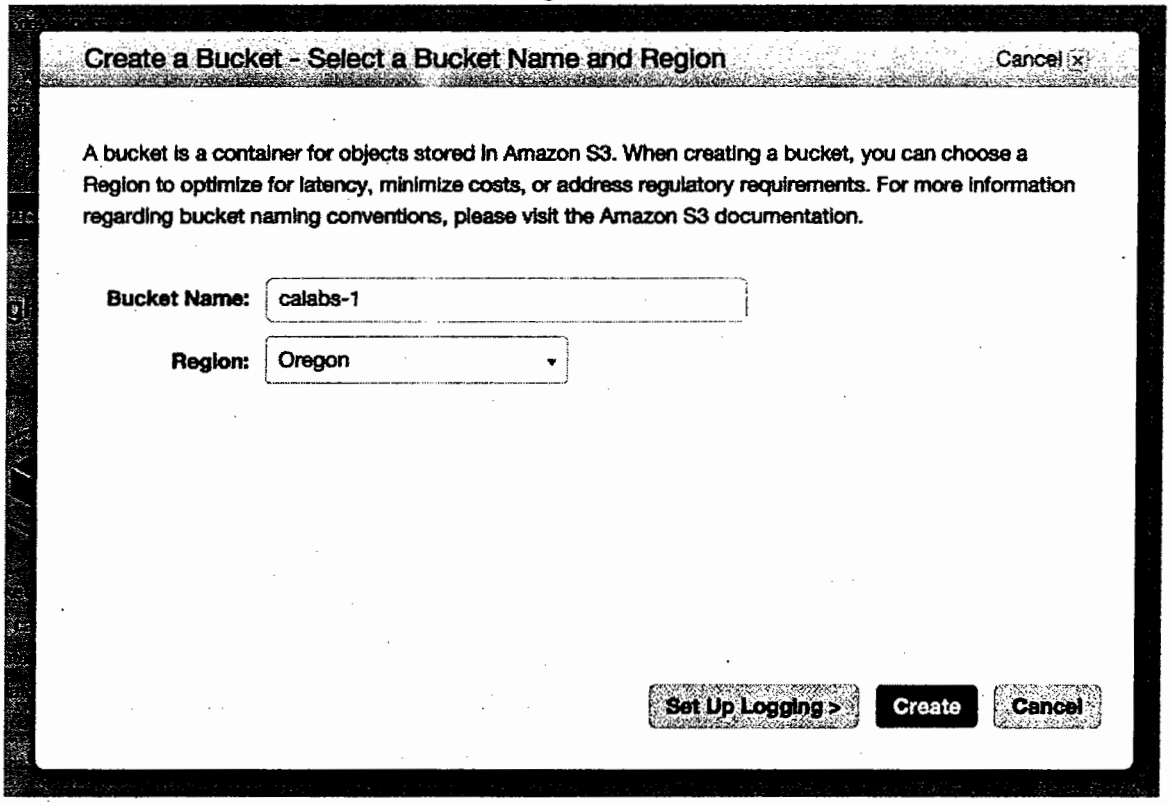
Bucket names must be globally unique, regardless of the AWS region in which you create the bucket, and they must be DNS-compliant.

The rules for DNS-compliant bucket names are:

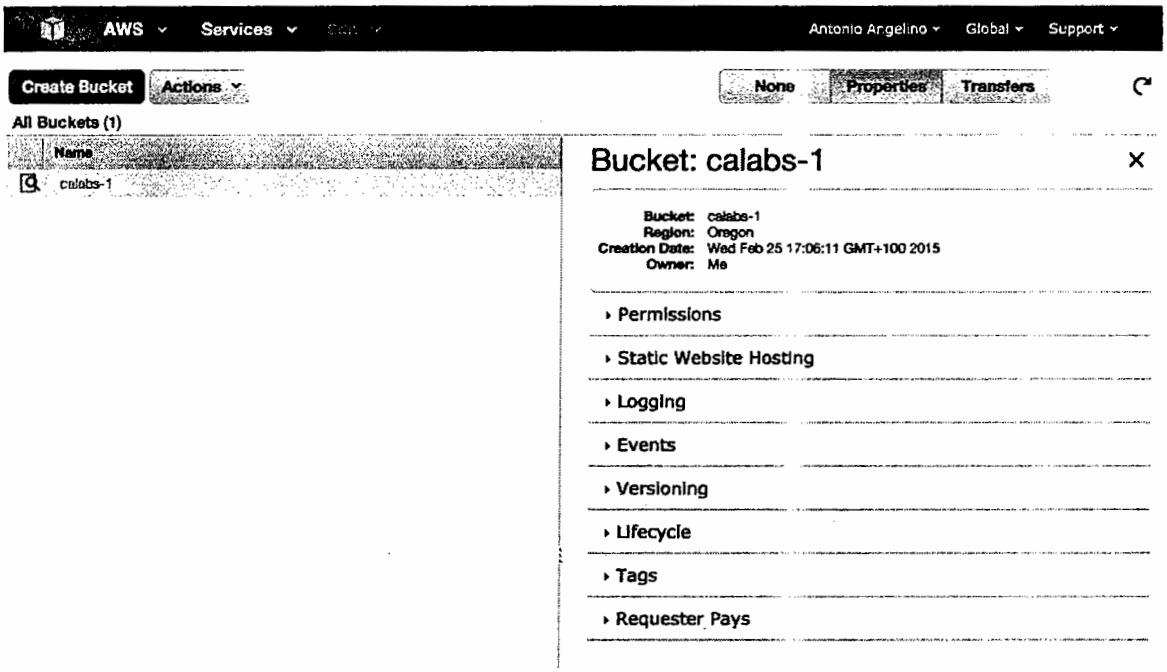
- ✓ Bucket names must be at least 3 and no more than 63 characters long.
- ✓ Bucket names can contain lowercase letters, numbers, periods, and/or hyphens. Each label must start and end with a lowercase letter or a number.
- ✓ Bucket names must not be formatted as an IP address (e.g., 192.168.1.1).

The following examples are valid bucket names: vepsunbucket , vepsun.bucket , calabs.1 or calabs-bucket .

Please use the following bucket name **calabs-s3cf** and add a numeric suffix if you receive the "That bucket already exists" error message.



Click **Create** and the console will display your empty bucket in the buckets list.



STEP 3: Upload a demo image gallery to the S3 Bucket

For completing this step, you need to upload an image gallery to the **calabs-s3cf** bucket. The gallery is composed of:

- ✓ a set of image files
- ✓ an HTML page that lists each image
- ✓ some javascript and css files for enhancing the image visualization

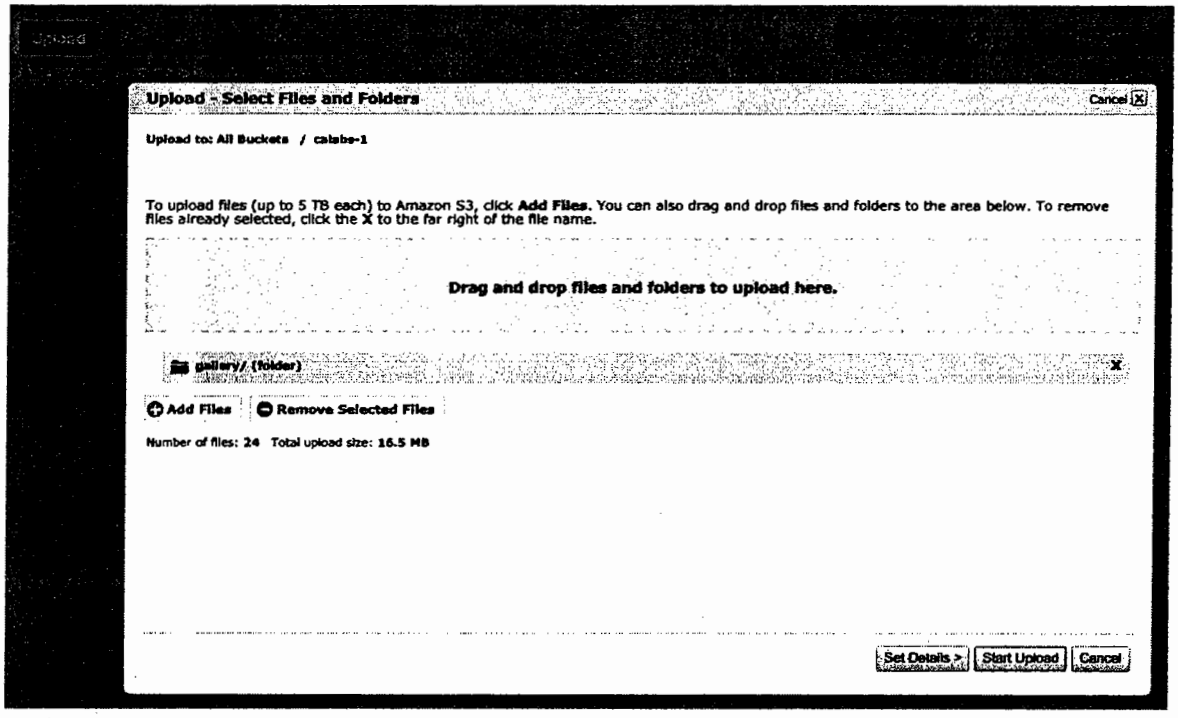
First of all, download the demo gallery (http://vepsun-labs.s3-website-us-west-2.amazonaws.com/scripts/gallery.zip) and unzip it.

You can upload files to an S3 bucket using the S3 dashboard easily.

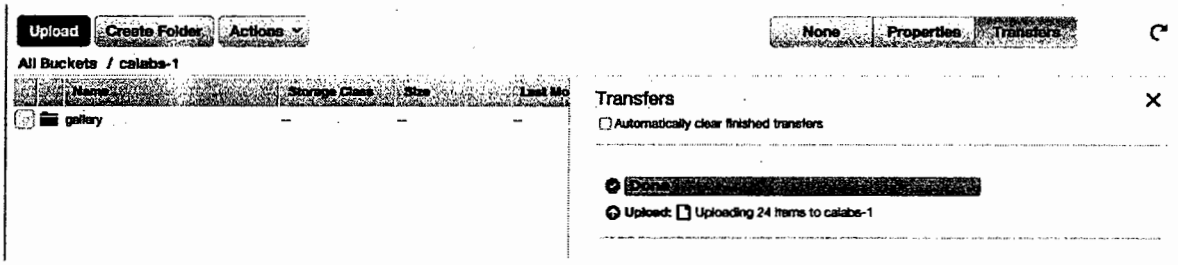
Select the S3 service from the Management Console dashboard:

From the S3 console dashboard, select the bucket **calabs-s3cf** and then click on the blue **Upload** button.

Drag and drop the downloaded gallery folder to the upload window and then click **Start Upload**.



You can check the transfer progress from the **Transfers** tab. Wait until the upload ends.



The demo gallery is now stored in the S3 bucket.

STEP 4: Make S3 files accessible to everyone

All uploaded files are **private** by default and can only be viewed by the AWS account owner, but you can make them accessible to everyone using the AWS Console.

Select the S3 service from the Management Console dashboard:

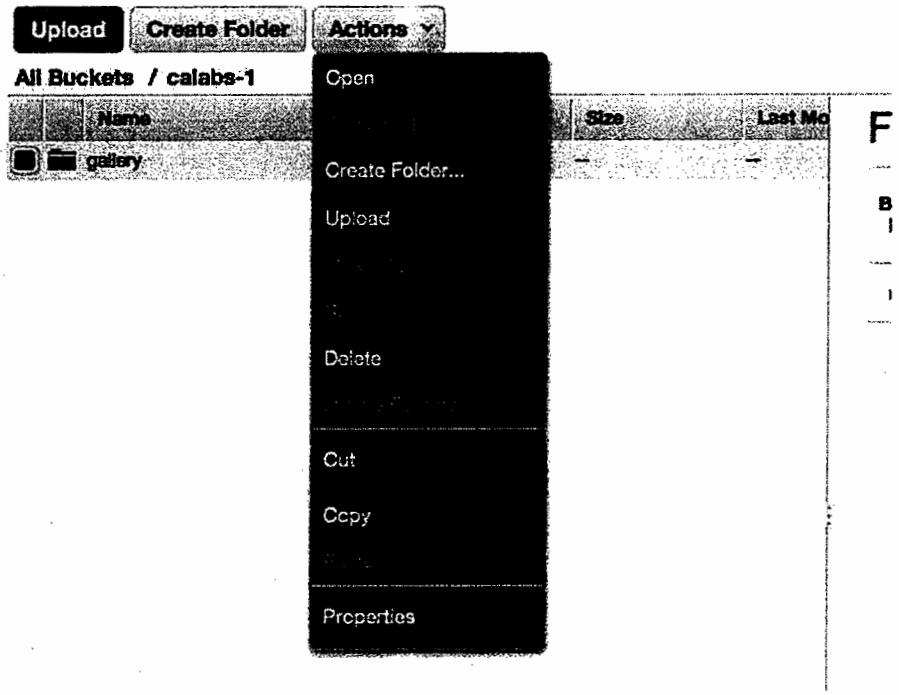
Storage & Content Delivery

S3

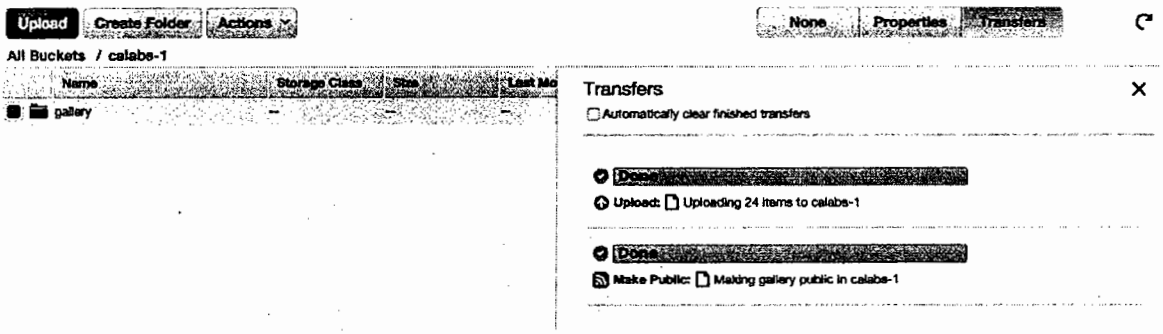
Scalable Storage in the Cloud

From the S3 console dashboard, select the bucket **calabs-s3cf** and then the **gallery** object.

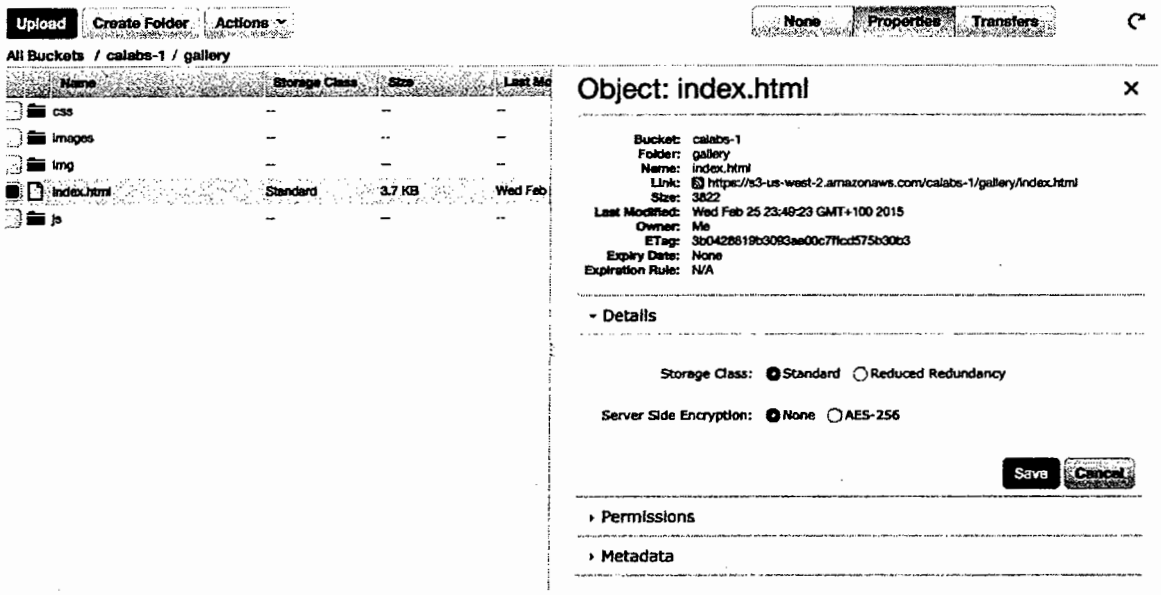
Click the **Actions** button and then click on **Make Public**.



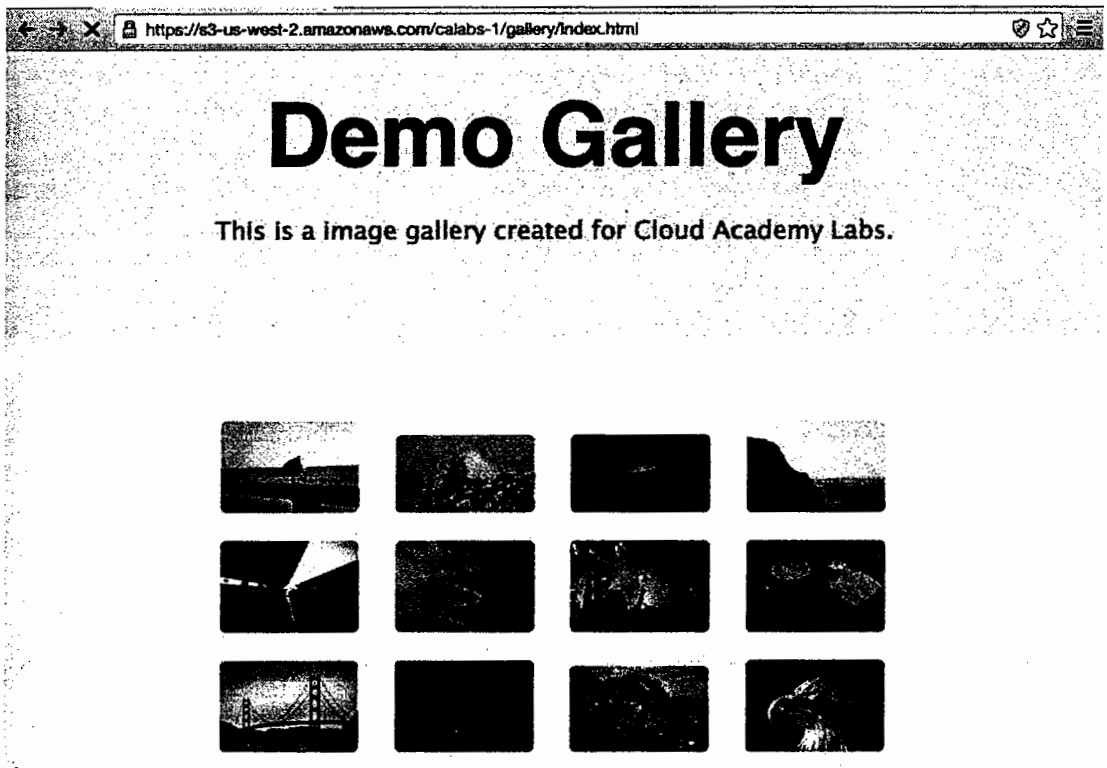
You can check the operation progress in the **Transfers** tab, wait until it ends.



You can check if the previously selected objects are now public by opening the **Link** URL that you can find in the **Properties** tab.



The following screenshot shows a simple image gallery served by the Amazon S3 service.



As you can see, the public object URL is https://s3-**us-west-2**.amazonaws.com/**calabs-1/gallery/index.html** .

The URL of any S3 object follows this template: https://s3-**<region>**.amazonaws.com/**<bucket-name>/<object-path><object-name>**

STEP 5: Create a CloudFront Distribution

Amazon **CloudFront** is a content delivery service (CDN). In Amazon CloudFront, the content is organized into distributions.

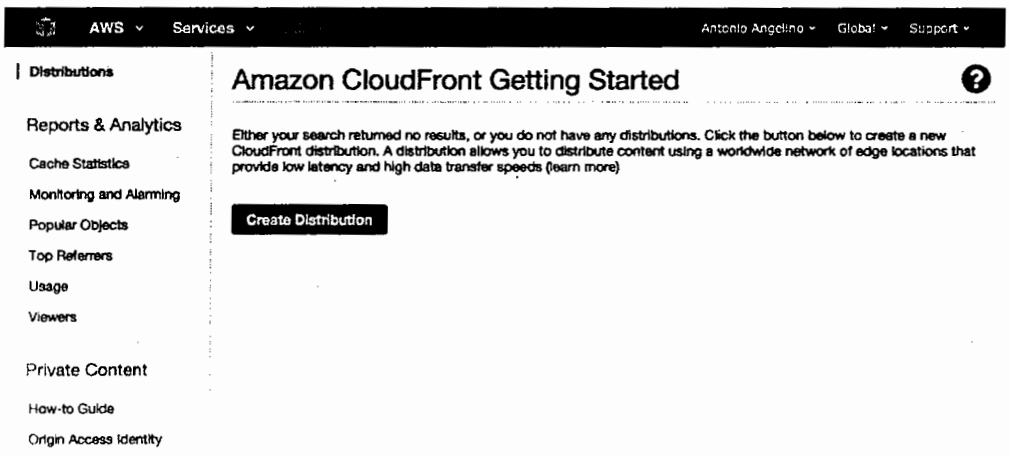
You can create two different kinds of CloudFront **distributions: Web Distributions** for HTTP/HTTPS-delivered contents and **RTMP Distributions** for delivering streaming media content to end users in real time. Each distribution has a unique *cloudfront.net* domain name (e.g. cdn123.cloudfront.net) that can be used to reference objects through the global network of edge locations.

To use Amazon CloudFront:

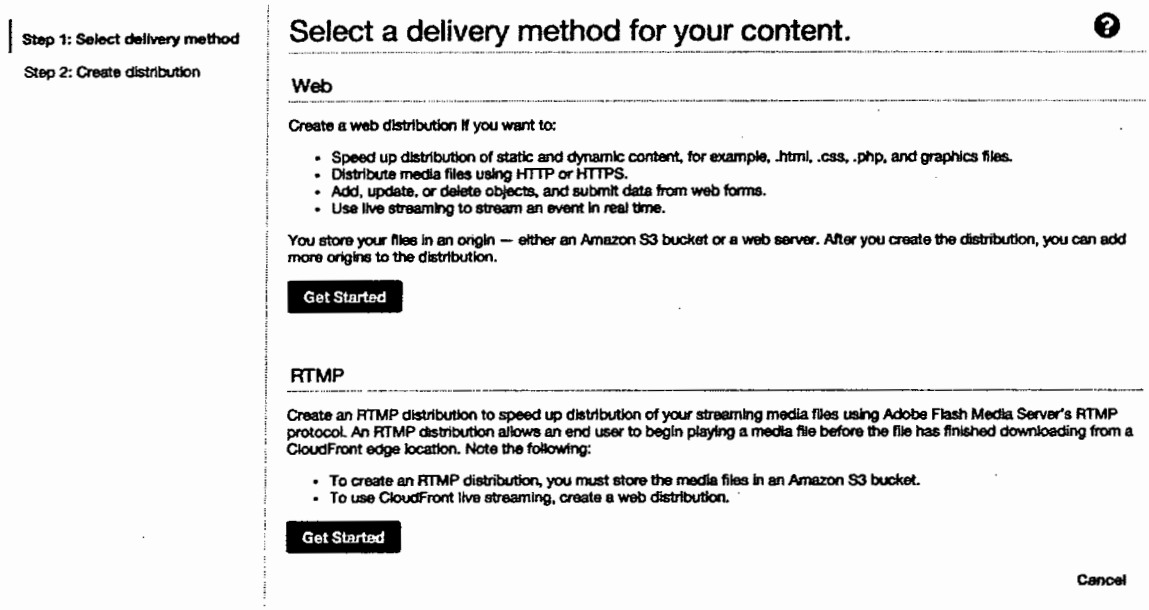
- ✓ Store the original versions of your files on one or more origin servers. An **origin server** is the location of the definitive version of an object. Origin servers could be an Amazon S3 bucket, an Amazon EC2 instance, an Elastic Load Balancer or another remote server.
- ✓ Create a distribution to register the origin servers with Amazon CloudFront.
- ✓ Use your distribution's domain name in your web pages, media player, or application. When end users request an object using this domain name, they are automatically routed to the nearest edge location for high-performance delivery of your content.

Select the CloudFront service from the Management Console dashboard:

From the CloudFront console dashboard, click **Create Distribution.**

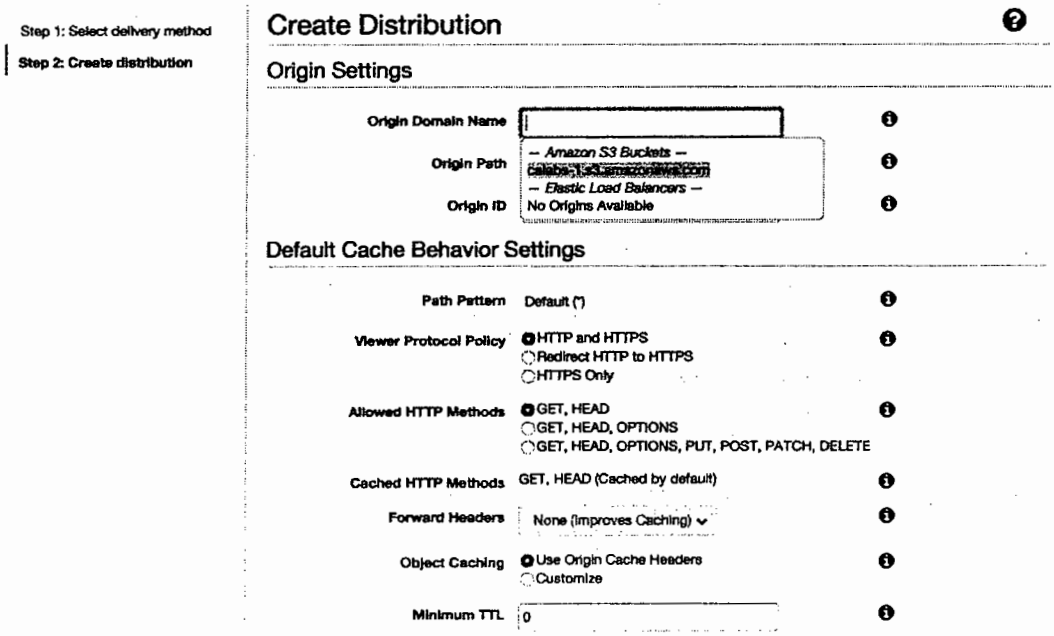


The distribution creation wizard is divided into two steps. In the first step you need to select the right delivery method for your purpose. Select the **Web distribution** and click the first **Get Started** button.



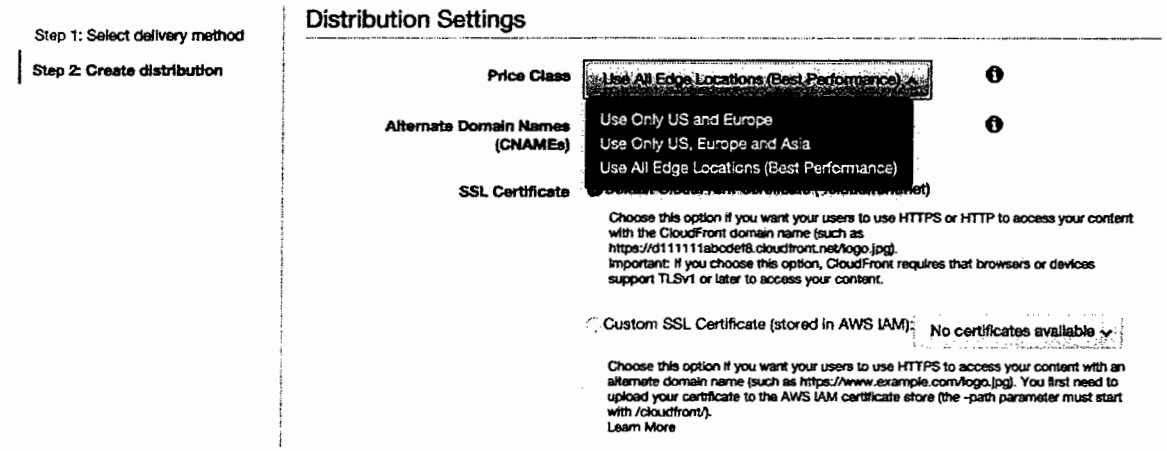
The second step is composed of several sections: **Origin Setting**, **Default Cache BehaviorSettings** and **Distribution Settings**.

Select the Amazon S3 Bucket **calabs-s3cf** as Origin Domain Name and don't change any Default Cache Behavior Setting.



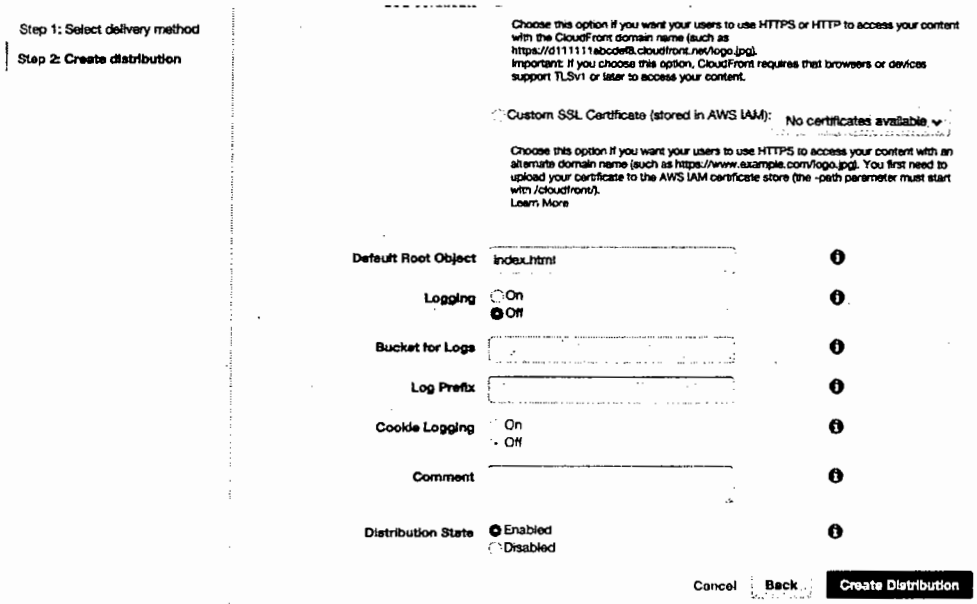
Amazon CloudFront minimizes end user latency by delivering content from its entire global network of edge locations. Price Classes let you reduce your delivery prices by excluding Amazon CloudFront's more expensive edge locations from your Amazon CloudFront distribution. In these cases, Amazon CloudFront will deliver your content from edge locations within the locations in the price class you selected and charge you the data transfer and request pricing from the actual location where the content was delivered.

The time required for deploying a new CloudFront distribution also depends on the number of selected Edge Locations. Select the **Use Only US and Europe** price class to speed up the creation process.

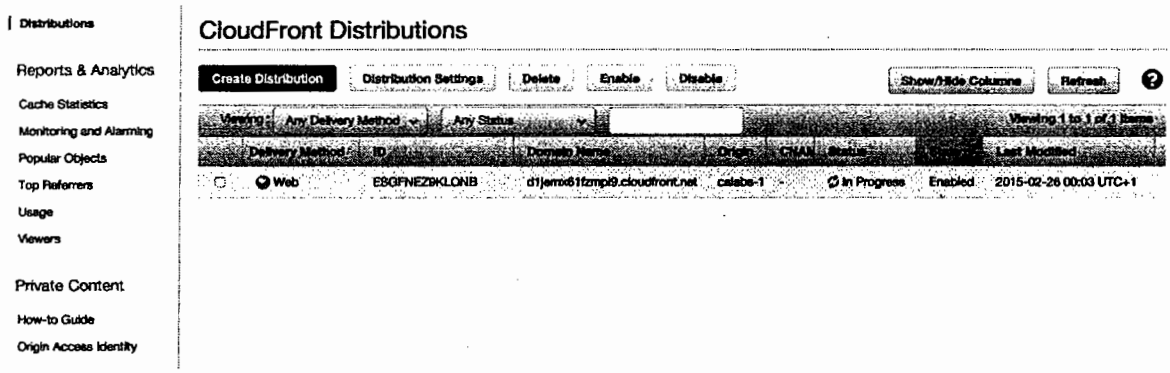


You can specify a default root object for your distribution. CloudFront will serve the **Default Root Object** when the base distribution URL is requested.

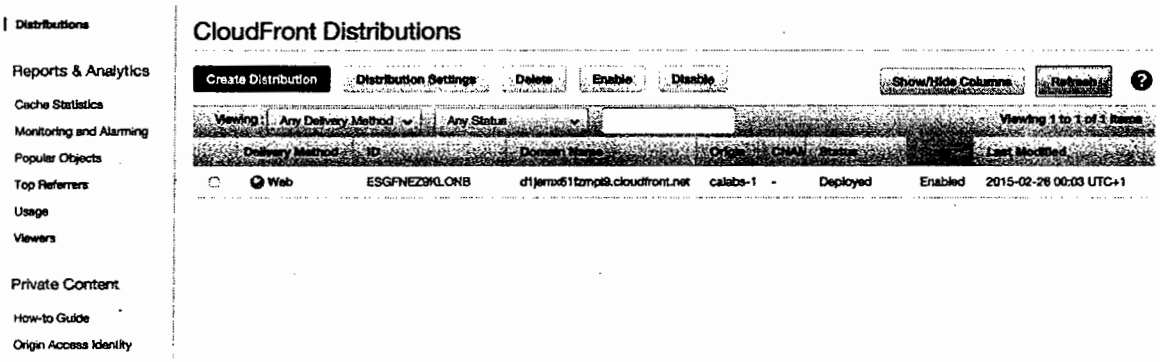
Insert **gallery/index.html** as **Default Root Object** and then click **Create Distribution**.



CloudFront immediately assigns an **ID** and a **Domain Name** to the distribution and starts updating the edge locations to serve your content.



After a few minutes, the distribution status changes to **Deployed** and you can start experiencing all the benefits of CloudFront.

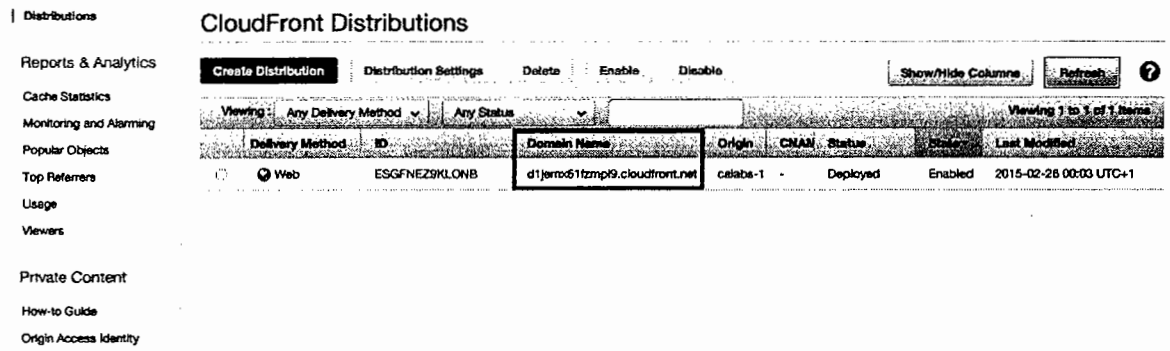


STEP 6: Test the CloudFront distribution

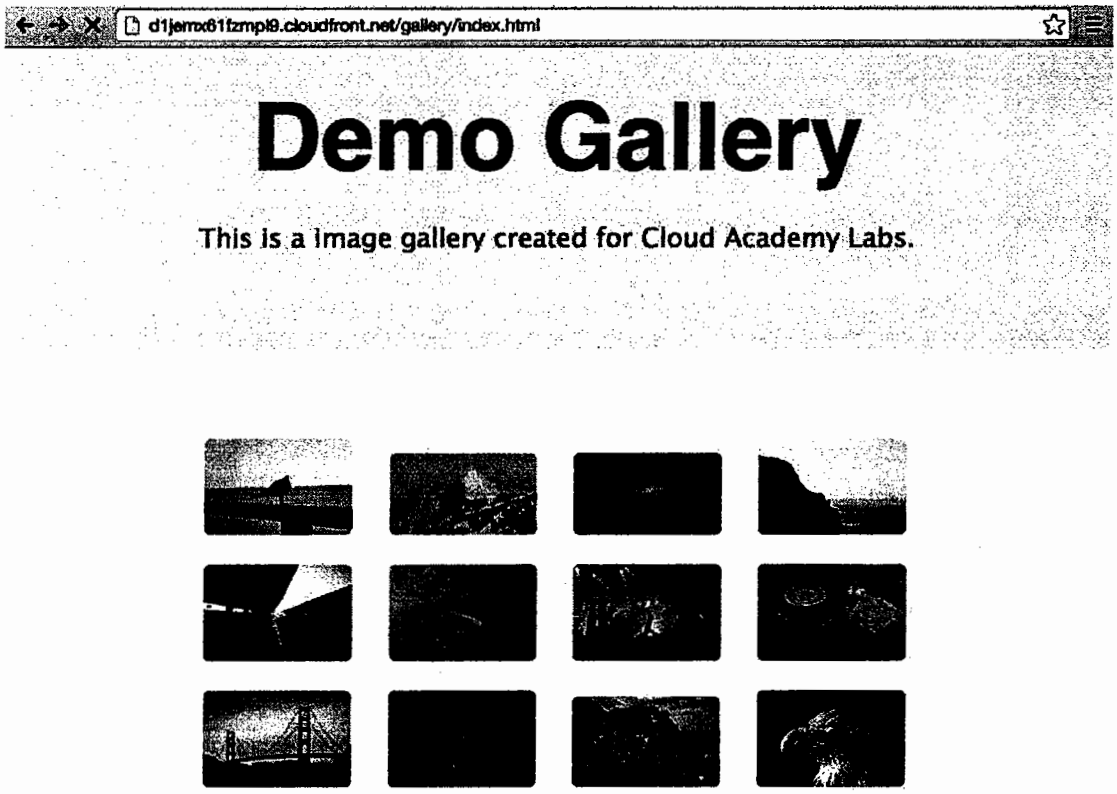
When the previously created distribution is ready, you can browse the demo gallery boosted by CloudFront Edge locations.

Get the **Domain Name** from the **CloudFront Distributions** list, and then open the following URL:

http://<distribution-domain-name>/gallery/index.html



You should experience a dramatic increase in the loading speed during image loading.



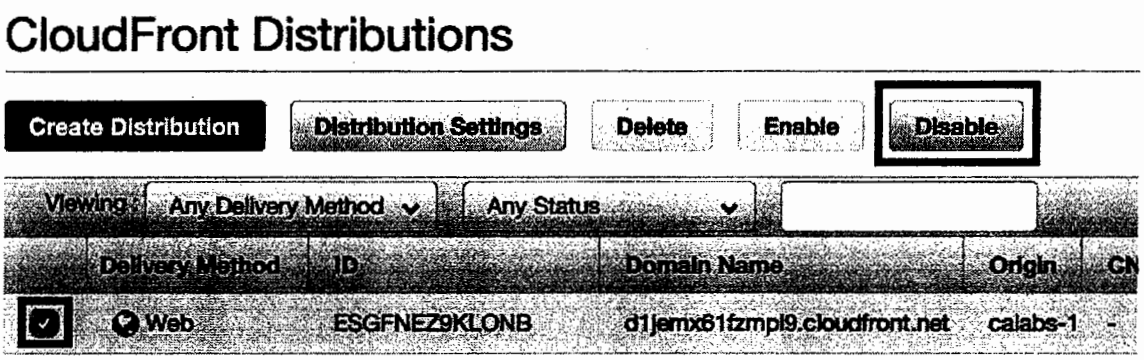
STEP 7: Disable a CloudFront distribution

If you don't need the distribution anymore, you can disable and then delete it. A disabled distribution is no longer functional and Amazon stops billing for it.

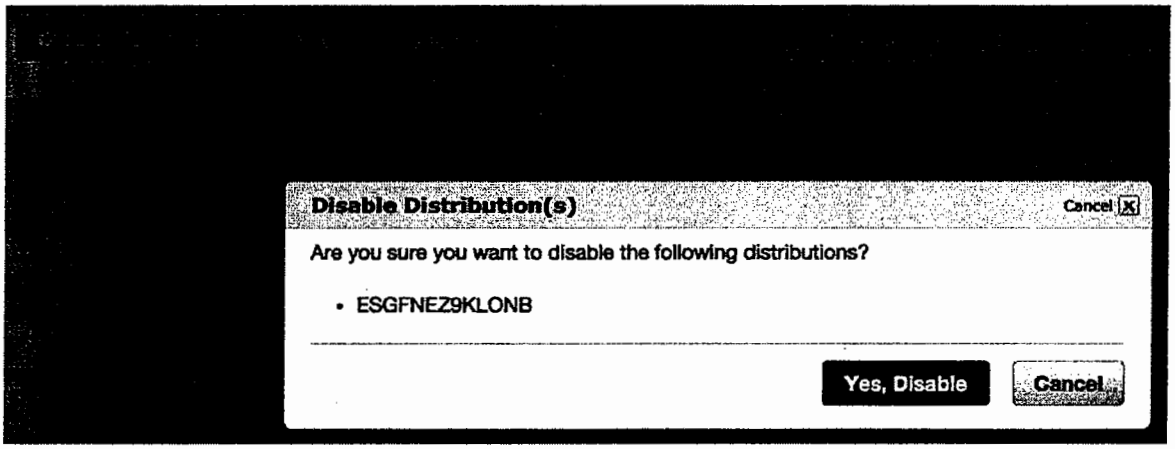
You can disable a distribution using the AWS Management Console. Select the CloudFront service from the Console dashboard:

CloudFront
Global Content Delivery Network

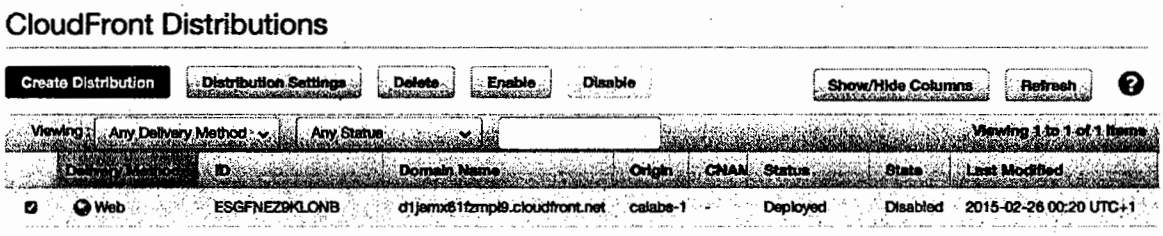
From the CloudFront console dashboard, select the distribution and click **Disable**.



When prompted for confirmation, click **Yes, Disable**.



CloudFront needs some minutes for disabling the distribution, take a look at the **State** column to know when the operation completes.

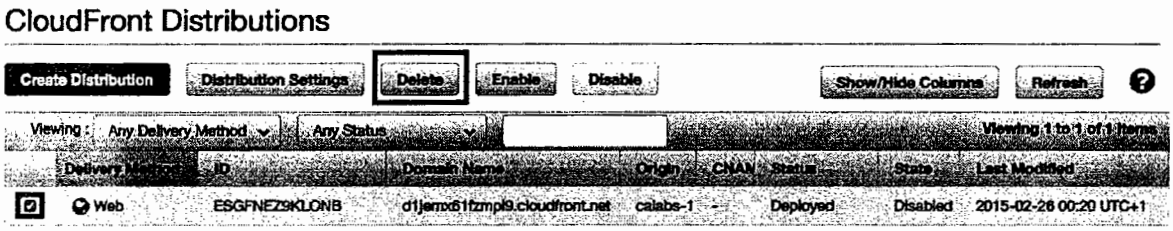


STEP 8: Delete a CloudFront distribution

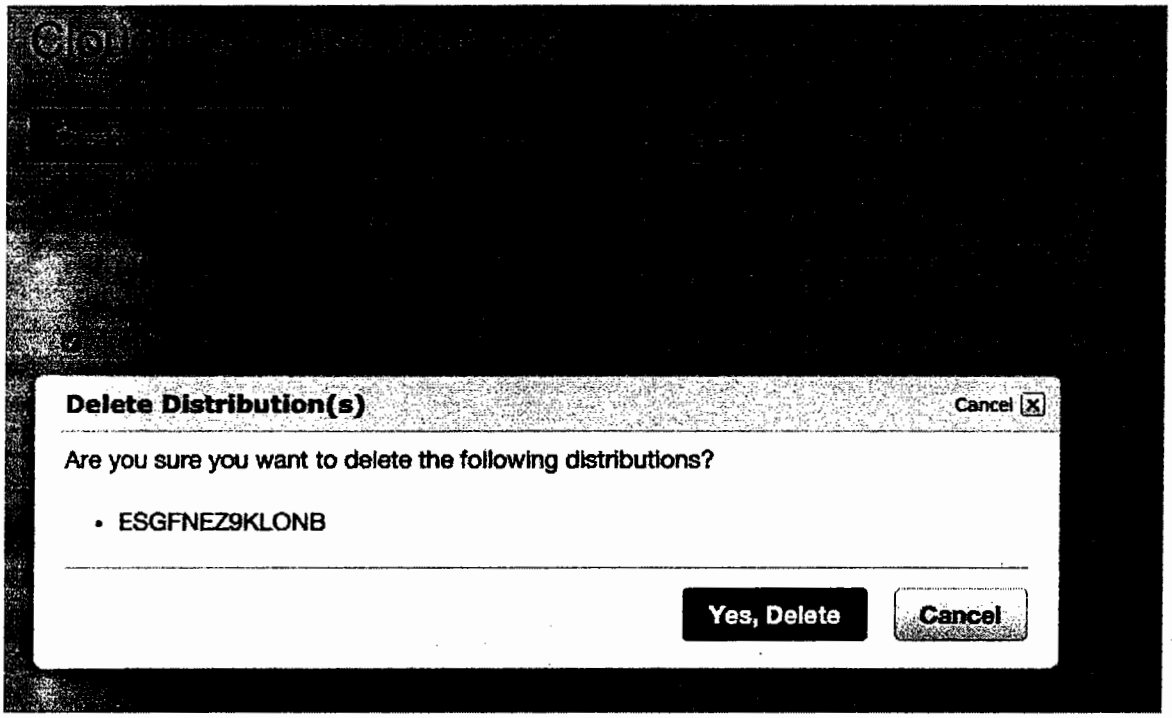
You can can delete a disabled distribution using the AWS Management Console.

Select the CloudFront service from the Console dashboard:

From the CloudFront console dashboard, select the disabled distribution and click **Delete**.



When prompted for confirmation, click **Yes, Delete**.



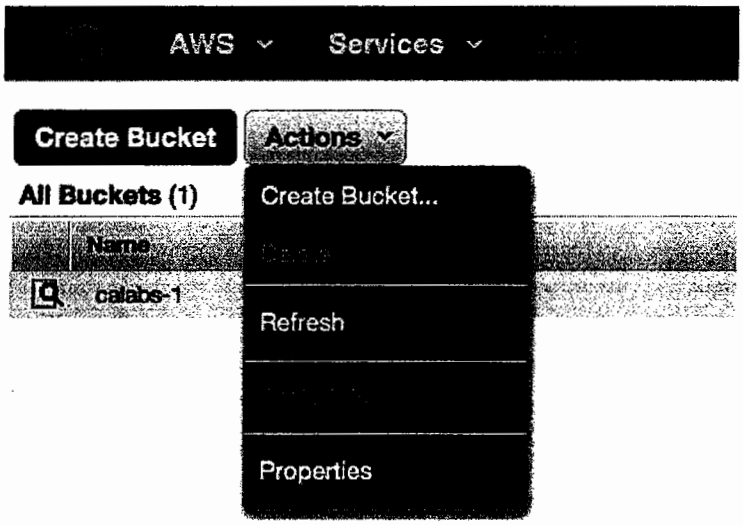
The distribution will immediately disappear from the distribution list and it is no longer available.

STEP 9: Destroy an S3 bucket

You can destroy an S3 bucket using the S3 dashboard, and all objects within the bucket will be deleted.

Select the S3 service from the Management Console dashboard:

From the S3 console dashboard, select the bucket **calabs-s3cf**. and then click the **Actions** gray button.



Click **Delete** from the drop-down menu and then confirm the action when the confirmation popup appears.

If you receive an error message, check and see if the bucket is empty and try again.