5D TOOLS - WEEK 09 - REGISTERING A DOMAIN AND SETTING UP HOSTING WITH AWS

This guid starts assuming you've already created a free AWS account

3 Steps to Deploying a Website

1. Store your files in S3
2. Cloudfront distributes the files
3. Domain points to Cloudfront so people can view your files

Part 0 Register a domain name through Route 53, a DNS (Domain Name Registrar) provider.

- Choose your domain name and TLD (top-level domain. ex: .com, .org, .co) through Route 53 and follow the steps to register it.
- Enable privacy protection.

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Create a bucket

1. Go to the AWS console and click on S3 in the "Services" menu under the "Storage" section
2. Click on the "Create bucket" button
3. Pick a name for your bucket

   IMPORTANT you must name your bucket with the exact domain name that you want your site to be available at. For example, if you want your website to be available at `www.my-website.com`, and you own the `my-website.com` domain, then the bucket must be named `www.my-website.com`
4. Select your region

This doesn't matter so much but "US East (N. Virginia)" is the cheapest and most popular option

5. Click Create

Enable Static Site Hosting

1. Click on the bucket you just created and then click Properties.
2. Click on "Static Website Hosting" and select "Use this bucket to host a website". The default index and error documents should be fine, so enter those values. Click Save. There should be a checkmark on Host a Static Site now.
    - there's an endpoint URL at the top of this box, we'll come back to this later but optionally copy/paste it somewhere like in Notes

Enable permissions for the bucket files

- This is done through a JSON (JavaScript Object Notation) file. (Don't worry about understanding this, it's super complicated. We're just going to copy/paste some things)

1. Click on the Permissions tab and select the "Bucket Policy" button.
2. Copy/paste the following snippet into the editor:

```
{
  "Version": "2008-10-17",
  "Statement": [{
    "Sid": "AllowPublicRead",
    "Effect": "Allow",
    "Principal": {"AWS": "*"},
    "Action": ["s3:GetObject"],
    "Resource": ["arn:aws:s3:::www.my-website.com/*"]
  }]
}
```

3. in the line that says "Resource", replace www.my-website.com with the name of your website and click Save
    - you'll get a warning about public access, don't mind that

- at this point, you can technically reach your bucket using the endpoint url that was generated

Upload files to your bucket

1. Click on the Overview tab and then click on the Upload button
2. Upload your site files. You can either drag and drop the entire folder or add them using the file browser. I recommend selecting all of the files and subfolders within the top level of your site folder and dragging/dropping them in. This means that they'll be accessible directly from your base URL rather than at www.my-website.com/5dtools (or whatever you've named your folder)
3. Click Next to see the permissions for your uploads. Select "Grant public read access to these obeject(s)" in the Manage Public Permissions Dropdown.
4. Click upload. If we go back and find that endpoint URL, we should be able to put that into our address bar in the browser and see the site!

Editing/Adding new files

- You should think of and organize your s3 bucket as a reflection of how your site is
- organized in the folder on your computer.
- To add new files, upload the file to the correct folder or subfolder
- To update files, select the file and delete it. Then upload a new version of the file.
- If you really mess something up, you can delete everything and re-upload your site folder.

Part 2 Make a CloudFront Distribution

- Cloudfront is CDN - a way to make your site load fast everywhere and let's you use HTTPS (the secure version of HTTP)
- It's organized into "Distributions" (like S3's "Buckets")

Create a Distribution

1. Back in the Services menu, click on "Cloudfront" under the Netowrking and

Content Delivery section. Click on “Create Distribution” then Click on “Get Started” under the “Web” section. You’ll see a long form

2. In the Origin Domain Name, copy/paste your Endpoint URL that was generated when we enabled the S3 bucket to host a static site. Remove the `http://` from the beginning so it looks like this: `my-website-domain.com.s3-website-useast-1.amazonaws.com`
    - If you click in the dropdown, you’ll see a list of s3 buckets but don’t use these! They’re incorrect!
    - The Origin ID field should automatically populate
3. Scroll down to the “Distribution Settings” Section, there’s a field above it labelled “Compress Objects Automatically”, select Yes.
4. Scroll down to the text field labelled “Alternate Domain Names (CNAMEs)”. Add the domain name of your website here (it should match what you named your s3 bucket).
5. Scroll down to the bottom of the form, find the “Default Root Object” field, and type in “index.html”. Click “Create Distribution”
6. You should see your Distribution in the table. It might take a few minutes for AWS to finish setting everything up. You’ll know when it’s finished when the “In Progress” indicator is gone.

Part 3 Point your Route 53 Domain to CloudFront

- The last piece of the puzzle is getting your domain name to point to your site files hosted with S3 and CloudFront

1. Go back to Route 53 in the services menu (it should be in your recent history side bar) and click on your domain, then on “Manage DNS”.
    - This might bring you to a “Hosted Zones” page, if it does, click on your domain name again.
2. Click on Create Record Set. Leave the name blank. Select “A” for the Record Type.
3. Select Yes under “Alias”. This will make an “Alias target” field appear.
4. Click into the field and select the Cloudfront distribution you just made in the dropdown that appears. If it’s not there, you can copy/paste the domain name from the CloudFront record into the field.

5. Click “Create”. Visit your domain’s URL and voila! You have a website!! It might take anywhere from 5 minutes to an hour for this to happen, be patient. DNS can be slow sometimes.

Tips

- Make sure you include an index.html file
- Check that all of your links to images, fonts, and urls are correct including capitalization, spelling and formatting
    - if your image is called “dog.jpeg” but you’re src attribute uses “DOG.jpeg”, this may give you issues
- Use relative URLs for internal links in your site
- You don’t NEED the www for your domain necessarily, especially if you don’t imagine the site growing to a huge size
- You can really store any type of file in your S3 buckets, you could use them to back up photos or other files similarly to Dropbox or a hard drive. If you’re doing that, DO NOT give them public read access. Public read access is only recommended for websites
- You’ll notice that if you type www before your domain name, it won’t work. If you want the www to work as well, you’ll create another bucket and CloudFront Distribution to redirect to your regular url (or vice versa if you’ve created a www bucket/distribution first). Check out these docs from AWS for more on that