Module 12. Using the Free Tier to Build a Web Server

This module covers the following subjects:

- **Creating Your Free Tier Account:** The Free Tier in AWS is an excellent way for you to get started with Amazon Web Services. In this section of the module, you get details about a Free Tier account and you perform a lab that sets you up with this service level.
- **Building a Web Server with the Free Tier:** This section of the module walks you through the steps required to build a web server in AWS using your Free Tier account.

It is important for you to understand the options around the Free Tier account in AWS. This module educates you on this powerful starting option. It also ensures you can use this account to create a fully functional web server in AWS.

FOUNDATION TOPICS

CREATING YOUR FREE TIER ACCOUNT

Although the exact terms of the Free Tier account could change at any time, let's start by looking at the incredible amount of resources you receive for free for 1 year. We will follow this up with the components that remain free after the 1-year period.

Here are the "free for a year" components (notice for any services not covered elsewhere in this text, we provide some details on these services for you):

- **API Gateway**: One million API calls per month
- **Cloud Directory**: Fully managed, cloud-native directory-building service for data with multiple hierarchies; 1 GB of storage per month.
- **CloudFront**: 50 GB of data transfers out.
- **Comprehend**: Continuously trained and fully managed natural language processing (NLP); 50,000 units of text (5M characters) for each API per month.
- **Connect**: A simple-to-use, cloud-based contact center that scales to support any size business; 90 minutes per month of Amazon Connect usage.
- **EC2**: 750 hours per month.
- **EFS**: 5 GB of storage.
- **EBS**: 30 GB for any combination of general-purpose (SSD) or magnetic.
- **Elastic Container Registry**: 500 MB of storage per month.
- **Elastic Transcoder**: 20 minutes of audio transcoding.
- **ElastiCache**: 750 hours of cache.t2.micro Node usage.
- **Elastisearch**: 750 hours per month of a single-AZ t2.micro.elasticsearch or t2.small.elasticsearch instance.

- **GameLift**: Simple, fast, cost-effective dedicated game server hosting; 125 hours per month of Amazon GameLift c4.large.gamelift On-Demand instance usage, plus 50 GB EBS general-purpose (SSD) storage
- **Lex**: Build voice and chat text chatbots; 10,000 text requests per month.
- **MQ**: Amazon MQ is a managed message broker service for Apache ActiveMQ; 750 hours of a single-instance mq.t2.micro broker per month.
- **Pinpoint**: Targeted push notifications for mobile apps; 5,000 free targeted users per month.
- **Polly**: Turn text into speech; 5 million characters per month.
- **RDS**: 750 hours per month of db.t2.micro database usage (applicable DB engines).
- **Rekognition**: Deep learning–based image recognition service; 5,000 images per month.
- **S3**: 5 GB of standard storage.
- **Sumerian**: Build and run virtual reality, augmented reality, and 3D applications; 50 MB published scene that receives 100 views per month for free in the first year.
- **Transcribe**: Add speech-to-text capability to your applications with automatic speech recognition; 60 minutes per month.
- **Translate**: Fast, high-quality, and affordable neural machine translation; 2 million characters per month.
- **Data Pipeline**: Orchestration for data-driven workflows; three low-frequency preconditions
- **Greengrass**: Three devices for free.
- **IoT**: 250,000 messages published or delivered per month.
- **IoT Device Management**: 50 remote actions per month.
- **OpsWorks for Chef Automate**: 7,500 node hours.
- **OpsWorks for Puppet Enterprise**: 7,500 node hours.
- **Trusted Advisor**: Four checks on performance and security.
- **ELB**: 750 hours per month shared between Classic and Application Load Balancers.

Here are the services that will remain free for you after the 1 year is up:

- **Chime**: A modern unified communications (UC) service that offers frustration-free meetings with exceptional audio and video; unlimited usage of Amazon Chime Basic.
- **CloudWatch**: Ten custom metrics and ten alarms.
- **Cognito**: 50,000 MAUs each month.
- **DynamoDB**: 25 GB of storage.
- **Glacier**: 10 GB of storage retrievals.
- **Macie**: Discover, classify, and protect data; 1 GB processed by the content classification engine.
- **SES**: Cost-effective email in the cloud; 62,000 outbound messages per month.
- **SNS**: One million publishes.
- **SQS**: One million requests.
- **SWF**: 10,000 activity tasks.
- **CodeBuild**: 100 build minutes.
- **CodeLimit**: Highly scalable, managed source control service; five active users per month.
- **CodePipeline**: One active pipeline per month.
- **Database Migration Service**: 750 hours of Amazon DMS Single-AZ dms.t2.micro instance usage.
- **Glue**: Simple, flexible, and cost-effective extract, transform, and load (ETL) service; one million objects stored in the AWS Glue Data Catalog.
- **Key Management Service**: 20,000 free requests per month.
- **Lambda**: One million free requests per month.
- **Step Functions**: Coordinate components of distributed applications; 4,000 state transitions per month.
- **Storage Gateway**: 100 GB free per account.
- **X-ray**: Analyze and debug your applications; 100,000 traces recorded per month.

Lab: Creating Your Free Tier Account

If you do not already have a Free Tier account with AWS, it is time for you to create one! Follow these steps:

Step 1. Search Google for AWS Free Tier. Select the link from Amazon for the Free Tier or just type it https://aws.amazon.com/free/?

Step 2. Click the **Create a Free Account** button, as shown in Figure 12-1.

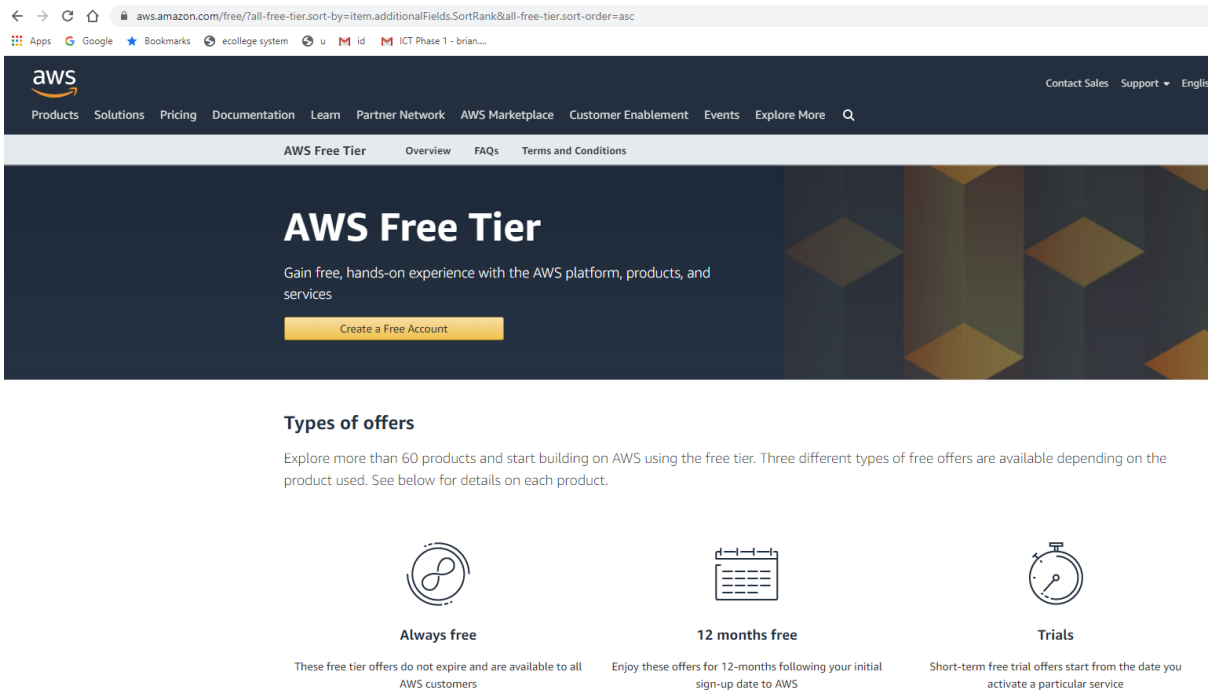

Figure 12-1 The Create a Free Account Button on the AWS Free Tier Page

Step 3. On the **Create an AWS Account** page (shown in Figure 12-2), provide your email address, password, and account name. The email address is critical and will be the username entry when you log in to this all-powerful root account. The account name is how your account will display in AWS. This is not nearly as critical and can be changed at any time.

Step 4. Complete your basic contact information, as shown in Figure 12-3.

Step 5. Provide your payment information, Note that you are not charged anything in the first year, as long as you do not exceed your Free Tier limits.

Step 6. Provide the phone number for your phone verification and input the security check.

Step 7. In the **Select a Support Plan** window, choose your support options, as shown in Figure 12-6. Note that there is only one free plan.

Step 8. Sign in to your new AWS account! Use the email address that you used for the account creation. Remember, this is your root AWS account. You should use this account to create "normal" admin accounts for management of AWS. You should very rarely need to log in as this powerful root account.

Step 9. You are now ready to explore the wonders of AWS! Figure 12-8 shows the welcome screen for the AWS Management Console.

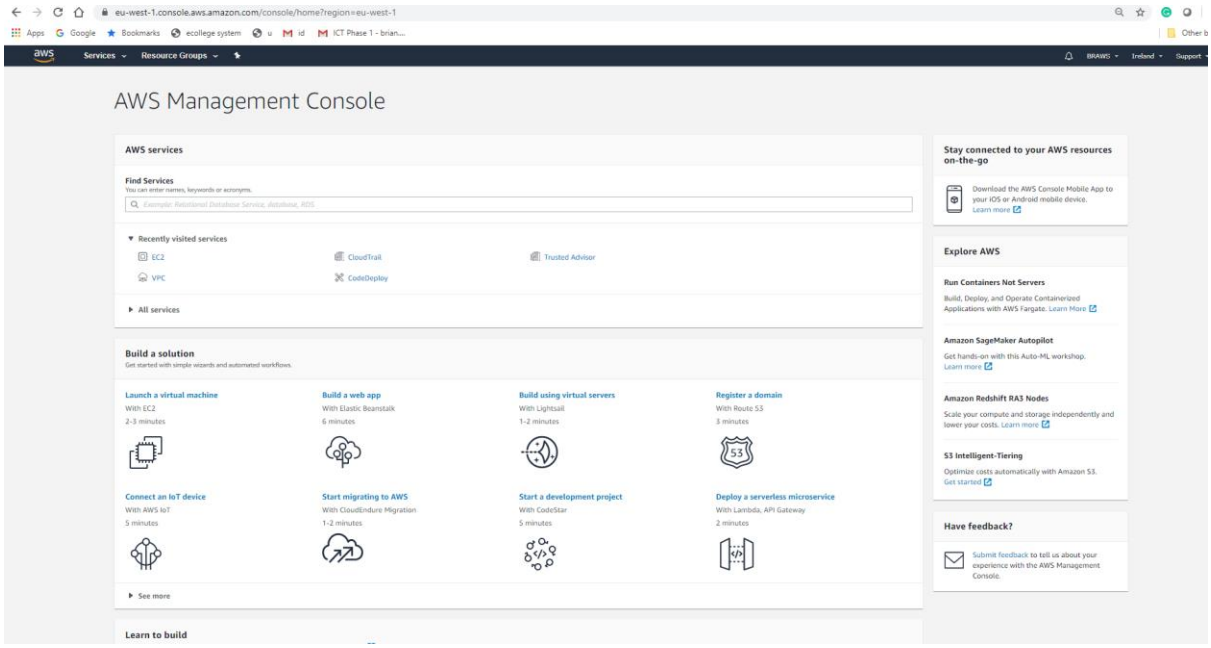

Figure 12-8 The AWS Management Console

HANDS ON TUTORIALS

Control Your AWS Costs

https://aws.amazon.com/getting-started/hands-on/control-your-costs-free-tier-budgets/?ref=gsrchandson&id=itprohandson

Launch a Windows Virtual Machine in Amazon Lightsail

https://aws.amazon.com/getting-started/hands-on/launch-windows-vm/?ref=gsrchandson&id=itprohandson

Launch a Linux Virtual Machine with Amazon Lightsail

https://aws.amazon.com/getting-started/hands-on/launch-a-virtual-machine/?ref=gsrchandson&id=itprohandson

Create EC2 Free Tier Instances

https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EC2_GetStarted.html

Track your Free Tier usage for Amazon EC2

https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/ec2-free-tier-usage.html

Creating, configuring, and working with Amazon S3 buckets

https://docs.aws.amazon.com/AmazonS3/latest/userguide/creating-buckets-s3.html

Emptying a bucket

https://docs.aws.amazon.com/AmazonS3/latest/userguide/empty-bucket.html

Deleting a bucket

https://docs.aws.amazon.com/AmazonS3/latest/userguide/delete-bucket.html

Build a Full Stack React Application

https://aws.amazon.com/getting-started/hands-on/build-react-app-amplify-graphql/?ref=gsrchandson&id=updated

Amazon EC2 Backup and Restore Using AWS Backup

https://aws.amazon.com/getting-started/hands-on/amazon-ec2-backup-and-restore-using-aws-backup/?ref=gsrchandson&id=itprohandson

Remotely Run Commands on an EC2 Instance with AWS Systems Manager

https://aws.amazon.com/getting-started/hands-on/remotely-run-commands-ec2-instance-systems-manager/?ref=gsrchandson&id=itprohandson

Setting up your AWS account

https://docs.aws.amazon.com/IAM/latest/UserGuide/getting-started-account-iam.html

Control Your AWS Costs

https://aws.amazon.com/getting-started/hands-on/control-your-costs-free-tier-budgets/?ref=gsrchandson&id=itprohandson

Creating a cost budget

https://docs.aws.amazon.com/cost-management/latest/userguide/create-cost-budget.html

Creating a usage budget

https://docs.aws.amazon.com/cost-management/latest/userguide/create-usage-budget.html

Send an Email with Amazon SES

https://aws.amazon.com/getting-started/hands-on/send-an-email-with-amazon-ses/

Host a Static Website

https://aws.amazon.com/getting-started/hands-on/host-static-website/?ref=gsrchandson

Build an Android Application

https://aws.amazon.com/getting-started/hands-on/build-android-app-amplify/?ref=gsrchandson

CREATING AND CONNECTING TO A MYSQL DB INSTANCE

HTTPS://DOCS.AWS.AMAZON.COM/AMAZONRDS/LATEST/USERGUIDE/CHAP_GETTINGSTARTED.CREATINGCONNECTING.MYSQL.HTML

CREATE A WEB SERVER AND AN AMAZON RDS DB INSTANCE

HTTPS://DOCS.AWS.AMAZON.COM/AMAZONRDS/LATEST/USERGUIDE/TUT_WEBAPPWITHRDS.HTML

There are many more tutorials to be found at :

AWS Tutorial Website. Here there are many tutorials that can be completed using the AWS Free Tier

AWS Documentation, where you will find tutorials on almost every AWS Product and Service

AWS Skillbuider is where you find both free and paid training.

There is a set of good AWS Tutorials on w3shcools.com