



AWS Best Practices

a guide from



UDACITY
FOR ENTERPRISE

AWS Best Practices

Udacity has partnered with Amazon to provide nominal credits for learners whose coursework requires AWS services to complete. To request a promo code for [eligible Nanodegree programs](#), you can submit a [ticket](#) to Udacity Support, and we will provide you with the sufficient credit amount for you to complete your Nanodegree program.

In addition to the promo codes provided by Udacity, you can also leverage the AWS Free Tier Access. **You are responsible for charges incurred from usage that exceeds the AWS Free Tier limits and credits provided by Udacity.** Here are some guidelines on how to make the most of your AWS Free Tier access and promo code, and avoid any unexpected charges.

How to Apply Your AWS Promo Code

After [creating your AWS account](#), please load your promo code immediately by following the steps [here](#).

What is AWS Free Tier Access?

The [AWS Free Tier Access](#) allows you to test some AWS services free of charge within usage limits, and is automatically available to new AWS customers for 12 months from the date of account creation. AWS will send a notification to your email address when your Free Tier eligibility approaches expiration.

Please note that not all AWS services are free. Even though your account may be using the free tier, you also have access to paid services. **You are responsible for any charges you incur while using AWS services.** You can see the complete list of free services [here](#).

The AWS Free Tier offers AWS services free of charge up to specified limits. Here are some examples:

- » **Amazon EC2** - 750 hours of Linux and Windows t2.micro instances each month for one year
- » **Amazon RDS** - 750 Hours per month of db.t2.micro database usage each month for one year
- » **Amazon S3** - 5 GB of Standard Storage each month for one year.
- » **Amazon CloudFront** - 50GB of data transfer each month for one year

Selecting Free Tier instances

These are some of the examples below:

- Look for the instance type '**t2.micro**' eligible under the free-tier option as below:

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add T

Step 2: Choose an Instance Type

Amazon EC2 provides a wide selection of instance types optimized to fit different use cases. In appropriate mix of resources for your applications. [Learn more](#) about instance types and how

Filter by: All instance types Current generation Show/Hide Columns

Currently selected: t2.micro (Variable ECUs, 1 vCPUs, 2.5 GHz, Intel Xeon Family, 1 GiB me

	Family	Type	vCPUs
<input type="checkbox"/>	General purpose	t2.nano	1
<input checked="" type="checkbox"/>	General purpose	t2.micro Free tier eligible	1
<input type="checkbox"/>	General purpose	t2.small	1
<input type="checkbox"/>	General purpose	t2.medium	2
<input type="checkbox"/>	General purpose	t2.large	2

- When you start an Amazon EC2 instance, you will need to select the **Amazon Machine Image (AMI)** eligible and available under the free tier option.

Step 7: Review Instance Launch

Please review your instance launch details. You can go back to edit changes for each section. Click **Launch**

AMI Details

 **Amazon Linux 2 AMI (HVM), SSD Volume Type - ami-09d95fab7fff3776c**

Amazon Linux 2 comes with five years support. It provides Linux kernel 4.14 tuned for optimal performance through extras.

Root Device Type: ebs Virtualization type: hvm

How to Check Your Free Tier Eligibility

If you have an existing AWS account, but you're unsure whether it's still eligible for the Free Tier category, open your [Billing and Cost Management console](#). If your account is eligible for AWS Free Usage Tier, you will see the following message in the Alerts & Notifications section:



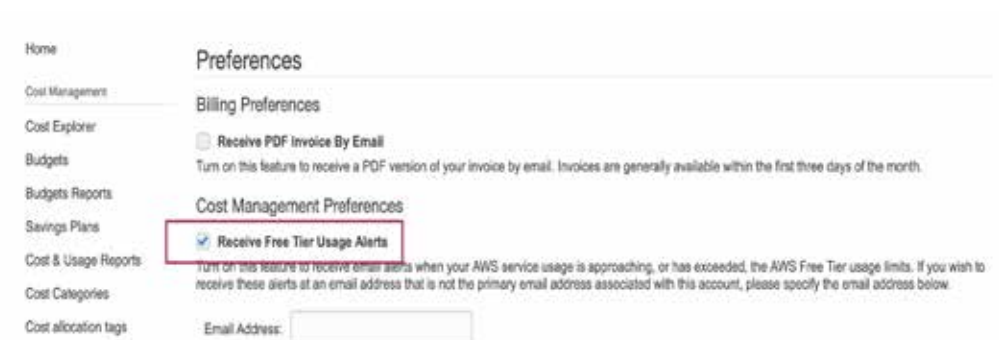
How to Set up Free Tier Usage Alerts

By default, accounts in the Free tier option category are automatically opted in to receive email alerts when their service usage exceeds 85% of the limit.

Under Free Tier account, you can follow these steps to **receive additional notification alerts** for every resource usage when your account is approaching or has exceeded the AWS Free Tier usage limits:

- » Sign into the AWS Management Console and open the [Billing and Cost Management console](#).
- » Under **Preferences** in the navigation pane, choose **Billing preferences**.
- » Under **Cost Management Preferences**, select **Receive Free Tier Usage Alerts**.

AWS offers additional **paid** alerts, some of the examples are [Billing alarms](#), [Budgets](#), [Cloudtrail](#), [Cloudwatch](#) notifications. However, please be aware that these alerts, when enabled, will incur some charges. You can find out more details [here](#).



When will I be charged?

There are no tools to limit usage to what's covered by the AWS Free Tier. This means that **you are responsible** for the services that you launch. You will be charged standard [pay-as-you-go service rates](#) for using AWS resources that exceed the AWS Free Tier limits and the credits provided by Udacity.

How to Track your AWS costs

To help you avoid accidentally exceeding Free Tier limits and incurring unintentional charges, the AWS Billing Console tracks your Free Tier usage through the "[Top Free Tier Services by Usage](#)" table, as shown on the next page, and gives you an estimate of your total usage for the rest of the month. You can view your remaining credits [here](#).

PLEASE NOTE: If you have credits only (i.e. no free-tier account), you will not receive free-tier notifications. Therefore, you will need to monitor the cost periodically by selecting “Bills” in the [Billing and Cost Management Console](#), where you can see current and past usage activity by service and region.

» [Bills](#)

Home: **Bills** ?

Cost Management Date: June 2020 Download CSV Print

Cost Explorer

Budgets

Budgets Reports

Savings Plans

Cost & Usage Reports

Cost Categories **Details** + Expand All

Cost allocation tags

Billing **Bills**

Orders and invoices

Credits

Preferences

Billing preferences

Estimated Total **\$0.00**

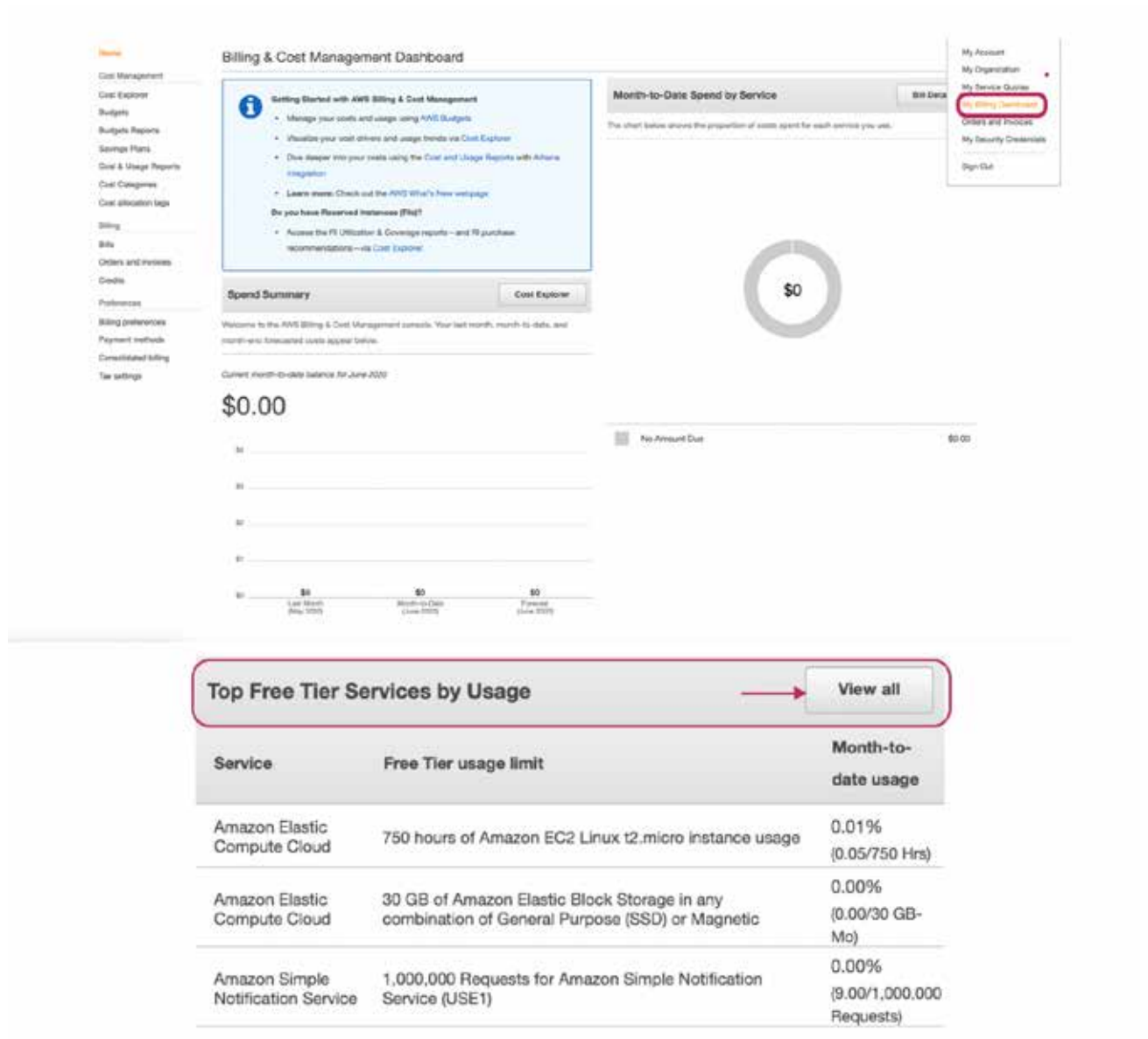
Your invoiced total will be displayed once an invoice is issued.

AWS Service Charges **\$0.00**

▸ Data Transfer	\$0.00
▸ Elastic Compute Cloud	\$0.00
▸ Simple Notification Service	\$0.00

Usage and routing charges for this statement period will be charged on your next billing date. Estimated charges shown on this page, or shown on any notifications that we send to you, may differ from your actual charges for this statement period. This is because estimated charges presented on this page do not include usage charges accrued during this statement period after the date you view this page. Similarly, information about estimated charges sent to you in a notification do not include usage charges accrued during this statement period after the date we send you the notification. One-time fees and subscription charges are assessed separately from usage and recurring charges, on the date that they occur.

» [Free Tier Services by Usage](#)



Best Practices to Avoid Unexpected AWS Charges

The Free Tier benefits and the credit amount provided by the Udacity Support team will be sufficient for you to complete your Nanodegree program. **You will need to terminate your AWS services at the end of each working session. If you leave it running, you will run out of the credits after which you may get charged.**

We strongly recommend that you shut down every resource (e.g., EC2 instances, or any other hosted service) on the AWS cloud immediately after usage, even if you are in the middle of your project and need to step away. You can always re-instantiate later!

Here are a few examples of how to terminate AWS services to help you prevent spending over your Free Tier limits and credit amount.

1 TERMINATE THE VPC

After you finish working, disable the EC2 instance and terminate the VPC by following the instructions below:

- » From the EC2 Dashboard, select the instance you have created, click **Actions >> Instance State >> Terminate**.
- » From the VPC Dashboard, select the VPC you have created, and click **Actions >> Delete VPC**.

2

DELETE YOUR REDSHIFT CLUSTER

Make sure to delete your cluster after you finish working in one sitting session. You can always launch a new cluster, so don't leave it running overnight or throughout the week!

- » On the **Clusters** page of your Amazon Redshift console, click on the box next to your cluster to select it, and then click on **Cluster >> Delete cluster**.

3

DELETE DATABASE INSTANCE

Clean up the resources to avoid recurring charges.

- » From the RDS Dashboard homepage, select **Databases** from the left-hand navigation pane.
- » Select your newly-created database by clicking on the name radio button next to the name. From the **Actions** menu, select **Delete**.

4

S3 BUCKET ACCESS CONFIGURATION AND DELETION

- » **Make sure that the S3 bucket does not allow [public access](#).** Otherwise, you may end up having to pay lots of fees in data transfers from your bucket if others access large amounts of data with your bucket.
- » After usage, make sure to delete your buckets by following the instructions [here](#).

5

DELETE THE CLOUDFORMATION STACK

Remember to delete your **CloudFormation** stack when you're done to avoid recurring charges!

- » When you specify a stack to delete, the AWS CloudFormation deletes the stack and all the resources in that stack.
- » You can delete stacks by using the [AWS CloudFormation console](#), [API](#), or [AWS CLI](#).

What happens if you get charged by AWS?

You are responsible for charges incurred from AWS usage that exceeds the Free Tier limits and credits provided by Udacity. For further questions, you can contact AWS support [here](#).





Udacity © 2020

2440 W El Camino Real, #101
Mountain View, CA 94040, USA - HQ

For more information visit: www.udacity.com/enterprise