

Provisioning an Oracle Linux Server on Amazon AWS

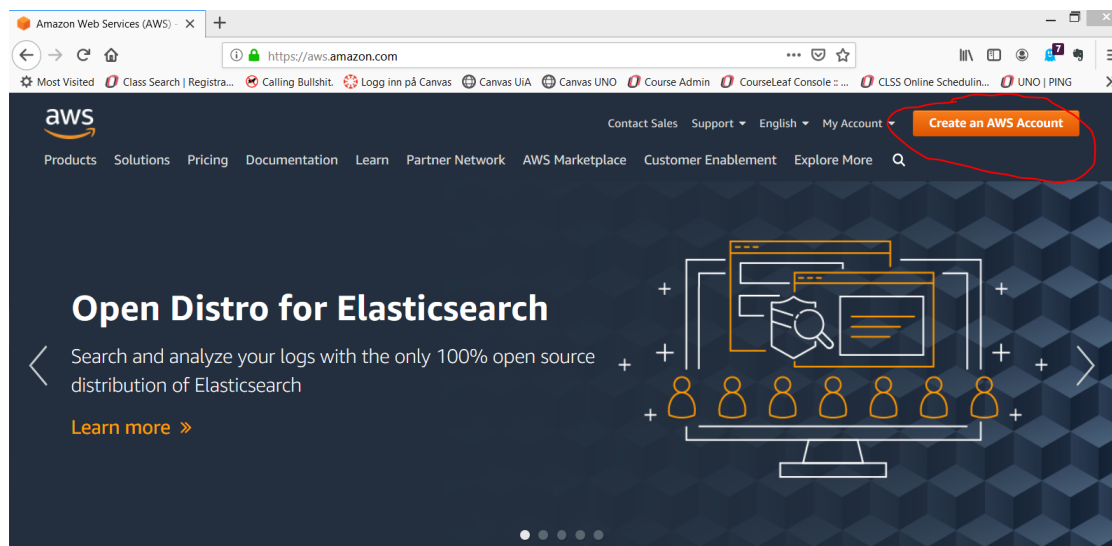
Updated: 8/22/2019 5:13 PM

Author: Peter Wolcott

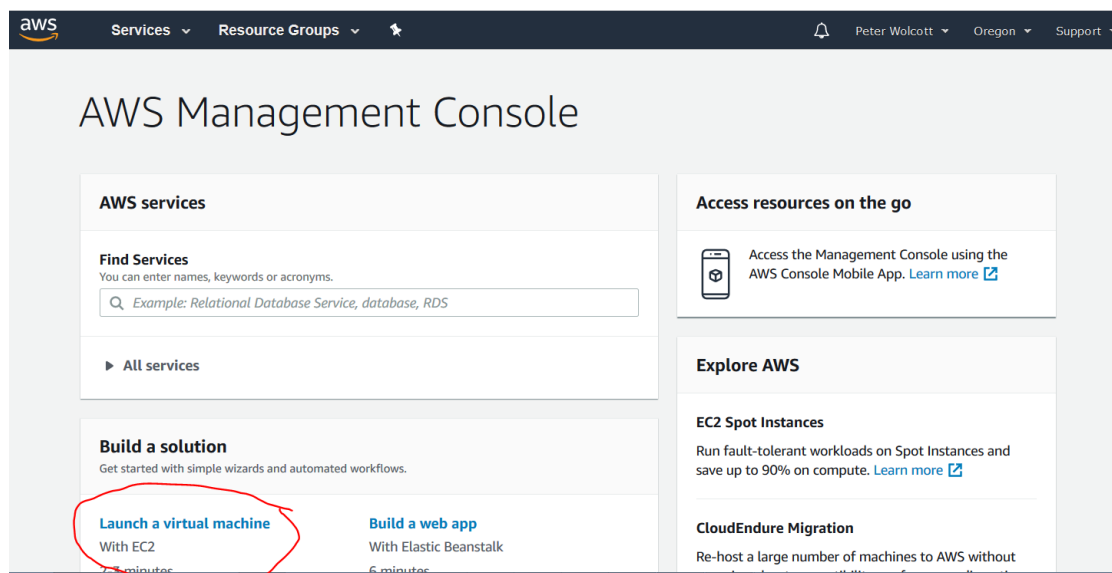
Acknowledgments: Thanks to Arthur Dayton for providing the instructions to carry out these tasks.

Preliminary: Create an Amazon AWS account.

Go to <https://aws.amazon.com/> and create a free account (See <https://aws.amazon.com/free> for details). You will need to provide a credit card, however. The server we are going to provision is not going to be available on the free tier, but you will have to work hard to spend a lot of money on it.



Once you have created an account and logged in, you can go to the console and see all of the services that Amazon AWS offers. There are a boatload.

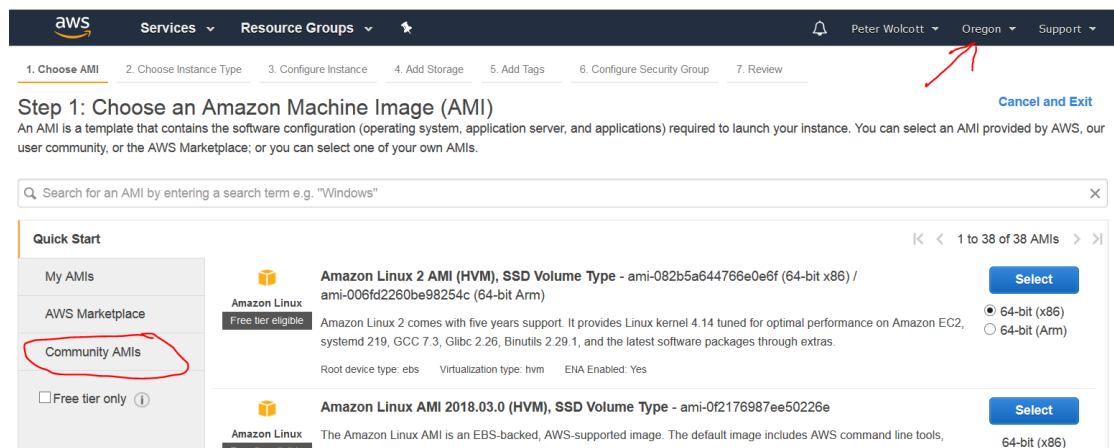


Click on 'Launch a virtual machine with EC2'. EC2 stands for "elastic compute cloud". It is a compute utility that allows developers to provision servers quickly and easily. This service allows an organization to add or remove capacity quickly, paying only for what is used. Read more about it at <https://aws.amazon.com/ec2/>.

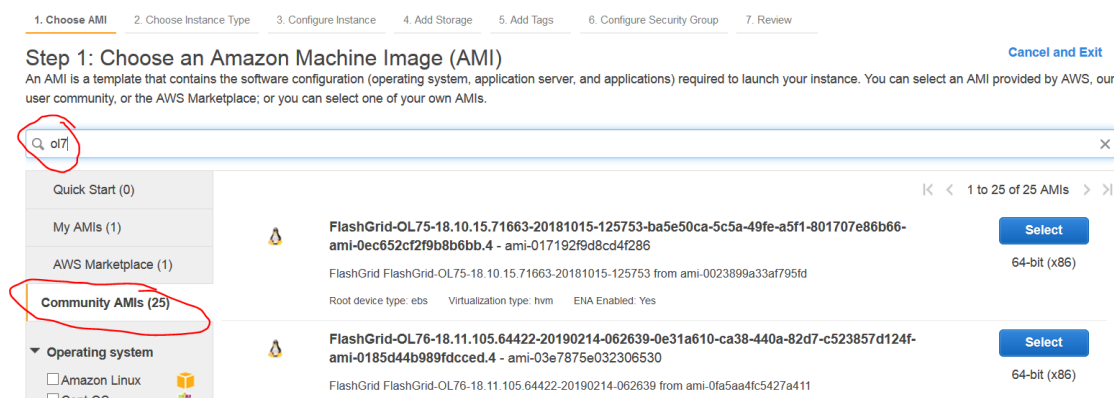
Step 1: Choose an Amazon Machine Image (AMI)

The first step is to choose an image to be used for your server. See the description below of what an Amazon Machine Image (AMI) is.

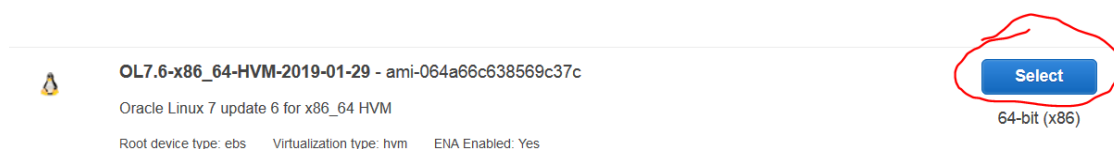
Pay attention to the Region (here shown as 'Oregon'). If you are in a different region (e.g. 'Ohio') the Community AMIs below may not be the same. In Omaha, the West region seems to work pretty well. You should keep your instances in the same region, or you will pay for inter-region communication. (But that's not as redundant).



Click on 'Community AMIs' and search for 'ol7' ('Oracle Linux 7').



We will be using Oracle's version of Linux, so Oracle will provide support. Choose the most recent version, in this case, Oracle Linux 7 update 6 for x86_64 HVM. This is the one Amazon recommends in most situations. If you don't find it, check the region you are in (see above : 'Oregon') If you are not in 'Oregon', choose this region and search again for ol7



Click 'Select'.

Step 2: Choose an Instance Type

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 2: Choose an Instance Type

	Family	Type	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance	IPv6 Support
<input type="checkbox"/>	General purpose	t2.nano	1	0.5	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	General purpose	t2.micro <small>Free tier eligible</small>	1	1	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	General purpose	t2.small	1	2	EBS only	-	Low to Moderate	Yes
<input checked="" type="checkbox"/>	General purpose	t2.medium	2	4	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	General purpose	t2.large	2	8	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	General purpose	t2.xlarge	4	16	EBS only	-	Moderate	Yes

Cancel Previous **Review and Launch** Next: Configure Instance Details

We won't be able to use the free tier, since it's a little under-powered for what we need, but the t2 medium works pretty well. Recommended for low to moderate usage.

Click on 'Next: Configure Instance Details'

Step 3: Configure Instance Details

We are going to allow the system to give us an IP address (which will be dynamic, since a static IP address costs more). We'll also run a shared hardware instance, because that is cheaper as well. We'll accept the default values.

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 3: Configure Instance Details

Configure the instance to suit your requirements. You can launch multiple instances from the same AMI, request Spot instances to take advantage of the lower pricing, assign an access management role to the instance, and more.

Number of instances [Launch into Auto Scaling Group](#)

Purchasing option ☐ Request Spot Instances

Network [Create new VPC](#)

Subnet [Create new subnet](#)

Auto-assign Public IP

Placement group ☐ Add instance to placement group

Capacity Reservation [Create new Capacity Reservation](#)

Cancel Previous **Review and Launch** Next: Add Storage

Click on 'Next: Add Storage'

Step 4: Add Storage

The server comes with a 15 GB root volume, which holds the operating system, but will not be nearly enough for our needs. It is also a good idea to chop the storage up into volumes so that you can move it around (detach and reattach to another machine.)

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 4: Add Storage

Your instance will be launched with the following storage device settings. You can attach additional EBS volumes and instance store volumes to your instance, or edit the settings of the root volume. You can also attach additional EBS volumes after launching an instance, but not instance store volumes. [Learn more](#) about storage options in Amazon EC2.

Volume Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Throughput (MB/s)	Delete on Termination	Encryption
Root	/dev/sda1	snap-02ebb1d4805bb0030	15	General Purpose SSD (gp2)	100 / 3000	N/A	<input checked="" type="checkbox"/>	Not Encrypt

[Add New Volume](#)

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage. [Learn more](#) about free usage tier eligibility and usage restrictions.

[Cancel](#) [Previous](#) [Review and Launch](#) [Next: Add Tags](#)

The 'Delete on Termination' checkbox may be good for a sandbox system that you want to be able to delete quickly, but should be unchecked for a system that is going to contain data you don't want to lose. Unchecking it will prevent you from losing data if you delete an instance, since the storage volume exists independently of the instance and can be reattached to another instance.

Click on 'Add New Volume' three (3) times.

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

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Root	/dev/sda1	snap-02ebb1d4805bb0030	15	General Purpose SSD (gp2)	100 / 3000	N/A	<input checked="" type="checkbox"/>	Not Encrypt
EBS	/dev/sdb	Search (case-insensit)	8	General Purpose SSD (gp2)	100 / 3000	N/A	<input type="checkbox"/>	Not Encrypt
EBS	/dev/sdc	Search (case-insensit)	8	General Purpose SSD (gp2)	100 / 3000	N/A	<input type="checkbox"/>	Not Encrypt
EBS	/dev/sdd	Search (case-insensit)	8	General Purpose SSD (gp2)	100 / 3000	N/A	<input type="checkbox"/>	Not Encrypt

[Add New Volume](#)

[Cancel](#) [Previous](#) [Review and Launch](#) [Next: Add Tags](#)

Change the size of the first one to 5. This will be used for swap space. This is used when there's a shortage of RAM.

Change the size of the second one to 10 GB. This will be used for the software

Change the size of the third one to 30 GB. The database will be stored here.

You can add additional volumes as necessary.

In our case, we are choosing SSD (solid state device) storage for each of our volumes. Choosing Magnetic (standard) disk devices is slower, but also cheaper. Follow the link in the information bubble to learn more about the different device options.

The device labels are going to be important.

Note: Once you have created your instance, you can see all of your volumes for this and any other instances by choosing 'Volumes' under the ELASTIC BLOCK STORE section in the navigation menu on the left of your window.

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Volume Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Throughput (MB/s)	Delete on Termination	Encryption
Root	/dev/sda1	snap-02ebb1d4805bb0030	15	General Purpose SSD (gp2)	100 / 3000	N/A	<input checked="" type="checkbox"/>	Not Encrypted
EBS	/dev/sdb	Search (case-insensit)	5	General Purpose SSD (gp2)	100 / 3000	N/A	<input type="checkbox"/>	Not Encrypted
EBS	/dev/sdc	Search (case-insensit)	10	General Purpose SSD (gp2)	100 / 3000	N/A	<input type="checkbox"/>	Not Encrypted
EBS	/dev/sdd	Search (case-insensit)	30	General Purpose SSD (gp2)	100 / 3000	N/A	<input type="checkbox"/>	Not Encrypted

[Add New Volume](#)

Cancel Previous **Review and Launch** **Next: Add Tags**

Click on 'Next: Add Tags'

Step 5: Add Tags

It is a good idea to tag your instance so that you can easily distinguish it from others.

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 5: Add Tags

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver.
A copy of a tag can be applied to volumes, instances or both.
Tags will be applied to all instances and volumes. [Learn more](#) about tagging your Amazon EC2 resources.

Key (128 characters maximum)	Value (256 characters maximum)	Instances	Volumes
This resource currently has no tags			
Choose the Add tag button or click to add a Name tag . Make sure your IAM policy includes permissions to create tags.			
Add Tag (Up to 50 tags maximum)			

Cancel Previous **Review and Launch** Next: Configure Security Group

Click on 'Add Tag'. Type in 'Name' for the Key, and a name of your choice for the Value. It would be helpful to your instructor if you choose a name value that includes your name (Like what I've done here).

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 5: Add Tags

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A copy of a tag can be applied to volumes, instances or both.
Tags will be applied to all instances and volumes. [Learn more](#) about tagging your Amazon EC2 resources.

Key (128 characters maximum)	Value (256 characters maximum)	Instances	Volumes
Name	Wolcott 2019 DBA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

[Add another tag](#) (Up to 50 tags maximum)

Cancel Previous **Review and Launch** **Next: Configure Security Group**

Click on 'Next: Configure Security Group'

Step 6: Configure Security Group

This now gets us to networking.

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 6: Configure Security Group

A security group is a set of firewall rules that control the traffic for your instance. On this page, you can add rules to allow specific traffic to reach your instance. For example, if you want to set up a web server and allow Internet traffic to reach your instance, add rules that allow unrestricted access to the HTTP and HTTPS ports. You can create a new security group or select from an existing one below. [Learn more](#) about Amazon EC2 security groups.

Assign a security group: ☒ Create a new security group
☐ Select an existing security group

Security group name:

Description:

Type	Protocol	Port Range	Source	Description
SSH	TCP	22	Custom 0.0.0.0/0	e.g. SSH for Admin Desktop

[Add Rule](#)

Warning

Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

[Cancel](#) [Previous](#) [Review and Launch](#)

Although there are more secure ways to tighten down the network, choosing 'Anywhere' for the Source provides the most flexibility in accessing the server. If you were doing this inside of an organization, this would be a bad idea. For our development work, we aren't very worried about someone doing harm in our database.

We'll need to add a rule for the security configuration. Click on 'Add Rule' two (2) times. We are going to need to allow other communications to our machine. The most important one is 1521. This is the default port that our database communicates on.

We will also open up port 5904, which is the port that the virtual private network will connect on.

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 6: Configure Security Group

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Assign a security group: ☒ Create a new security group
☐ Select an existing security group

Security group name:

Description:

Type	Protocol	Port Range	Source	Description
SSH	TCP	22	Anywhere 0.0.0.0/0	e.g. SSH for Admin Desktop
Custom TCP	TCP	1521	Anywhere 0.0.0.0/0	e.g. SSH for Admin Desktop
Custom TCP	TCP	5904	Anywhere 0.0.0.0/0	e.g. SSH for Admin Desktop

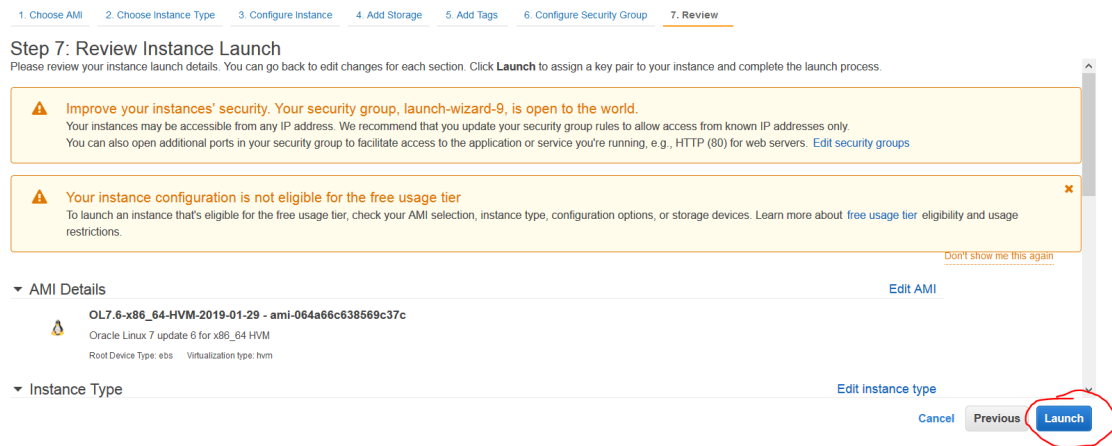
[Add Rule](#)

Warning

[Cancel](#) [Previous](#) [Review and Launch](#)

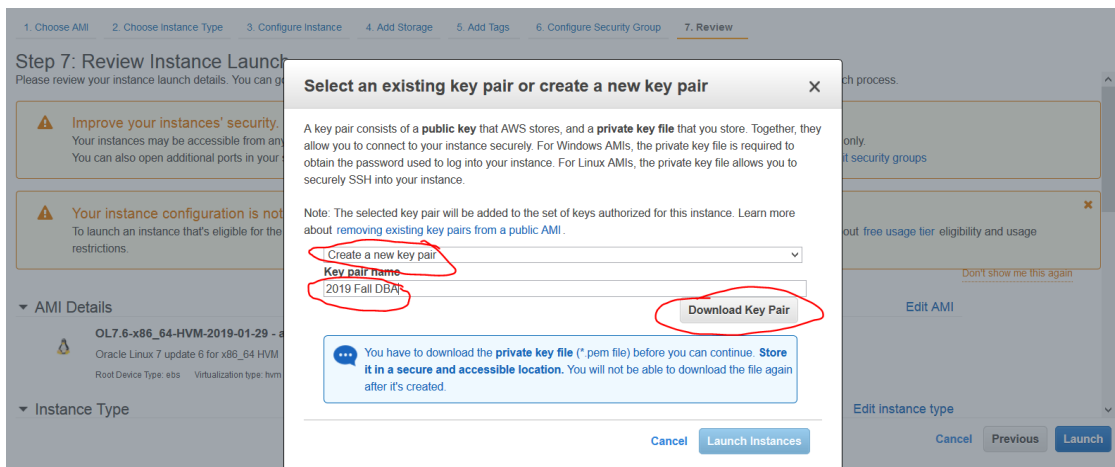
After making the changes circled above, Click on 'Review and Launch'

Step 7: Review and Launch



Look over the instance details, then click 'Launch'.

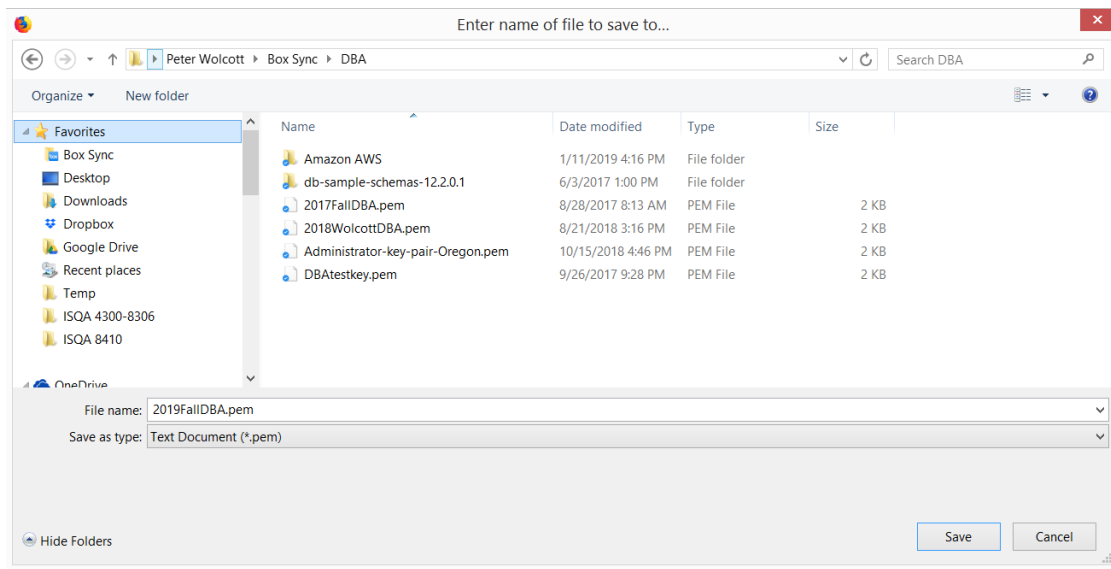
You are then asked to create a key pair, or use an existing key. We'll create a new key pair, since we don't already have one. This public key encryption will allow us to securely connect to the server using an SSH client.



From the first drop-down box, select 'Create a new key pair'. Provide a name.

Then click 'Download Key Pair'. You will then be given a .PEM file. Save that somewhere where you won't lose it. You'll need it later.

If you already have a key pair defined, you can use that. If you created a new one, you can use it again on any other instance you might create. Just keep track of your .PEM file.



Now click 'Launch Instances'.

Launch Status

Create billing alerts to get an email notification when estimated charges on your AWS bill exceed an amount you define (for example, if you exceed the free usage tier).

How to connect to your instances

Your instances are launching, and it may take a few minutes until they are in the **running** state, when they will be ready for you to use. Usage hours on your new instances will start immediately and continue to accrue until you stop or terminate your instances.

Click **View Instances** to monitor your instances' status. Once your instances are in the **running** state, you can **connect** to them from the Instances screen. [Find out](#) how to connect to your instances.

▼ Here are some helpful resources to get you started

- [How to connect to your Linux instance](#)
- [Learn about AWS Free Usage Tier](#)
- [Amazon EC2: User Guide](#)
- [Amazon EC2: Discussion Forum](#)

While your instances are launching you can also

- [Create status check alarms](#) to be notified when these instances fail status checks. (Additional charges may apply)
- [Create and attach additional EBS volumes](#) (Additional charges may apply)
- [Manage security groups](#)

View Instances

You can see it in the Instances by clicking on 'View Instances'.

For a period of time, the Status Checks field will read "Initializing". Just wait.

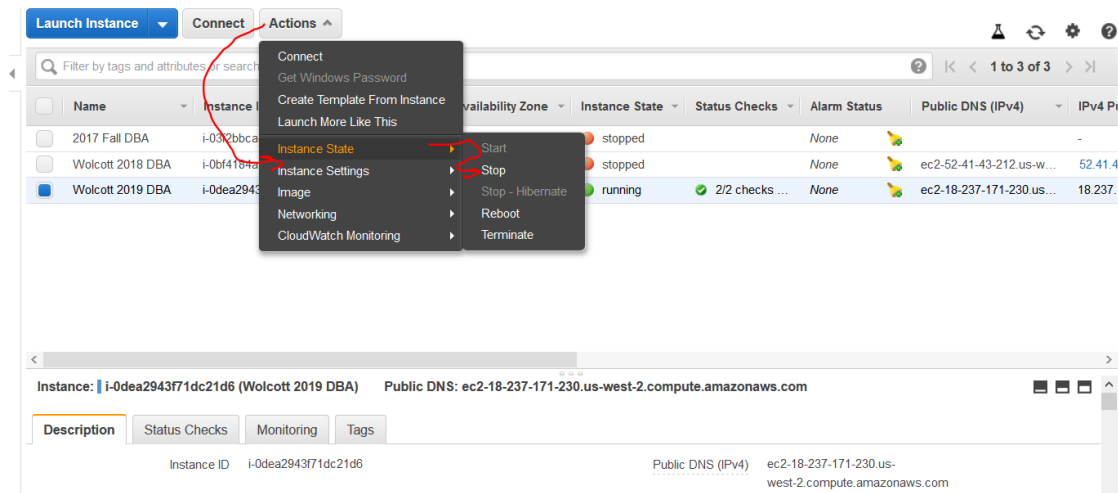
Launch Instance ▼ Connect Actions ▼									
Filter by tags and attributes or search by keyword									
<input type="checkbox"/>	Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)	IPv4 P
<input type="checkbox"/>	2017 Fall DBA	i-03f2bbca4a1212127	t2.medium	us-west-2a	stopped		None		-
<input type="checkbox"/>	Wolcott 2018 DBA	i-0bf4184a152b4670e	t2.medium	us-west-2a	stopped		None	ec2-52-41-43-212.us-w...	52.41.4
<input checked="" type="checkbox"/>	Wolcott 2019 DBA	i-0dea2943f71dc21d6	t2.medium	us-west-2a	running	Initializing	None	ec2-18-237-171-230.us...	18.237.

Instance: i-0dea2943f71dc21d6 (Wolcott 2019 DBA) Public DNS: ec2-18-237-171-230.us-west-2.compute.amazonaws.com									
Description Status Checks Monitoring Tags									
Instance ID		i-0dea2943f71dc21d6		Public DNS (IPv4)		ec2-18-237-171-230.us-west-2.compute.amazonaws.com			
Instance state		running		IPv4 Public IP		18.237.171.230			

Starting and stopping your instance.

This is important to prevent you from spending more money than necessary.

From the Instances view, under 'Actions', choose 'Instance State' and then 'Stop' or 'Start'



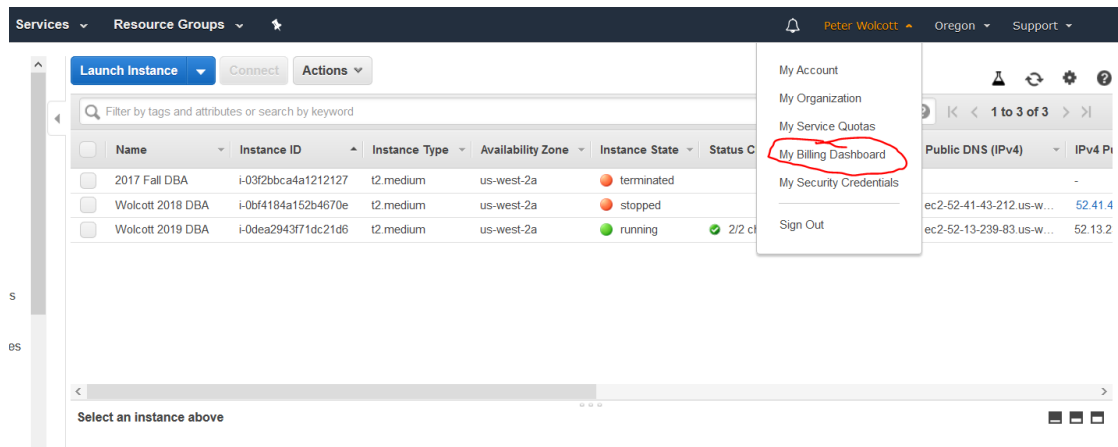
Practice Stopping, then Starting your instance.

Notice also that your instance has a public DNS, which you can use to connect from other tools, like Oracle SQL Developer.

Step 8: Setting up a billing alert.

The other thing you want to do is set up a billing alert rule to remind you in cases where, for example, you forgot to stop your instance and are incurring on-going costs unnecessarily.

Under your username, choose 'My Billing Dashboard' to set up a billing alert.



I have some costs already, because I have other servers on Amazon AWS. Your costs at this point should be \$0.00.

Billing & Cost Management Dashboard

Getting Started with AWS Billing & Cost Management

- Manage your costs and usage using [AWS Budgets](#)
- Visualize your cost drivers and usage trends via [Cost Explorer](#)
- Dive deeper into your costs using the [Cost and Usage Reports](#) with [Athena integration](#)
- Learn more: Check out the [AWS What's New](#) webpage
- Do you have [Reserved Instances \(RIs\)](#)?
- Access the [RI Utilization & Coverage](#) reports—and RI purchase recommendations—via [Cost Explorer](#).

Month-to-Date Spend by Service [Bill Details](#)

The chart below shows the proportion of costs spent for each service you use.

Spend Summary [Cost Explorer](#)

Welcome to the AWS Billing & Cost Management console. Your last month, month-to-date, and month-end forecasted costs appear below.

Current month-to-date balance for August 2019

\$44.01

Service	Amount
EC2	\$32.74
RDS	\$11.27
CloudWatch	\$0.00
DataTransfer	\$0.00

Click on 'Billing preferences' from the navigation menu.

Preferences

Billing Preferences

☐ **Receive PDF Invoice By Email**

Turn on this feature to receive a PDF version of your invoice by email. Invoices are generally available within the first three days of the month.

Cost Management Preferences

☐ **Receive Free Tier Usage Alerts**

Turn on this feature to receive email alerts when your AWS service usage is approaching, or has exceeded, the AWS Free Tier usage limits. If you wish to receive these alerts at an email address that is not the primary email address associated with this account, please specify the email address below.

Email Address:

☒ **Receive Billing Alerts**

Turn on this feature to monitor your AWS usage charges and recurring fees automatically, making it easier to track and manage your spending on AWS. You can set up billing alerts to receive email notifications when your charges reach a specified threshold. Once enabled, this preference cannot be disabled. [Manage Billing Alerts](#) or [try the new budgets feature!](#)

► **Detailed Billing Reports [Legacy]**

[Save preferences](#)

Click on 'Save preferences'.

Click on the 'Manage Billing Alerts' link (<https://console.aws.amazon.com/cloudwatch/home?region=us-east-1>)

CloudWatch: Overview

Time range 1h 3h 12h 1d 3d 1w custom [Actions](#) [Refresh](#)

All resources

Update

Anomaly Detection: With little effort, you can now enable machine learning models to detect anomalous behavior of your metrics. Learn more at the [documentation page](#). Your feedback is welcome for the feature in Public Preview.

CloudWatch Application Insights for .NET and SQL Server: CloudWatch recently added observability for your .NET and SQL Server applications so you can get visibility into their health. To add your .NET applications, set up monitoring, and enable insights, go to "Settings" in the left navigation pane and select "View Applications" under CloudWatch Application Insights for .NET and SQL Server. Learn more about the feature by accessing the feature [documentation](#).

Alarms by AWS service

Services	Status	Alarm	Insufficient	OK
Billing	-	-	-	-

Recent alarms

Recent alarms will appear here.

Click on 'ALARM'.

CloudWatch > Alarms

Alarms (0) ☐ Hide Auto Scaling alarms **Create alarm**

Search In alarm < 1 >

Name	State	Conditions	Actions
No alarms			

Click on 'Create Alarm' (on the right)

CloudWatch > Alarms > Create alarm

Step 1
Specify metric and conditions

Step 2
Configure actions

Step 3
Add a description

Step 4
Preview and create

Specify metric and conditions

Metric

Graph
Preview of the metric or metric expression and the alarm threshold.

Select metric

Click on 'Select metric'

Select metric

Untitled graph 1h 3h 12h 1d 3d 1w custom Line

1
0.5
0

Your CloudWatch graph is empty.
Select some metrics to appear here.

18:45 19:00 19:15 19:30 19:45 20:00 20:15 20:30 20:45 21:00 21:15 21:30

All metrics Graphed metrics Graph options Source

Search for any metric, dimension or resource id

12 Metrics




Billing 7 Metrics

SNS 4 Metrics

Usage 1 Metric

Click on 'Billing'

Select metric

Untitled graph  1h 3h 12h 1d 3d 1w custom Line  

1
0.5
0

Your CloudWatch graph is empty.
Select some metrics to appear here.

18:45 19:00 19:15 19:30 19:45 20:00 20:15 20:30 20:45 21:00 21:15 21:30

All metrics Graphed metrics Graph options Source

All > Billing Graph search




7 Metrics

By Service
6 Metrics

Total Estimated Charge
1 Metric

Cancel Select metric

Click on 'Total Estimated Charge'

Untitled graph  1h 3h 12h 1d 3d 1w custom Line  

1
0.5
0

18:00 18:15 18:30 18:45 19:00 19:15 19:30 19:45 20:00 20:15 20:30 20:45 21:00 21:15 21:30

All metrics Graphed metrics (1) Graph options Source

All > Billing > Total Estimated Charge Graph search

<input checked="" type="checkbox"/>	Currency (1)	Metric Name
<input checked="" type="checkbox"/>	USD	EstimatedCharges

Cancel Select metric

Check the box by 'USD'. Then click on 'Select metric'

Graph

This alarm will trigger when the blue line goes above the red line for 1 datapoints within 1 day

No unit

40
30
20
10

08/17 08/19 08/21

EstimatedCharges

Namespace
AWS/Billing

Metric name
EstimatedCharges

Currency
USD

Statistic
Maximum

Period
1 day

Warning! Your billing alarm may be set up incorrectly. To make it work as expected please set "Period" to 6

Change the period to 1 day.

Scroll down in this window to see the parameters that can be used to create an alarm. You can put in a different threshold value if you wish.

Conditions

Threshold type

☒ **Static**
Use a value as a threshold

☐ **Anomaly detection**
Use a band as a threshold

Whenever EstimatedCharges is...

Define the alarm condition

☒ **Greater**
> threshold

☐ **Greater/Equal**
>= threshold

☐ **Lower/Equal**
<= threshold

☐ **Lower**
< threshold

than...

Define the threshold value

USD

Must be a number

► **Additional configuration**

[Cancel](#) [Next](#)

Now, click on 'Next'

Configure actions

Step 3
Add a description

Step 4
Preview and create

Whenever this alarm state is...

Define the alarm state that will trigger this action

☒ **in Alarm**
The metric or expression is outside of the defined threshold.

☐ **OK**
The metric or expression is within the defined threshold.

☐ **INSUFFICIENT_DATA**
The alarm has just started or not enough data is available.

Select an SNS topic

Define the SNS (Simple Notification Service) topic that will receive the notification

☐ Select an existing SNS topic

☒ **Create new topic**

☐ Use topic ARN

Create a new topic...

The topic name must be unique.

SNS topic names can contain only alphanumeric characters, hyphens (-) and underscores (_).

Email endpoints that will receive the notification...

Add a comma-separated list of email addresses. Each address will be added as a subscription to the topic above.

user1@example.com, user2@example.com

[Remove](#)

Provide configuration details as shown below.

Configure actions

Step 3
Add a description

Step 4
Preview and create

Whenever this alarm state is...

Define the alarm state that will trigger this action

☒ **in Alarm**
The metric or expression is outside of the defined threshold.

☐ **OK**
The metric or expression is within the defined threshold.

☐ **INSUFFICIENT_DATA**
The alarm has just started or not enough data is available.

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Define the SNS (Simple Notification Service) topic that will receive the notification

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user1@example.com, user2@example.com

Scroll down slightly and click on 'Create Topic'.

Email (endpoints)

pwolcott@unomaha.edu - [View in SNS Console](#)

Add notification

Auto Scaling action

Add Auto Scaling action

EC2 action

This action is only available for EC2 Per-Instance Metrics

Add EC2 action

Cancel

Previous

Next

Click on 'Next' at the bottom of the window.

Next, provide a name for the alarm and, optionally, a description.

[CloudWatch](#) > [Alarms](#) > Create alarm

Step 1
Specify metric and
conditions

Step 2
Configure actions

Step 3
Add a description

Step 4
Preview and create

Add a description

Name and description

Define a unique name

Alarm name

Wolcott 2019 billing alarm

Alarm description - optional

Define a description for this alarm. Optionally you can also use markdown.

Raises an alarm if a cost of more than \$2 per day is incurred.

Up to 1024 characters (62/1024)

Cancel

Previous

Next

Click on 'Next'

Scroll down to the bottom of your screen and click on 'Create alarm'.

If you see the alarm in the INSUFFICIENT category, this means that Amazon AWS is trying to confirm the email address you specified. Check your email for a message and follow the instructions to confirm your email address.

Reply Reply All Forward



Thu 8/22/2019 4:52 PM

AWS Notifications <no-reply@sns.amazonaws.com>

AWS Notification - Subscription Confirmation

To Peter Wolcott

You have chosen to subscribe to the topic:

arn:aws:sns:us-east-1:299195930536:Wolcott2019BillingAlarm

To confirm this subscription, click or visit the link below (If this was in error no action is necessary):

[Confirm subscription](#)

Please do not reply directly to this email. If you wish to remove yourself from receiving all future SNS subscription confirmation requests please send an email to [sns-opt-out](#)

You will then see a confirmation message that the alarm has been created.



Simple Notification Service

Subscription confirmed!

You have subscribed pwolcott@unomaha.edu to the topic:
Wolcott2019BillingAlarm.

Your subscription's id is:

arn:aws:sns:us-east-1:299195930536:Wolcott2019BillingAlarm:e8daabec-9687-484c-8284-eced4d13e723

If it was not your intention to subscribe, [click here to unsubscribe](#).

Next: [Connecting to the Server via MobaXterm and preparing the server for the Oracle installation](#)