lab

lab title

Bulletproof HTML5 Websites with AWS in a Nutshell V1.15

Course title

BackSpace Academy Nutshell Series

BackSpace

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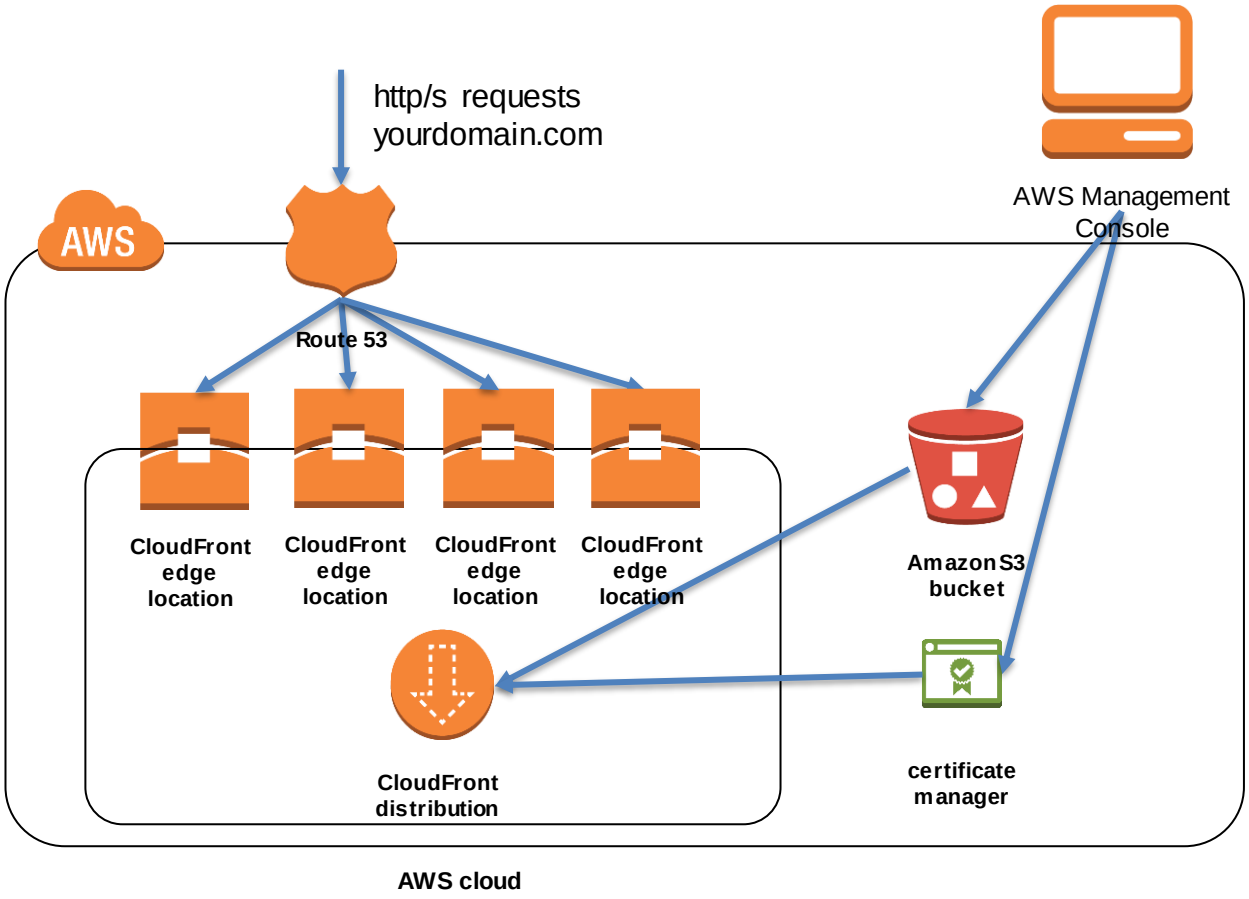
About the Lab

Please note that not all AWS services are supported in all regions. Please use the US-East-1 (North Virginia) region for this lab.

These lab notes are to support the instructional videos on Bulletproof HTML5 Websites with AWS in a Nutshell Course.

This is a typical use case for S3 and CloudFront to deliver highly available static websites that can handle heavy traffic.



Please note that AWS services change on a weekly basis and it is extremely important you check the version number on this document to ensure you have the lastest version with any updates or corrections.

Purchasing a Custom Domain Name

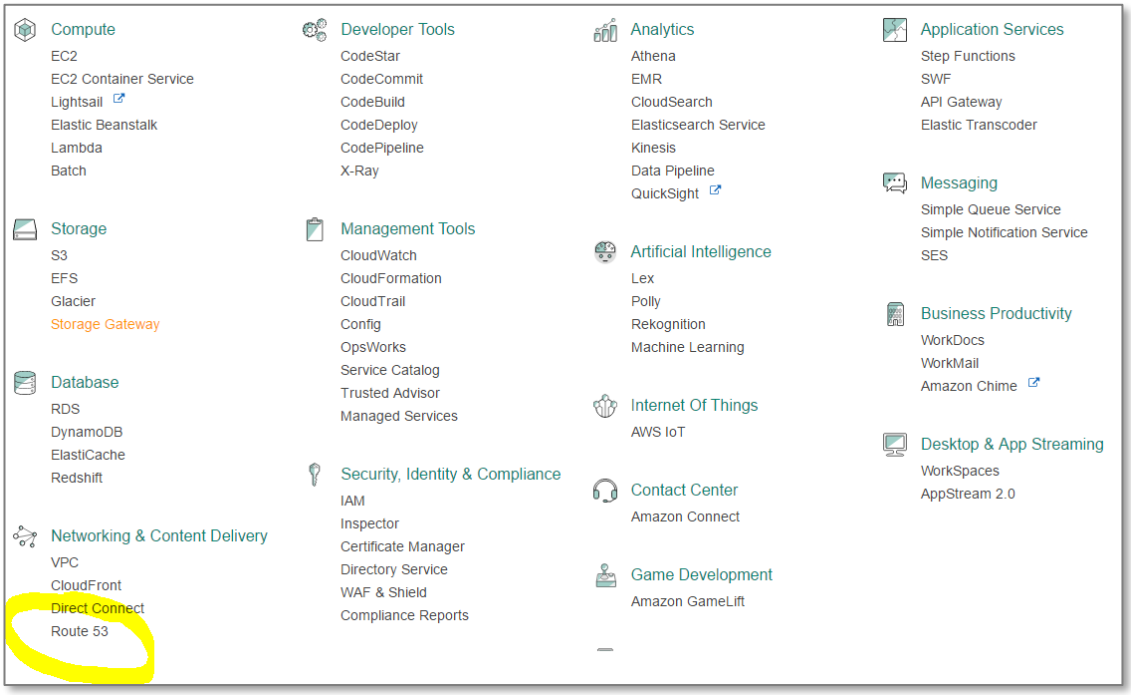
In this section, we will purchase a domain name through AWS Route 53.

*Please note this process will involve paying for a domain name with AWS.

Our S3 bucket must have the same name as our domain name in order for it to be hosted by S3. So, our first task is to purchase a domain name.

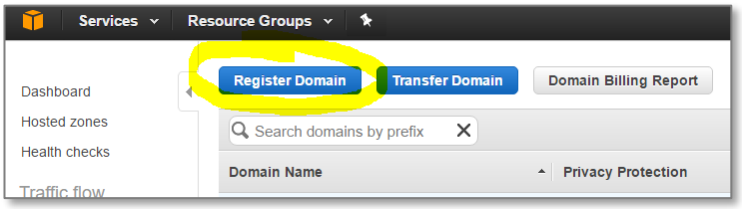
This part involves purchasing a domain through the Route 53 service.

Click on the services menu and Route 53.

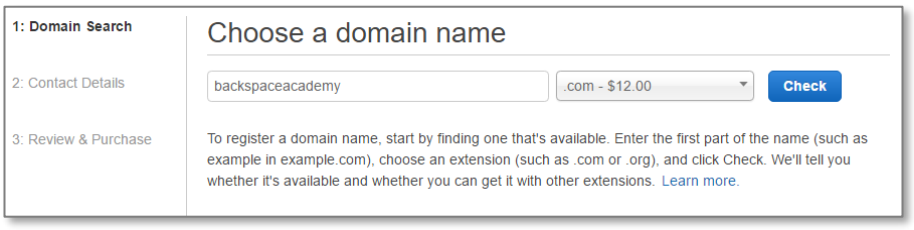


Click on Registered Domains from the menu

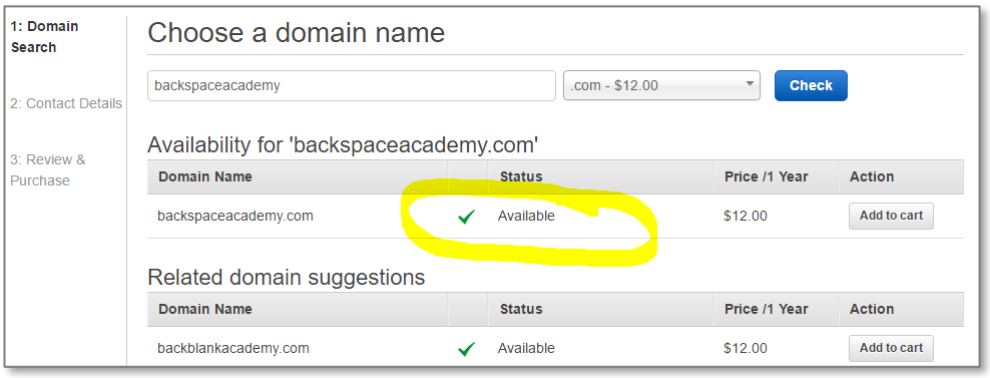
Click on Register Domain



Type in the domain name you would and like and click *Check* to see if it is available.



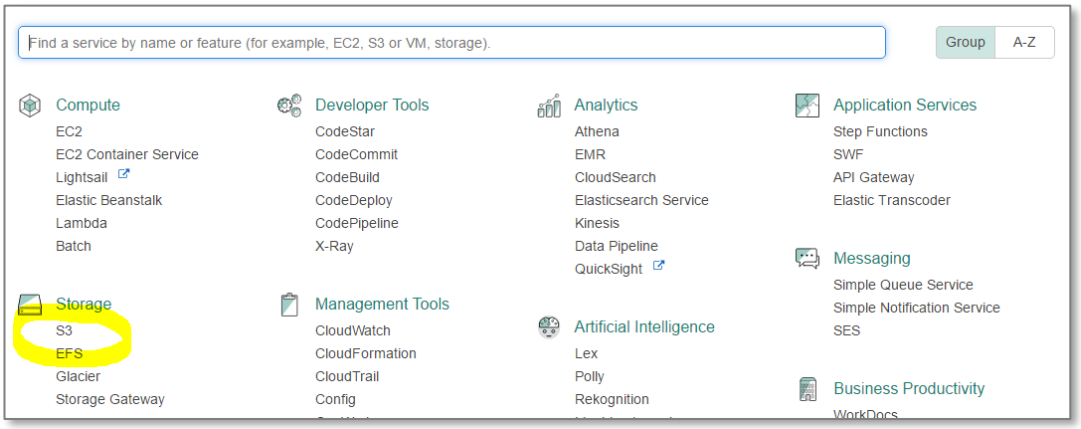
If it is available continue through the process to purchase and register your domain name. Make sure the contact details use a current email address as this is required for the confirmation email from AWS (it can be changed later on by selecting “edit contacts” after the certificate has been set up).



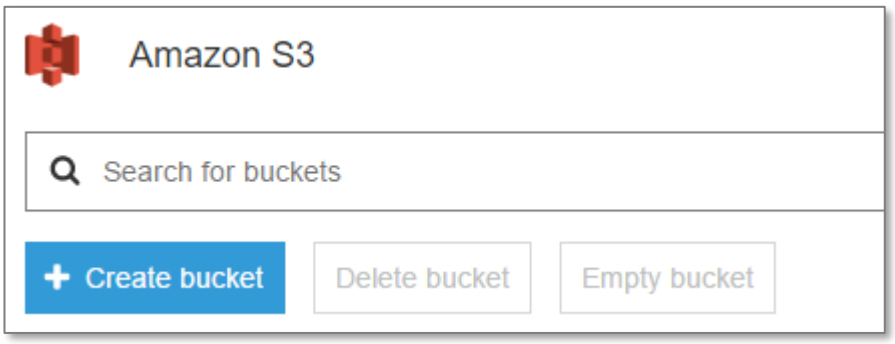
Creating an S3 Bucket and Uploading our Website

In this section we will create an S3 bucket and upload our HTML5 website.

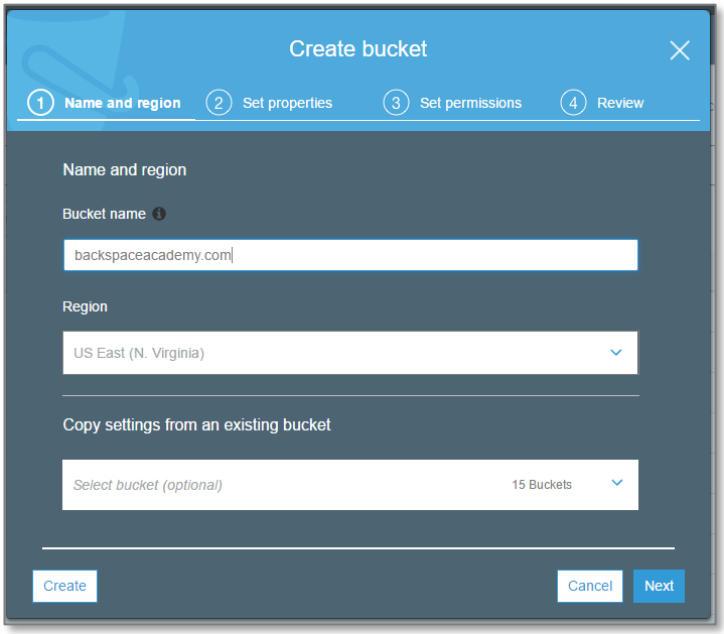
Click on the services menu and select S3.



Click on Create Bucket



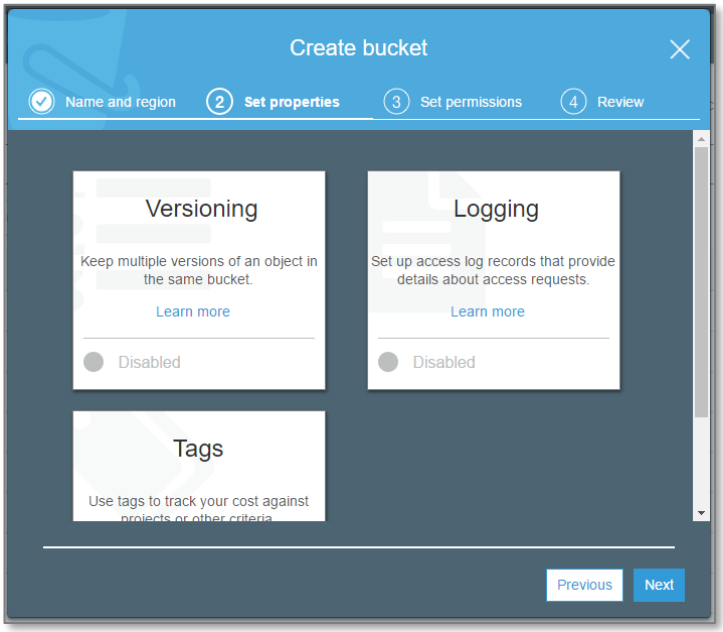
The create bucket dialog box will appear.



Enter your custom domain name.

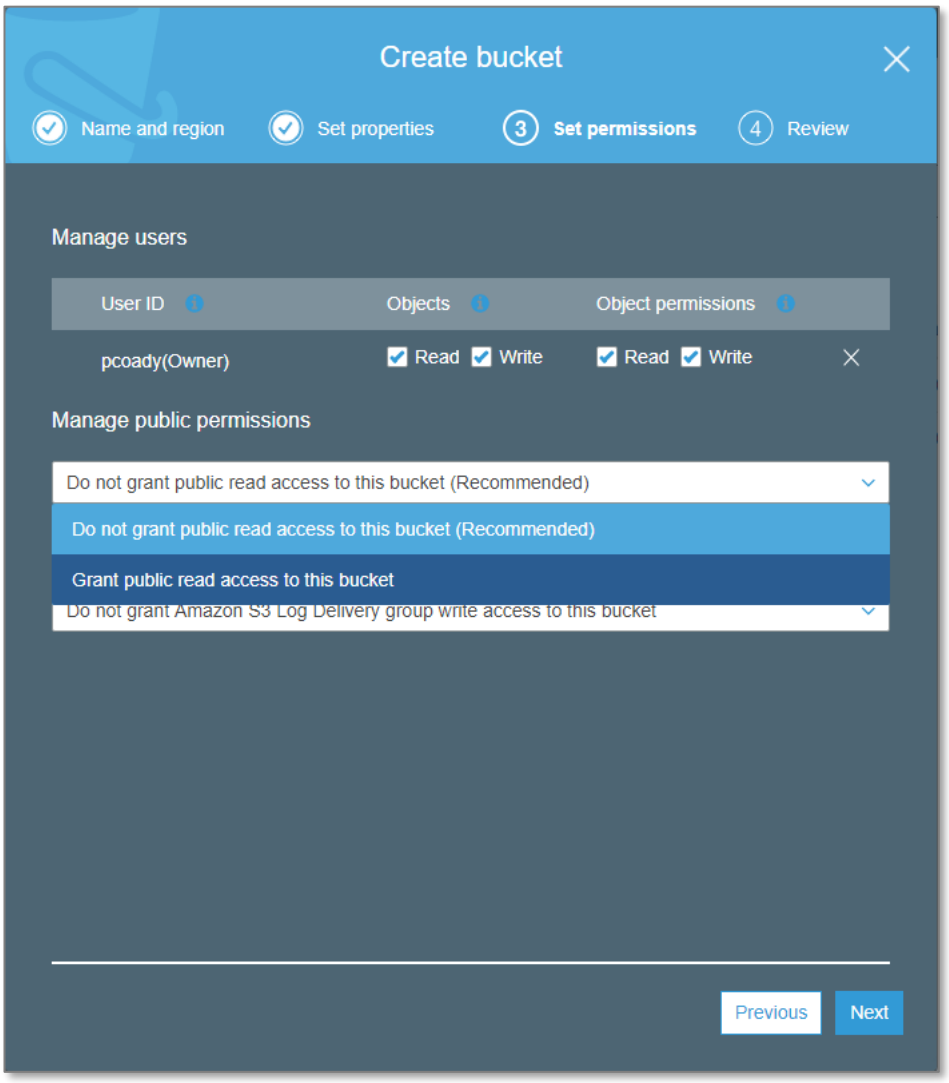
Select US East (N. Virginia).

Click Next



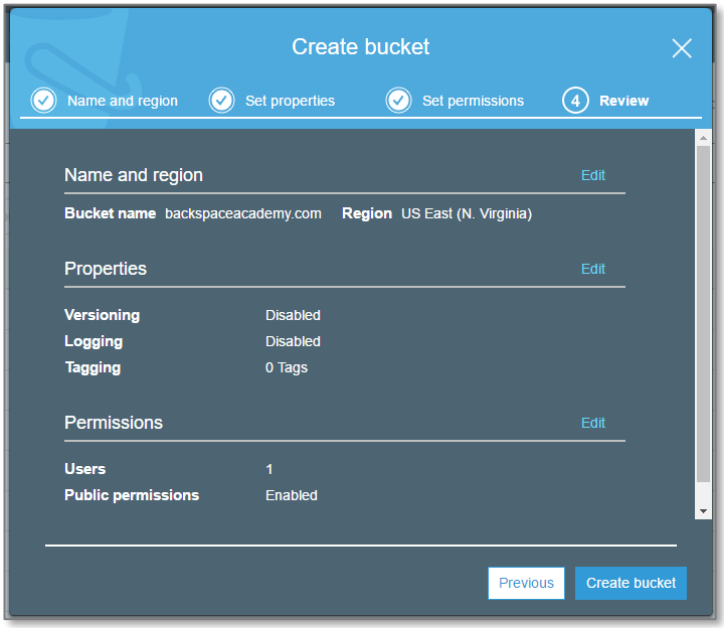
Click Next

Select *Manage public permissions*



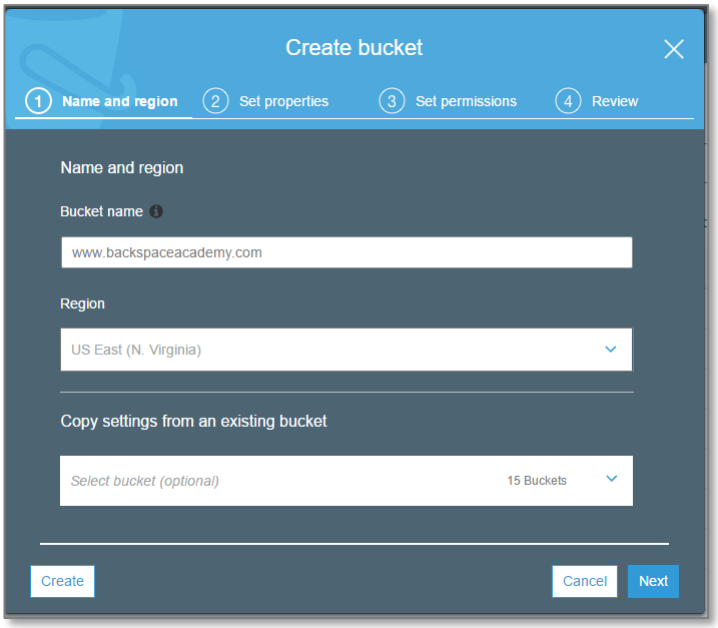
Select *Grant public read access to this bucket*

Click Next



Click *Create Bucket* to create the bucket.

Our bucket has been created, now repeat the process to create the www subdomain bucket (www.yourdomain.com)



Now it is time to upload our website.

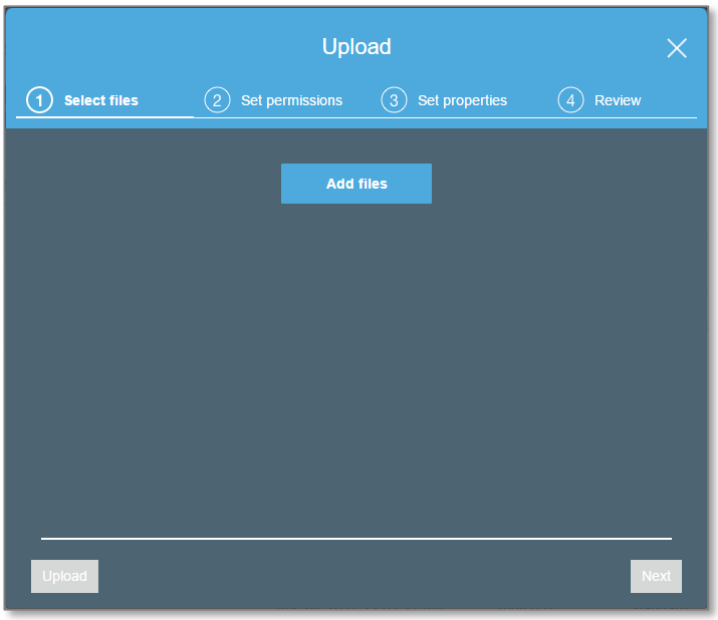
Select the root domain bucket (yourdomain.com)

Click *Upload*

PLEASE NOTE THE METHOD FOR UPLOADING ENTIRE DIRECTORIES WASN'T MENTIONED IN THE VIDEO.

You have two options for uploading files:

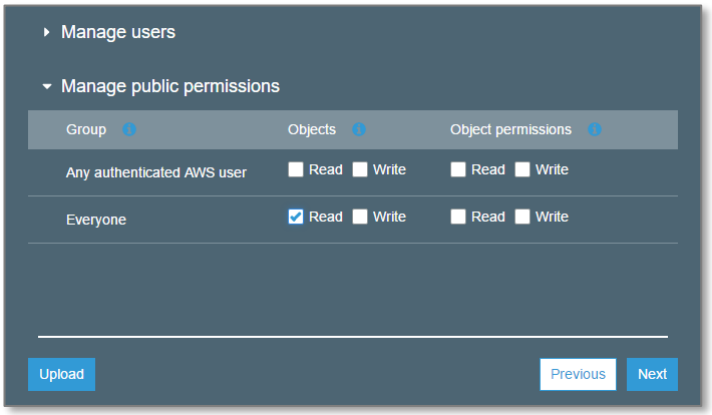
1. If you want to upload individual files Click *Add Files* and select the files to upload
2. If you want to upload an entire directory, including contents, do not Click *Add Files*. Open a Windows File Explorer window and drag the folder from File Explorer and place on top of the Upload form.



Click *Next*

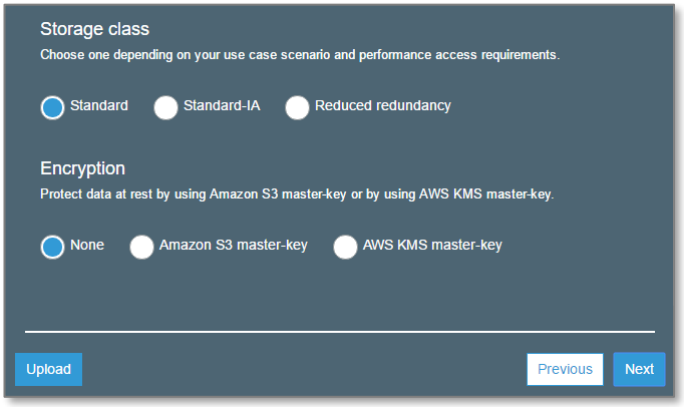
Select *Manage Public Permissions*

Check *Everyone – Read*

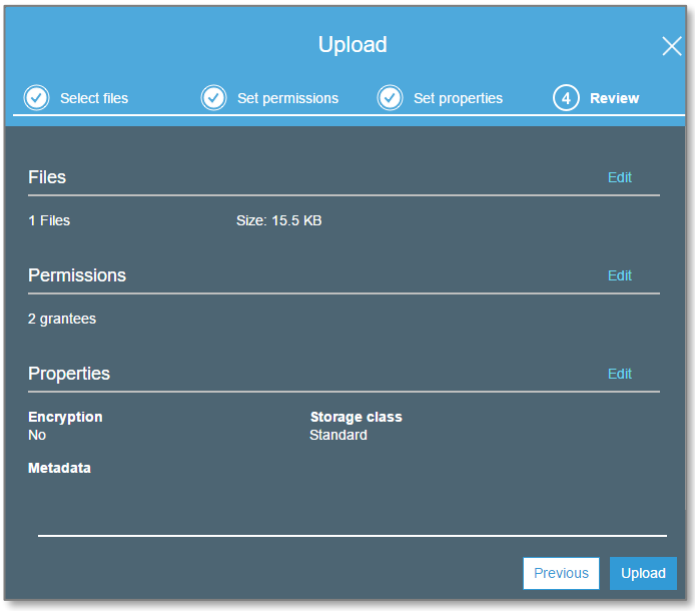


Click *Next*

Select *Standard* for Storage Class and *None* for encryption



Click Next



Click Upload

Your files will now be uploaded.

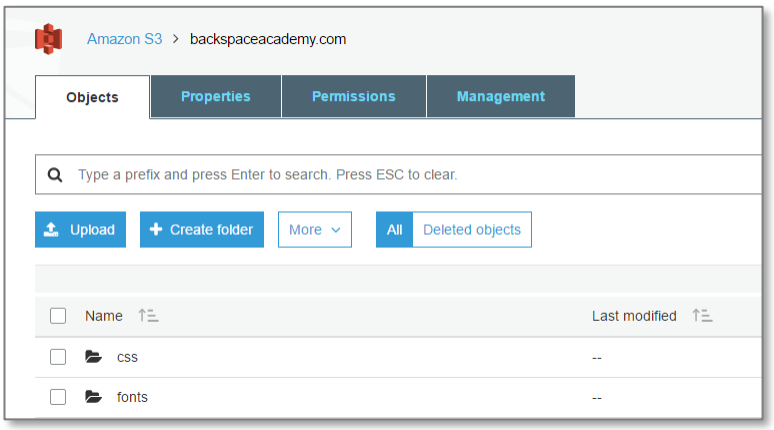
Create folders and upload the rest of your website files into their respective folders.

*Note this process is quite tedious. If you use S3 regularly, CloudBerry Explorer for S3 can help speed this up. It can be downloaded from cloudberrylabs.com.

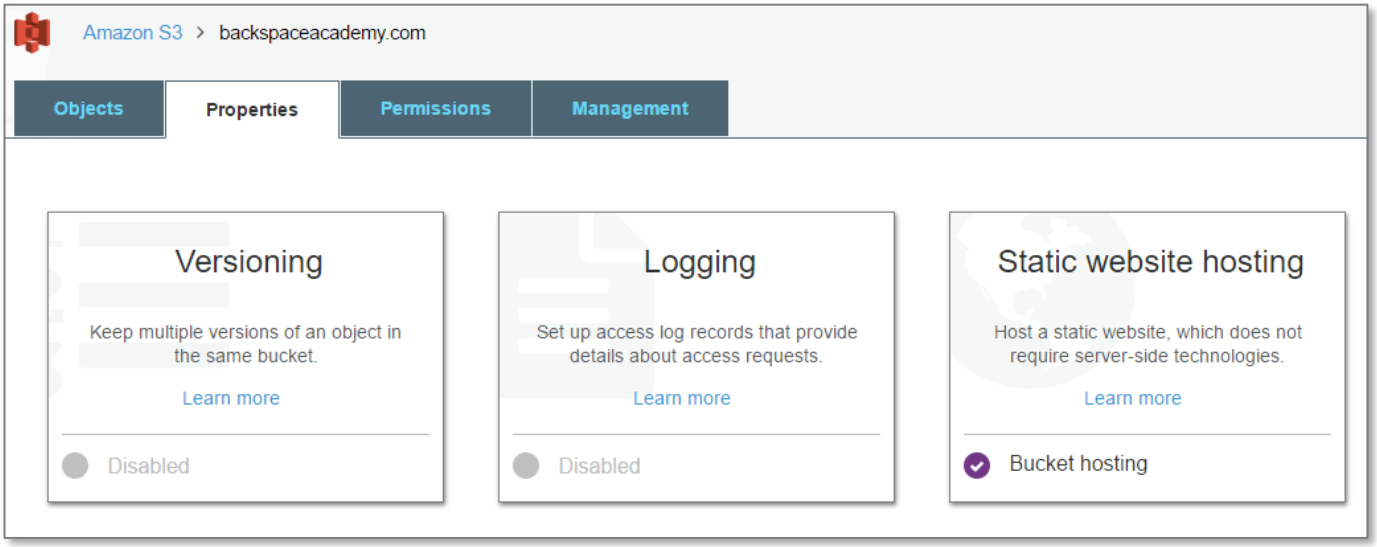
Enabling S3 Website Hosting

In this section we will enable website hosting for our root domain (yourdomain.com) and also redirect requests to the www subdomain (www.yourdomain.com) to our root domain.

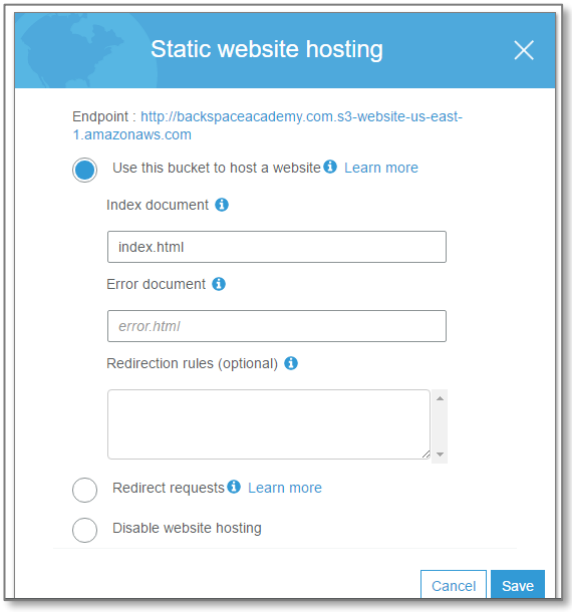
Select the root domain bucket (yourdomain.com)



Now select *Properties*



Now Select *Static Website Hosting*



Now Select *Use this bucket to host a website*

Enter the *Index Document* (required)

Enter *Error Document* if available or else enter just *index.html*

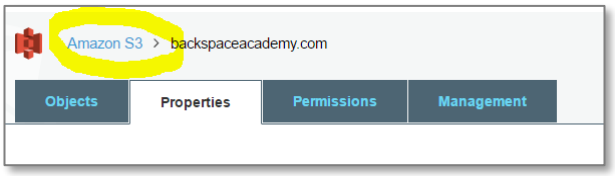
Click *Save*

If you go back into *Static Webstite Hosting* you will see the public endpoint for the S3 website.

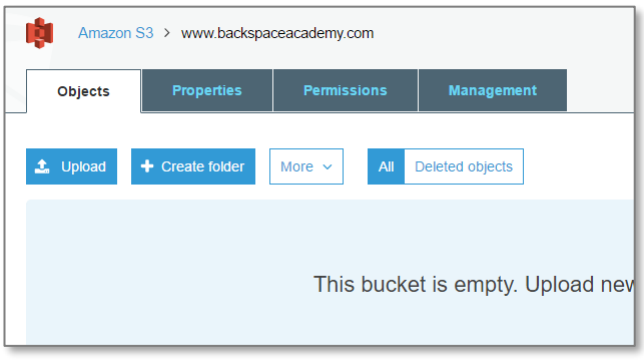
Endpoint : http://yourdomain.com.s3-website-us-east-1.amazonaws.com

Redirecting www Subdomain Requests

Now go back to the S3 dashboard

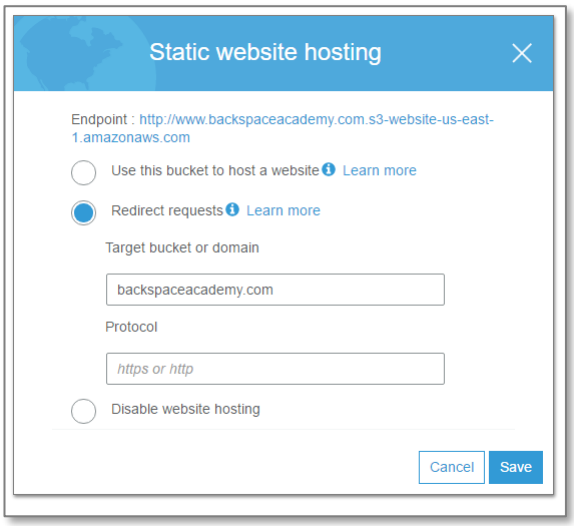


Now select the www subdomain bucket (www.yourdomain.com)



Select *Properties*

Select *Static Website Hosting*



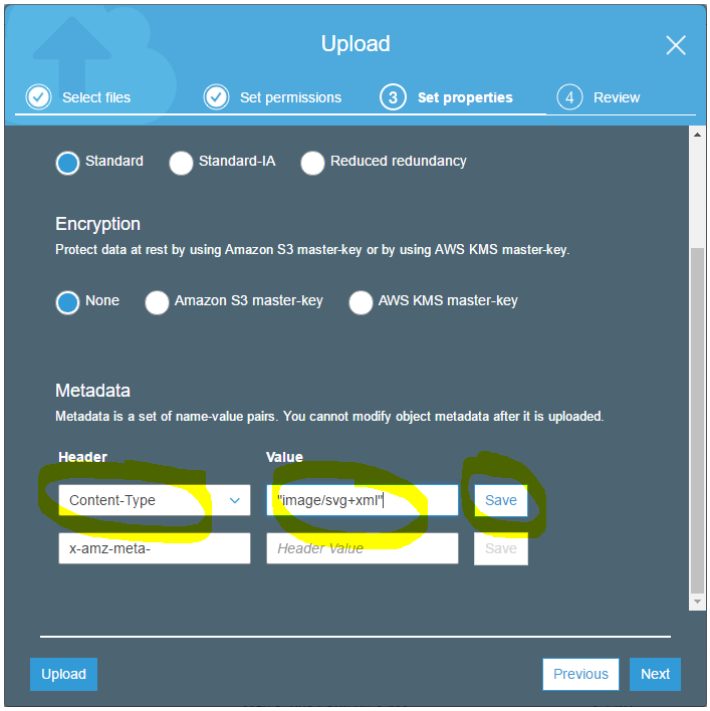
Redirect all requests to the target root domain (yourdomain.com)

Click *Save*

Troubleshooting

If you get the following message your permissions are not set to public.

If you find svg images are not showing on your website it is most probably incorrect header information. Upload the specific files again but add Content-type "image/svg+xml" in the Metadata section (you need to scroll down to see it).



If you find svg images are not showing on your website and you used CloudBerry Explorer to upload, the http headers for svg files are incorrect.

If you are using Cloudberry then right click on the image and select *Set HTTP Headers*. Content-Type should be image/svg+xml

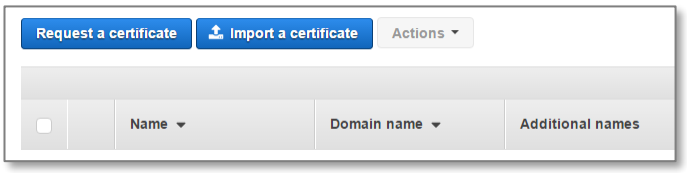
If you need to change multiple files then set up an upload rule (requires paid version) for svg files in CloudBerry or use the S3 management console to upload the files.

Creating an SSL Certificate with AWS Certificate Manager

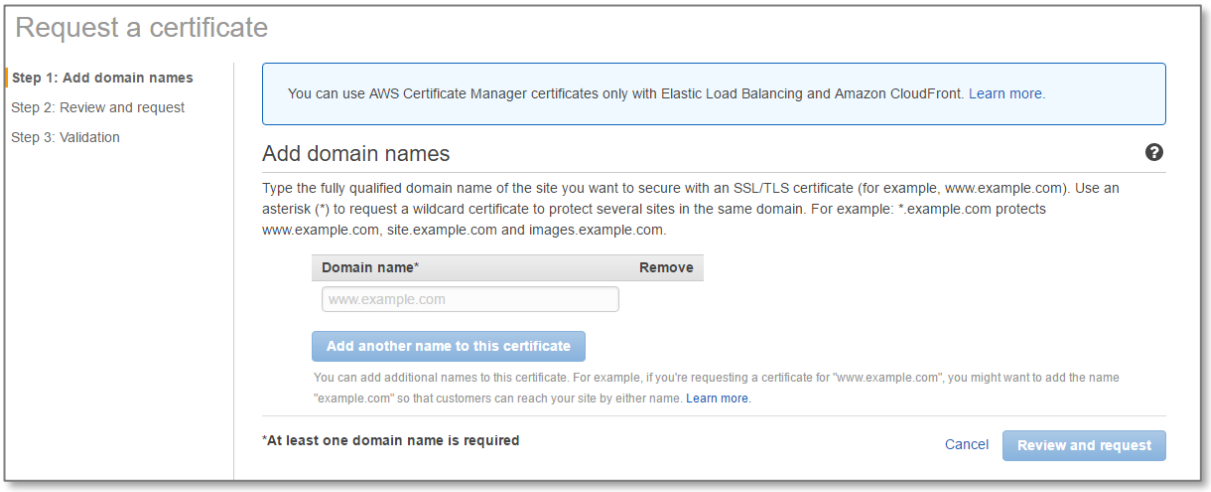
In this section we will use the AWS Certificate Manager to create an SSL certificate we can use to enable HTTPS with CloudFront.

Please note that to require HTTPS between viewers and CloudFront, you must change the AWS region to US East (N. Virginia) before you request or import a certificate.

Click on the services menu and select AWS Certificate Manager.



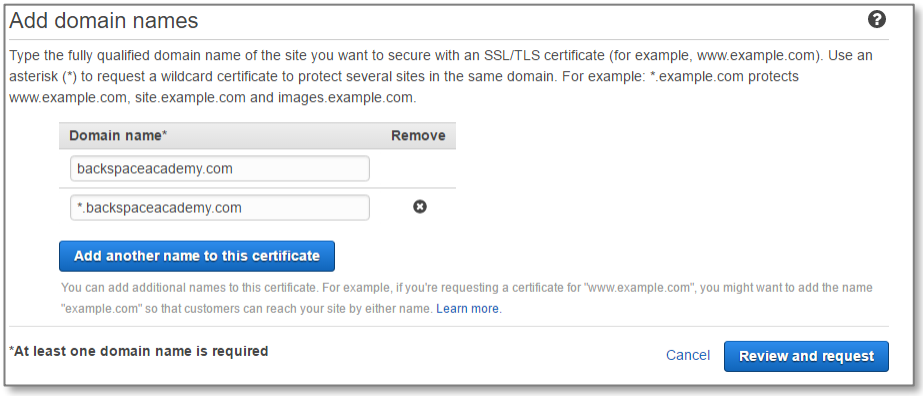
Click *Request a Certificate*



Enter the root domain (yourdomain.com)

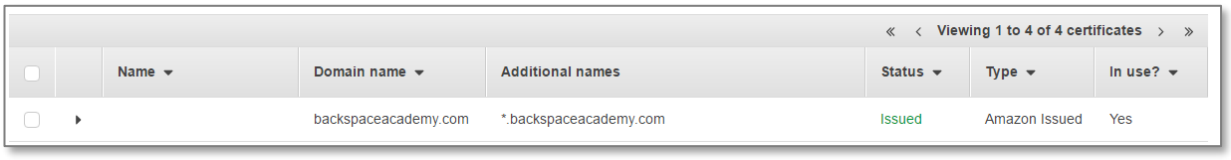
Click *Add another name to this certificate*

Enter the root domain prefixed with *. (*.yourdomain.com)



When you receive the validation email, open the link and validate the certificate.

After you click the validation link in the email the certificate will be marked as issued.

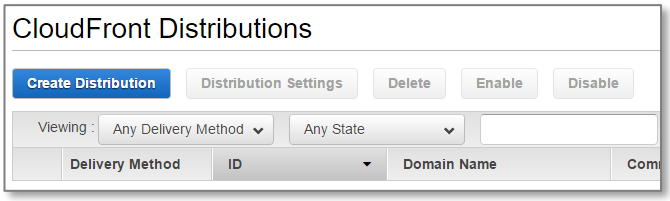


Creating a CloudFront Distribution

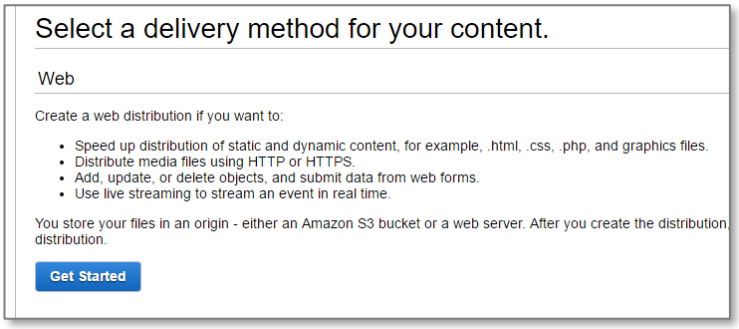
In this section we will use the AWS CloudFront Content Delivery Network (CDN) to cache our site to edge locations across the Globe.

Click on the services menu and select CloudFront.

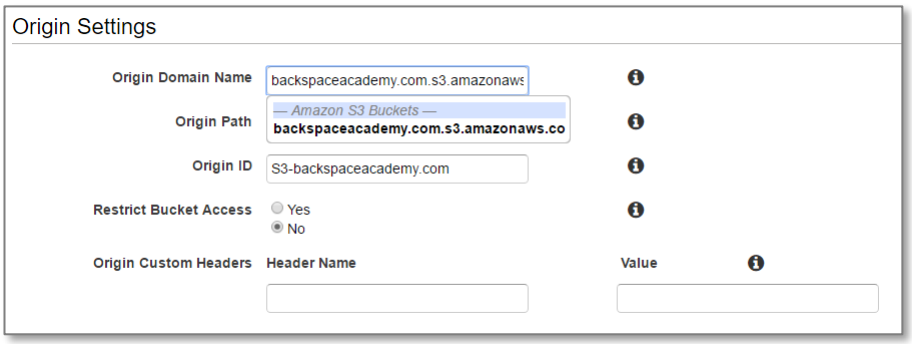
Click on *Create Distribution*



Select *Web – Get Started*

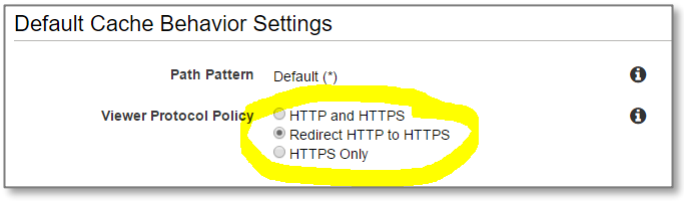


In *Origin Settings* select your s3 bucket as the *Origin Domain Name*

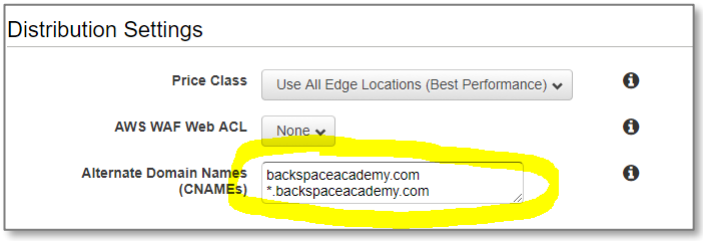


In Default *Cache Behavior Settings*

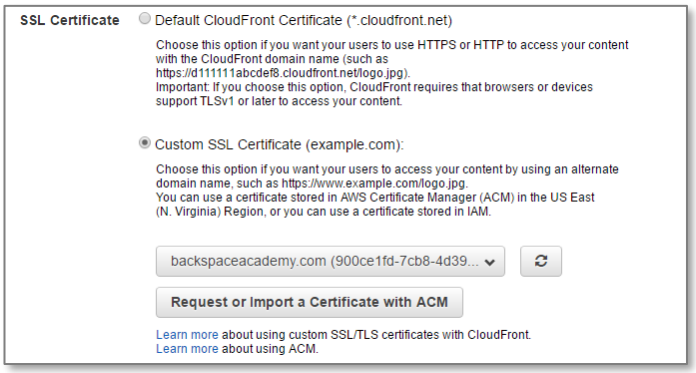
Set *Viewer Protocol Policy* to *Redirect HTTP to HTTPS*



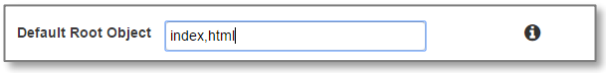
Under *Distribution Settings* enter your domain name and wildcard for subdomains (*.yourdomain.com) into *Alternate Domain Names (CNAMEs)*



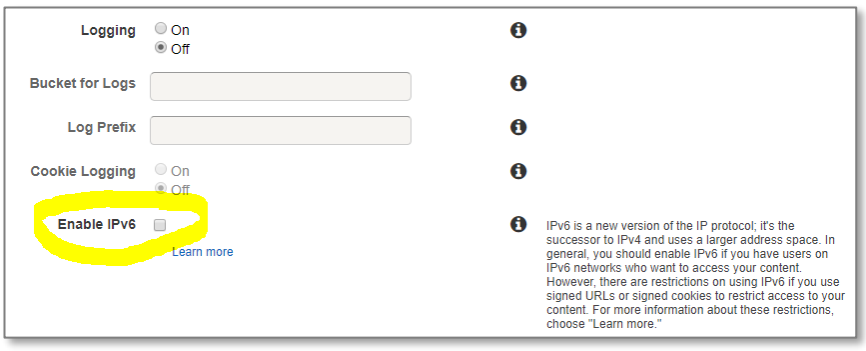
Under *Distribution Settings* enter/select your SSL certificate



Under *Distribution Settings* enter the index file for your website



Under *Distribution Settings* uncheck “Enable iPv6”



Click *Create Distribution*

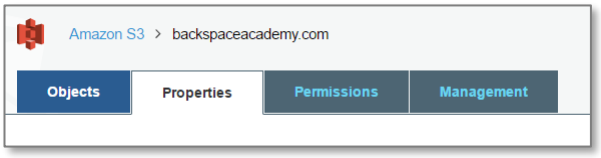
The Status of the distribution will change when it has been distributed to the edge locations.

Requiring HTTPS for Communication Between CloudFront and Your Amazon S3 Origin

If you are creating a secure site you can also require HTTPS for communication between your S3 bucket and CloudFront. This is achieved by disabling website hosting for the S3 bucket. It will then only be possible to view the website through CloudFront.

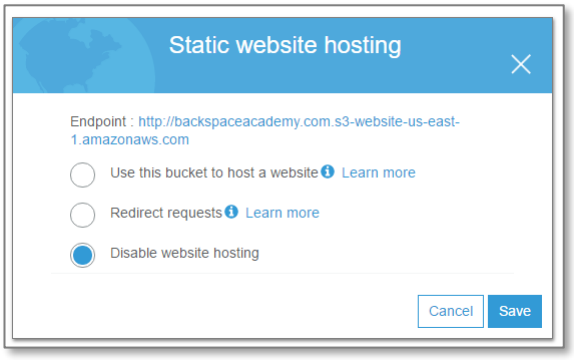
Go to the S3 management console and select the bucket.

Select the *Properties* tab



Select *Static website hosting*

Select *Disable website hosting* and then click *Save*

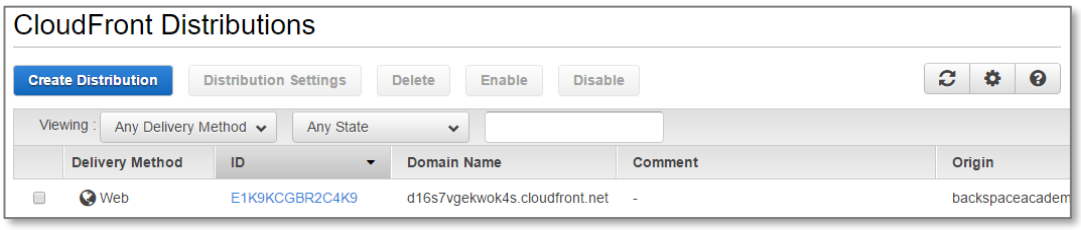


Invalidating a CloudFront Distribution

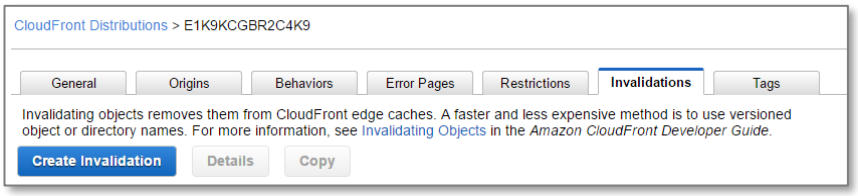
If you need to change your website and update your CloudFront distribution you can force CloudFront to fetch and update the distribution using invalidations.

To invalidate/update a CloudFront distribution:

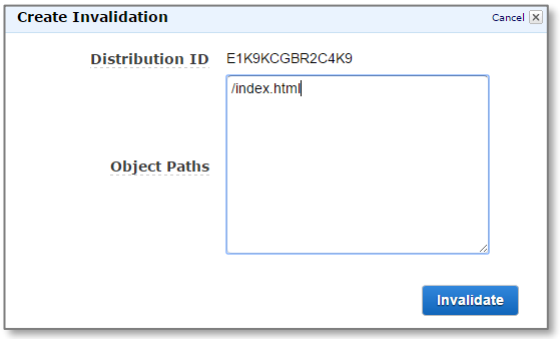
Click on the distribution from the list of distributions



Click on the *Invalidations* tab
Click *Create Invalidation*



Enter the object path to the file you want to invalidate/update (e.g. /index.html) or use a wildcard symbol to invalidate all the files (e.g. /*)



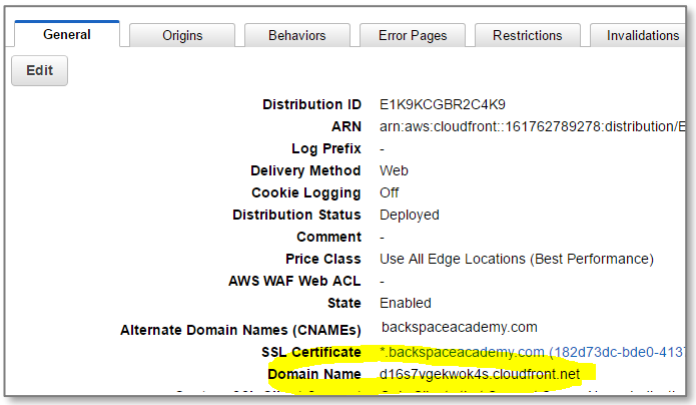
Click *Invalidate*

This will take some time to complete.

Routing Traffic with AWS Route 53

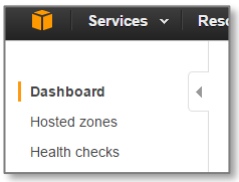
In this section we will direct all requests to our domain name and www subdomain to CloudFront using Route 53 Domain Name Service (DNS).

Go back to the CloudFront Distribution page and copy the distribution domain name

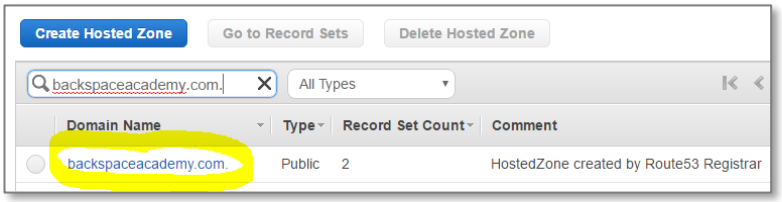


Now go back to the Route 53 Management Console:

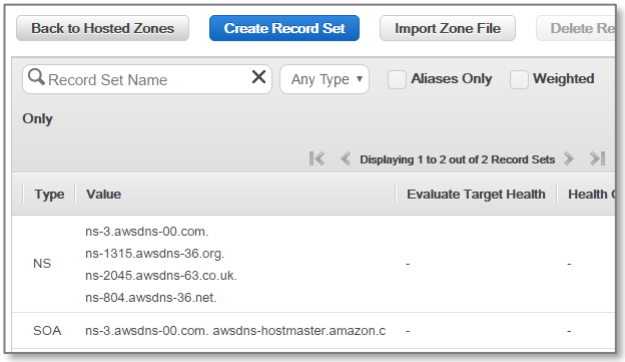
Click on the services menu and select Route 53.



Click on Hosted Zones



Click on the hosted zone created by the Route 53 Registrar



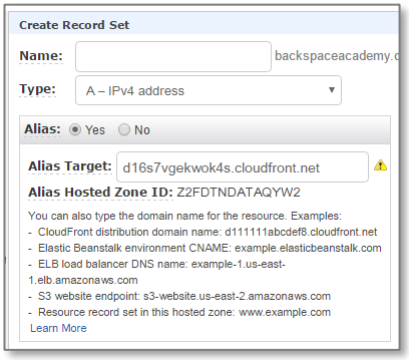
Click on *Create Record Set*

Select *A-IPv4 address* as Type

Check Alias: *Yes*

Leave *Name* empty

Enter the distribution domain name as Alias Target:



Click *Create*

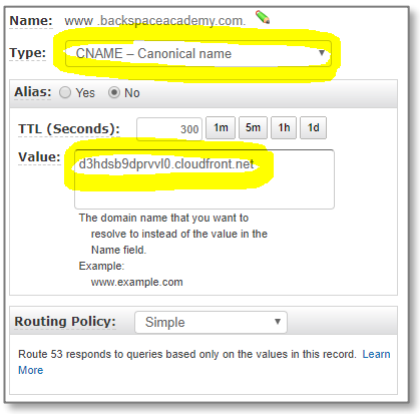
Route Requests for www Subdomain

Click on *Create Record Set*

Select *CNAME* as Type

Enter www for *Name*

Enter the CloudFront domain for the www subdomain as Value (without the http:// at the start)



Click on *Create Record Set*

After some time the changes will be propagated to the Internet and you will be able to navigate to your domain name in your browser and see your website.

Checking DNS Propagation Status

The Route 53 entries detailed above will take a while to propagate across the Internet. This could be anywhere from a couple of minutes to an hour. You can check the status of DNS propagation using the following site:

Global DNS Propagation Checker