

AWS Lab Workbook v1.0

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XPERTIS – AWS COE

Contents



- Welcome Note
- Resource Specifications
- Lab Portal
- VPC
- EC2
- AMI
- Snapshot
- EIP
- ELB
- S3
- Glacier
- Auto Scaling
- RDS
- SNS
- Cloud Trail
- Trusted Advisor

Greetings !

This lab workbook is offered as a part of the AWS Training Program offered by XPERTIS AWS team. It's recommended to complete the Instructor Led training before using this workbook.

This lab is a real time environment from AWS. Its recommended to launch t2.micro instances only as mentioned in Resource Specifications slide. If you choose to launch a different instance type, it might lead to excessive billing. Hence please exercise caution and operate within the limits as specified in this workbook.

It's recommended to practice the lab in a AWS specific region to avoid any disturbance on ongoing activities in another region. Your trainer will inform you the region while sharing this lab workbook to participants.

Spend as much time doing the hands-on on whatever you have learnt so far. Since this workbook is screenshot intensive, its created in a presentation format so its easy for you to walkthrough.

*Thanks !
Ananth VK*



Resource Specifications

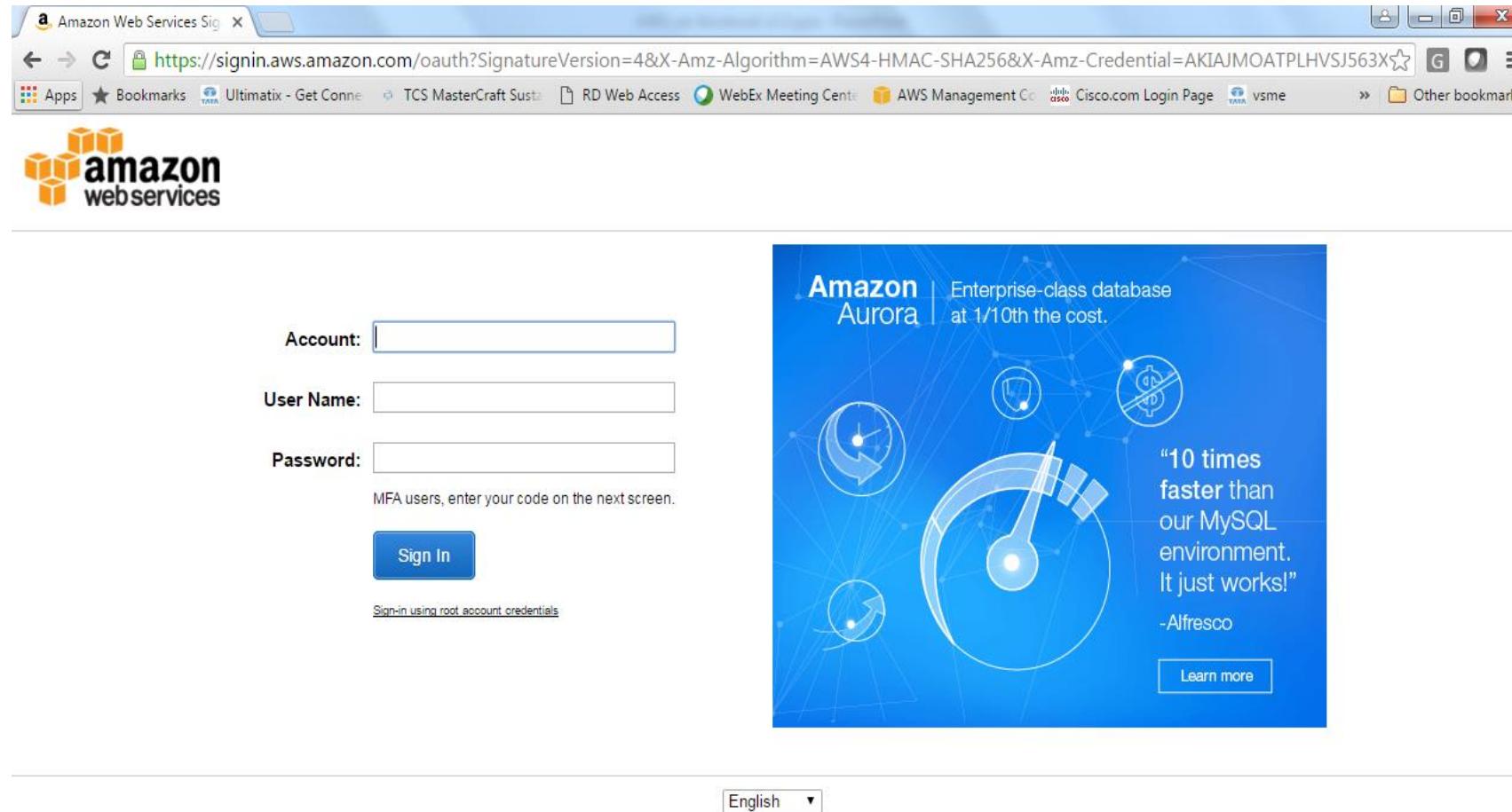
Please find below the services we can practice as well as the resource specifications/features. Its highly recommended to work only on t2.micro instances for the purposes of training

Service	Technology Stack	Specifications
EC2	Compute	t2.micro, 1CPU, 1GB RAM, 10GB SSD
ELB	Compute	internet facing with round robin
AS	Compute	Default
VPC	Network	VPC, subnets, multi-AZ, IGW
S3	Storage	standard storage class, no encryption
Glacier	Storage	lifecycle from S3 after 45 days
RDS	Database	db.t2micro, 1CPU, 1GB RAM, 5GB
Cloudwatch	Management	CPU utilization
SNS	Mobile	Email to TCS ID only
Security Group	Network	ssh, http, icmp, mysql from any source to test

AWS Lab Portal

Go to the below portal to access the lab <https://413834863113.signin.aws.amazon.com/console>

Get Credentials from the trainer



AWS Console

AWS Services

Ananth | Oregon | Support

Amazon Web Services

Compute

- EC2** Virtual Servers in the Cloud
- EC2 Container Service** Run and Manage Docker Containers
- Elastic Beanstalk** Run and Manage Web Apps
- Lambda** Run Code in Response to Events

Storage & Content Delivery

- S3** Scalable Storage in the Cloud
- CloudFront** Global Content Delivery Network
- Elastic File System** PREVIEW Fully Managed File System for EC2
- Glacier** Archive Storage in the Cloud
- Import/Export Snowball** Large Scale Data Transport
- Storage Gateway** Hybrid Storage Integration

Database

- RDS** Managed Relational Database Service
- DynamoDB** Managed NoSQL Database
- ElastiCache** In-Memory Cache
- Redshift** Fast, Simple, Cost-Effective Data Warehousing
- DMS** PREVIEW Managed Database Migration Service

Networking

Developer Tools

- CodeCommit** Store Code in Private Git Repositories
- CodeDeploy** Automate Code Deployments
- CodePipeline** Release Software using Continuous Delivery

Management Tools

- CloudWatch** Monitor Resources and Applications
- CloudFormation** Create and Manage Resources with Templates
- CloudTrail** Track User Activity and API Usage
- Config** Track Resource Inventory and Changes
- OpsWorks** Automate Operations with Chef
- Service Catalog** Create and Use Standardized Products
- Trusted Advisor** Optimize Performance and Security

Security & Identity

- Identity & Access Management** Manage User Access and Encryption Keys
- Directory Service** Host and Manage Active Directory
- Inspector** PREVIEW Analyze Application Security
- WAF** Filter Malicious Web Traffic

Analytics

- EMR** Managed Hadoop Framework

Internet of Things

- AWS IoT** Connect Devices to the Cloud

Mobile Services

- Mobile Hub** BETA Build, Test, and Monitor Mobile apps
- Cognito** User Identity and App Data Synchronization
- Device Farm** Test Android, FireOS, and iOS Apps on Real Devices in the Cloud
- Mobile Analytics** Collect, View and Export App Analytics
- SNS** Push Notification Service

Application Services

- API Gateway** Build, Deploy and Manage APIs
- AppStream** Low Latency Application Streaming
- CloudSearch** Managed Search Service
- Elastic Transcoder** Easy-to-Use Scalable Media Transcoding
- SES** Email Sending and Receiving Service
- SQS** Message Queue Service
- SWF** Workflow Service for Coordinating Application Components

Enterprise Applications

- WorkSpaces** Desktops in the Cloud

Resource Groups [Learn more](#)

A resource group is a collection of resources that share one or more tags. Create a group for each project, application, or environment in your account.

[Create a Group](#) [Tag Editor](#)

Additional Resources

Getting Started [View](#) Read our documentation or view our training to learn more about AWS.

AWS Console Mobile App [View](#) View your resources on the go with our AWS Console mobile app, available from Amazon Appstore, Google Play, or iTunes.

AWS Marketplace [View](#) Find and buy software, launch with 1-Click and pay by the hour.

AWS re:Invent Announcements [View](#) Explore the next generation of AWS cloud capabilities. See what's new

Service Health

All services operating normally.

Updated: Jan 14 2016 19:13:01 GMT+0530

[Service Health Dashboard](#)

This is the AWS Console from which you can launch resources on the cloud

VPC

TATA TATA TATA
TATA TATA TATA

TATA CONSULTANCY SERVICES

VPC Build Procedure

The screenshot shows the AWS VPC Dashboard. On the left, there's a sidebar with various options like VPC Dashboard, Your VPCs, Subnets, Route Tables, Internet Gateways, DHCP Options Sets, Elastic IPs, Endpoints, NAT Gateways, Peering Connections, Security, Network ACLs, Security Groups, VPN Connections, Customer Gateways, and Virtual Private Gateways. The 'Your VPCs' option is selected. In the center, there's a search bar and a table showing one VPC entry: 'acl-25205840' with 'Default' tenancy. A modal window titled 'Create VPC' is open in the foreground. It contains a descriptive text about VPCs, fields for 'Name tag' (set to 'MyCloudDC'), 'CIDR block' (set to '192.168.0.0/16'), and 'Tenancy' (set to 'Default'). At the bottom of the modal are 'Cancel' and 'Yes, Create' buttons.

Create VPC, you need to give the name and CIDR block

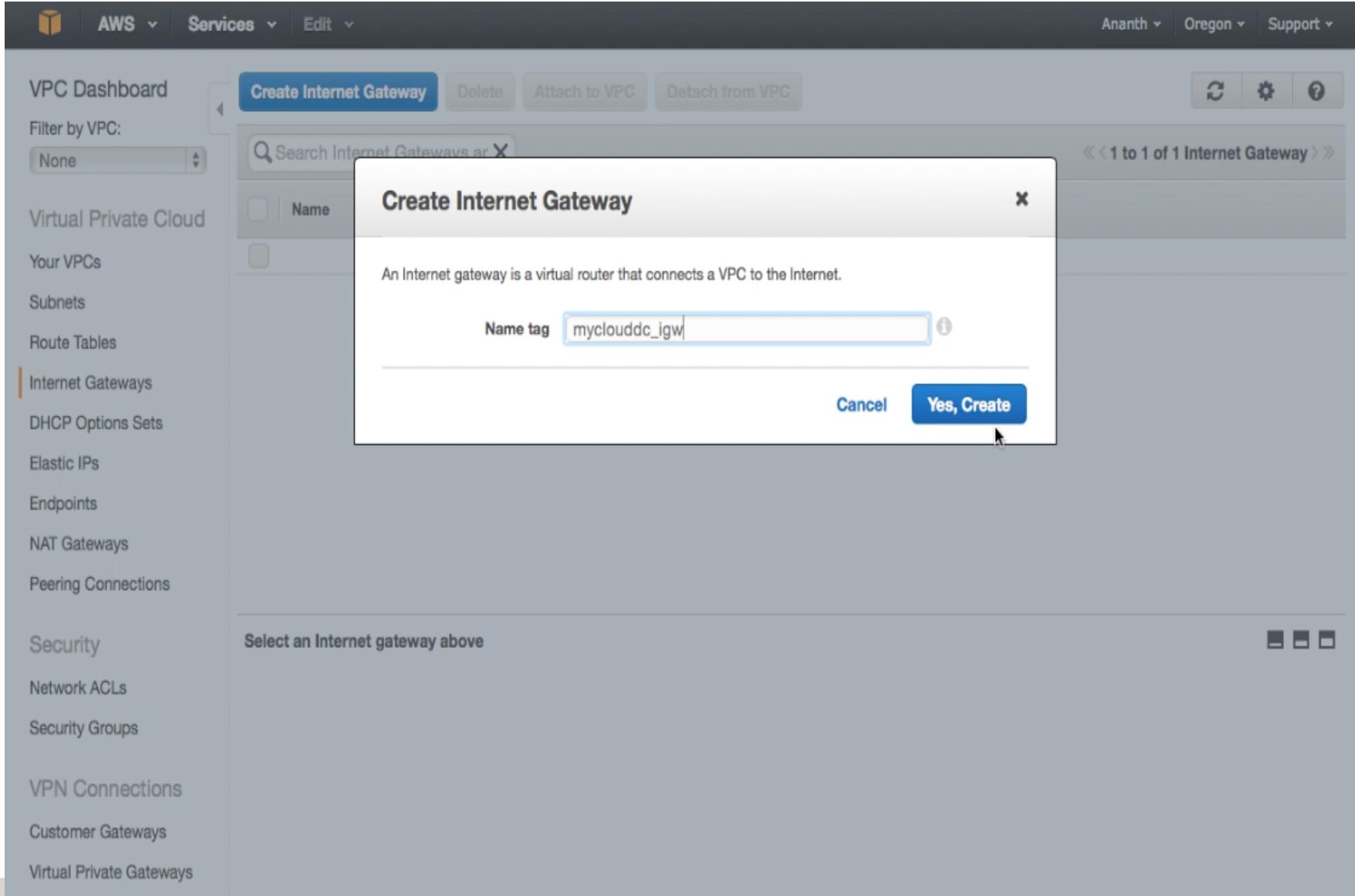
VPC Build Procedure

The screenshot shows the AWS VPC Dashboard. On the left, there's a sidebar with links like VPC Dashboard, Create VPC, Actions, Filter by VPC (None), Virtual Private Cloud, Your VPCs, Subnets, Route Tables, Internet Gateways, DHCP Options Sets, Elastic IPs, Endpoints, NAT Gateways, Peering Connections, Security, Network ACLs, Security Groups, VPN Connections, Customer Gateways, and Virtual Private Gateways. The 'Your VPCs' link is highlighted. The main area has a search bar 'Search VPCs and their properties' and a table with columns: Name, VPC ID, State, VPC CIDR, DHCP options set, Route table, Network ACL, and Tenancy. Two VPCs are listed: 'vpc-e944018c' (available, 172.31.0.0/16, dopt-c58e71a0, rtb-376a2952, acl-25205840, Default) and 'MyCloudDC' (available, 192.168.0.0/16, dopt-c58e71a0, rtb-806d74e5, acl-898388ec, Default). Below the table, a detailed view for 'MyCloudDC' is shown with tabs for Summary, Flow Logs, and Tags. The 'Summary' tab is selected, displaying details: VPC ID: vpc-79b5b71c | MyCloudDC, State: available, VPC CIDR: 192.168.0.0/16, DHCP options set: dopt-c58e71a0, Route table: rtb-806d74e5, Network ACL: acl-898388ec, Tenancy: Default, DNS resolution: yes, DNS hostnames: no, and ClassicLink DNS Support: no.

Name	VPC ID	State	VPC CIDR	DHCP options set	Route table	Network ACL	Tenancy
vpc-e944018c	available	172.31.0.0/16	dopt-c58e71a0	rtb-376a2952	acl-25205840	Default	
MyCloudDC	available	192.168.0.0/16	dopt-c58e71a0	rtb-806d74e5	acl-898388ec	Default	

By default a routing table is created for routing within VPC

VPC Build Procedure



If you want to access internet from VPC resources, you need to create an Internet Gateway (IGW) and attach to the VPC

Alternatively you could also create a NAT gateway and point route to that if you don't want the machine to be on direct internet

VPC Build Procedure

The screenshot shows the AWS VPC Route Tables page. On the left sidebar, under the "Route Tables" section, the "myclouddc_igw" route table is selected. The main content area displays a table of route tables with columns: Name, Route Table ID, Explicitly Associated With, Main, and VPC. The "myclouddc_igw" table is highlighted with a blue selection bar.

	Name	Route Table ID	Explicitly Associated With	Main	VPC
<input checked="" type="checkbox"/>	myclouddc_igw	rtb-216c7544	0 Subnets	No	vpc-79b5b71c (192.168.0.0/16) ...
<input type="checkbox"/>		rtb-376a2952	0 Subnets	Yes	vpc-e944018c (172.31.0.0/16)
<input type="checkbox"/>		rtb-806d74e5	0 Subnets	Yes	vpc-79b5b71c (192.168.0.0/16) ...

Below the table, the details for the selected route table (rtb-216c7544 | myclouddc_igw) are shown. The "Summary" tab is selected. The route table ID is rtb-216c7544 | myclouddc_igw. It is explicitly associated with 0 subnets. The main setting is "no" and it is associated with the VPC vpc-79b5b71c (192.168.0.0/16) under the name MyCloudDC.

VPC Build Procedure

The screenshot shows the AWS VPC Dashboard with the 'Route Tables' section selected. A search bar at the top right says 'Search Route Tables and the X'. Below it is a table with columns: Name, Route Table ID, Explicitly Associated, Main, and VPC. The table contains three rows:

Name	Route Table ID	Explicitly Associated	Main	VPC
	rtb-376a2952	0 Subnets	Yes	vpc-e944018c (172.31.0.0/16)
myclouddc_rt	rtb-b66c75d3	0 Subnets	No	vpc-79b5b71c (192.168.0.0/16) ...
	rtb-806d74e5	0 Subnets	Yes	vpc-79b5b71c (192.168.0.0/16) ...

Below the table, a modal window is open for the selected route table 'rtb-b66c75d3 | myclouddc_rt'. The modal has tabs: Summary (selected), Routes, Subnet Associations, Route Propagation, and Tags. The 'Routes' tab shows a table with columns: Destination, Target, Status, Propagated, and Remove. It contains two entries:

Destination	Target	Status	Propagated	Remove
192.168.0.0/16	local	Active	No	
0.0.0.0/0	I		No	X

At the bottom of the modal, there are 'Cancel' and 'Save' buttons, with 'Save' being highlighted.

Next you need to goto routing table and add a route pointing to IGW

Once this is done you could access the internet directly from the machines

You can create subnets within VPC and launch compute resources from those subnets

EC2

EC2 Dashboard

The screenshot shows the AWS EC2 Dashboard. The top navigation bar includes links for AWS, Services, Edit, Ananth (user), Oregon (region), and Support. The left sidebar has sections for EC2 Dashboard, Events, Tags, Reports, Limits, Instances, Images, Elastic Block Store, and Network & Security. The main content area has tabs for Resources, Account Attributes, Create Instance, Service Health, and Scheduled Events. The Resources tab shows usage statistics: 0 Running Instances, 0 Dedicated Hosts, 7 Volumes, 4 Key Pairs, 0 Placement Groups, 0 Elastic IPs, 0 Snapshots, 1 Load Balancers, and 17 Security Groups. It also features a message about Amazon Simple Queue Service. The Account Attributes tab shows Supported Platforms (VPC), Default VPC (vpc-e944018c), and Resource ID length management. The Create Instance tab has a 'Launch Instance' button. The Service Health tab shows 'Service Status' for US West (Oregon). The Scheduled Events tab shows 'No events'. The AWS Marketplace section lists trial products and popular AMIs.

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EC2 Dashboard

Events
Tags
Reports
Limits

INSTANCES

Instances
Spot Requests
Reserved Instances
Commands
Scheduled Instances
Dedicated Hosts

IMAGES

AMIs
Bundle Tasks

ELASTIC BLOCK STORE

Volumes
Snapshots

NETWORK & SECURITY

Security Groups

Resources

You are using the following Amazon EC2 resources in the US West (Oregon) region:

Category	Count
Running Instances	0
Dedicated Hosts	0
Volumes	7
Key Pairs	4
Placement Groups	0
Elastic IPs	0
Snapshots	0
Load Balancers	1
Security Groups	17

Need fast, reliable, scalable, fully-managed message queuing? Try Amazon Simple Queue Service. ×

Create Instance

To start using Amazon EC2 you will want to launch a virtual server, known as an Amazon EC2 instance.

Launch Instance

Note: Your instances will launch in the US West (Oregon) region

Service Health

Service Status:

US West (Oregon): Green US West (Oregon)

Scheduled Events

US West (Oregon): No events

Account Attributes

Supported Platforms
VPC

Default VPC
vpc-e944018c

Resource ID length management

Additional Information

Getting Started Guide
Documentation
All EC2 Resources
Forums
Pricing
Contact Us

AWS Marketplace

Find free software trial products in the AWS Marketplace from the [EC2 Launch Wizard](#).
Or try these popular AMIs:

This is the EC2 dashboard where you can see the status of all resources running.

You can also look at status of services running in this region below

EC2 Launch Procedure

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

Step 2: Choose an Instance Type

Amazon EC2 provides a wide selection of instance types optimized to fit different use cases. Instances are virtual servers that can run applications. They have varying combinations of CPU, memory, storage, and networking capacity, and give you the flexibility to choose the appropriate mix of resources for your applications. [Learn more](#) about instance types and how they can meet your computing needs.

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 memory, EBS only)

	Family	Type	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
<input type="checkbox"/>	General purpose	t2.nano	1	0.5	EBS only	-	Low to Moderate
<input checked="" type="checkbox"/>	General purpose	t2.micro <small>Free tier eligible</small>	1	1	EBS only	-	Low to Moderate
<input type="checkbox"/>	General purpose	t2.small	1	2	EBS only	-	Low to Moderate
<input type="checkbox"/>	General purpose	t2.medium	2	4	EBS only	-	Low to Moderate
<input type="checkbox"/>	General purpose	t2.large	2	8	EBS only	-	Low to Moderate
<input type="checkbox"/>	General purpose	m4.large	2	8	EBS only	Yes	Moderate
<input type="checkbox"/>	General purpose	m4.xlarge	4	16	EBS only	Yes	High

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

Choose t2.micro, pay importance to the keyword “Free tier eligible” in green label

If you choose anything other than this it might be chargable

EC2 Launch Procedure

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

Step 3: Configure Instance Details

Role to the instance, and more.

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

Purchasing option [i](#) Request Spot instances

Network [i](#) vpc-79b5b71c (192.168.0.0/16) | MyCloudDC [C](#) Create new VPC

Subnet [i](#) subnet-c3f2c7b4(192.168.10.0/24) | sub1 | us-west-2a [C](#) Create new subnet
251 IP Addresses available

Auto-assign Public IP [i](#) Enable

IAM role [i](#) None [C](#) Create new IAM role

Shutdown behavior [i](#) Stop

Enable termination protection [i](#) Protect against accidental termination

Monitoring [i](#) Enable CloudWatch detailed monitoring
Additional charges apply.

Tenancy [i](#) Shared - Run a shared hardware instance
Additional charges will apply for dedicated tenancy.

[▼ Network interfaces \[i\]\(#\)](#)

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

For Choose default vpc or if you have already created one, you can select that

If you choose auto-assign public IP as enable, you will get a public IP and can access from internet

Choose other values as indicated

EC2 Launch Procedure

1. Choose AMI
2. Choose Instance Type
3. Configure Instance
- 4. Add Storage**
5. Tag Instance
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	Delete on Termination	Encrypted
Root	/dev/sda1	snap-5bc5771e	10	General Purpose SSD (GP2)	30 / 3000	<input checked="" type="checkbox"/>	Not Encrypted

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: Tag Instance**

Here as well as other screens click on the “i” circle next to column names. It will give you more information

EC2 Launch Procedure

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

Step 5: Tag Instance

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver. [Learn more about tagging your Amazon EC2 resources.](#)

The screenshot shows the 'Tag Instance' step of the EC2 launch wizard. It features a table with two columns: 'Key' and 'Value'. The 'Key' column contains the placeholder '(127 characters maximum)' and the 'Value' column contains '(255 characters maximum)'. Below the table is a text input field labeled 'Name' containing 'avk_a_sub1'. To the right of the input field are two small icons: a blue square with a white circle and a black square with a white 'X'. At the bottom left is a button labeled 'Create Tag' with the text '(Up to 10 tags maximum)' next to it.

Tagging is a best practice to identify by name/dept.

It will help in generating reports tagwise..

[Cancel](#) [Previous](#) **Review and Launch** [Next: Configure Security Group](#)



EC2 Launch Procedure

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Tag Instance 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 <i>i</i>	Protocol <i>i</i>	Port Range <i>i</i>	Source <i>i</i>
SSH	TCP	22	Anywhere <input type="text" value="0.0.0.0/0"/> <input type="button" value="X"/>
All ICMP	ICMP	0 - 65535	Anywhere <input type="text" value="0.0.0.0/0"/> <input type="button" value="X"/>
HTTP	TCP	80	Anywhere <input type="text" value="0.0.0.0/0"/> <input type="button" value="X"/>

[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](#)

It's a good idea to allow only the ports that are required for internet/internal access as a layer of security

EC2 Launch Procedure

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

Step 7: Review Instance Launch

Please review your instance launch details. You can go back to edit changes for each section. Click **Launch** to assign a key pair to your instance and complete the launch process.

⚠ Improve your instances' security. Your security group, `avk_sub1_sg`, is open to the world.

Your instances may be accessible from any IP address. We recommend that you update your security group rules to allow access from known IP addresses only.

You can also open additional ports in your security group to facilitate access to the application or service you're running, e.g., HTTP (80) for web servers. [Edit security groups](#)

AMI Details

[Edit AMI](#)

 Red Hat Enterprise Linux 7.2 (HVM), SSD Volume Type - ami-775e4f16

Free tier eligible Red Hat Enterprise Linux version 7.2 (HVM), EBS General Purpose (SSD) Volume Type
Root Device Type: ebs Virtualization type: hvm

Instance Type

[Edit instance type](#)

Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
t2.micro	Variable	1	1	EBS only	-	Low to Moderate

Security Groups

[Edit security groups](#)

Security group name: `avk_sub1_sg`
Description: launch-wizard-8 created 2016-01-13T00:01:11.757+05:30

[Cancel](#)

[Previous](#)

 [Launch](#)

EC2 Launch Procedure

Step 7: Review Instance Launch

Please review your instance launch details. You can go back to edit changes for each section. Click **Launch** to assign a key pair to your instance and complete the launch process.

AMI Details
Red Hat Enterprise Linux
Free tier eligible
Root Device Type: ebs Virtualization Type: HVM

Instance Type
t2.micro ECU: Variable

Security Groups
Security group name: avk_sus_launch Description: launch

Select an existing key pair or create a new key pair

A key pair consists of a **public key** that AWS stores, and a **private key file** that you store. Together, they allow you to connect to your instance securely. For Windows AMIs, the private key file is required to obtain the password used to log into your instance. For Linux AMIs, the private key file allows you to securely SSH into your instance.

Note: The selected key pair will be added to the set of keys authorized for this instance. Learn more about [removing existing key pairs from a public AMI](#).

Create a new key pair
Key pair name: mydc
Download Key Pair

You have to download the **private key file (*.pem file)** before you can continue. **Store it in a secure and accessible location.** You will not be able to download the file again after it's created.

Cancel Launch Instances

If you are doing first time, please download key pair and keep it safe, else you cant connect to it

EC2 Launch Procedure

AIBAAKCAQEA2/CnsanN4JyDsjPM6kCwRnzRDDfPw
rdRoehPt10ckDfk0gIWqU7KAhiYg03wS80dguXErH
MqsWRwXd2ka7Jly32FLGt1r/5FFuvertxka/giPt
IA06AuWzAJgxSeFae3lfxlw/h0JnBqkRbYd0MHfmC
31jUL95qKyad7gkKLWIm5iIIYe4x01VsVf8nS56N
IESsi+LtbIeWWSfpZJF0Hl3tZ0zKyEu0DD0whNqnNL
8TeQPQe6D26cyXpmIx b2fD2wg+pwseB0+yJ/HMjI
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rdi4RnRp dPj/516K4a+4GwqGwPusPxinkKu5NT3r
U3D1jLs7Dulbw4tPtL5emGpAoGBAPv8Q4gD47N0Z
/t06H/n036VYo/+cj nki8tw4N33I/+gJL159xkjY
4XeYQvQ36eHAQnHV2Y5mwZ/Kw7CX54jB7/Z+XXt2
vigJ65wBsHu9p6l+B/KJ3qH3XhanCkUdh1TMdHKj

EC2 Launch Procedure

Launch Status

>Your instances are now launching

The following instance launches have been initiated: i-22625bfb [View launch log](#)

Get notified of estimated charges

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](#)
- [Amazon EC2: User Guide](#)
- [Learn about AWS Free Usage Tier](#)
- [Amazon EC2: Discussion Forum](#)

While your instances are launching you can also

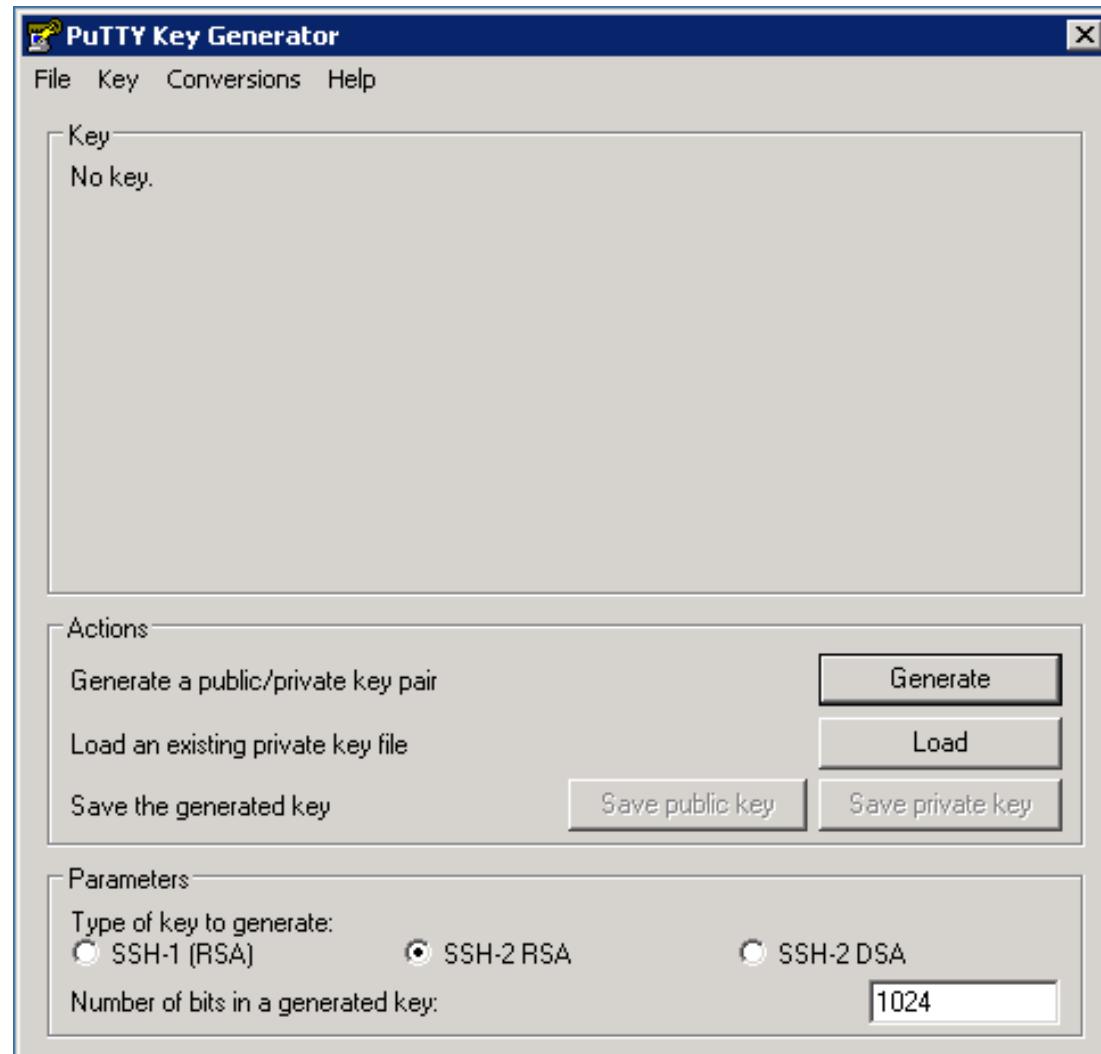
[Create status check alarms](#) to be notified when these instances fail status checks. (Additional charges may apply)

[Create and attach additional EBS volumes](#) (Additional charges may apply)

[Manage security groups](#)



EC2 Launch Procedure

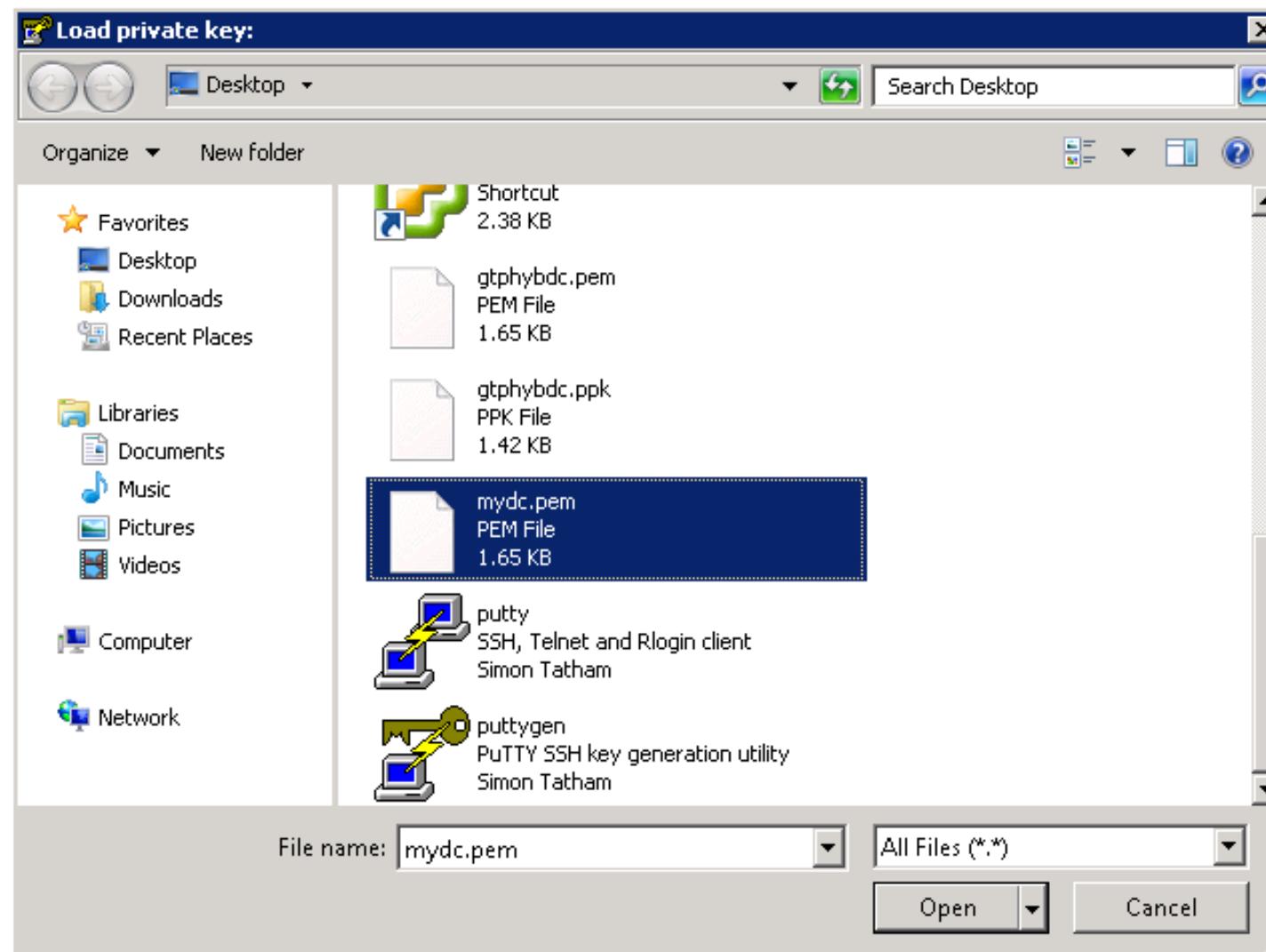


Once you download the private key which is a .pem file, it needs to be converted to .ppk format using puttygen software.

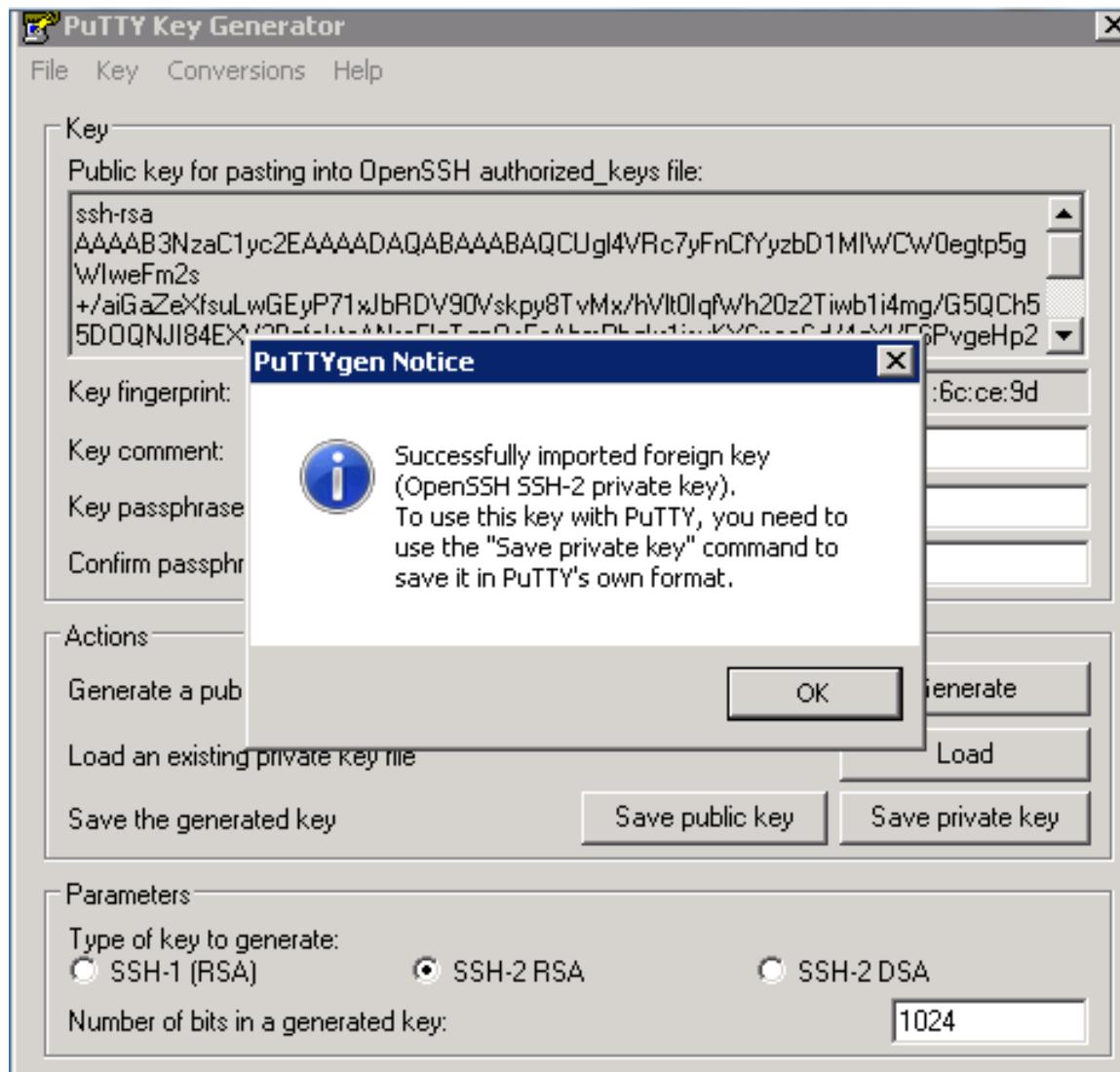
After which you should load the .ppk file in putty software and connect to the linux instance via ssh

For windows instance we use rdp and not putty software

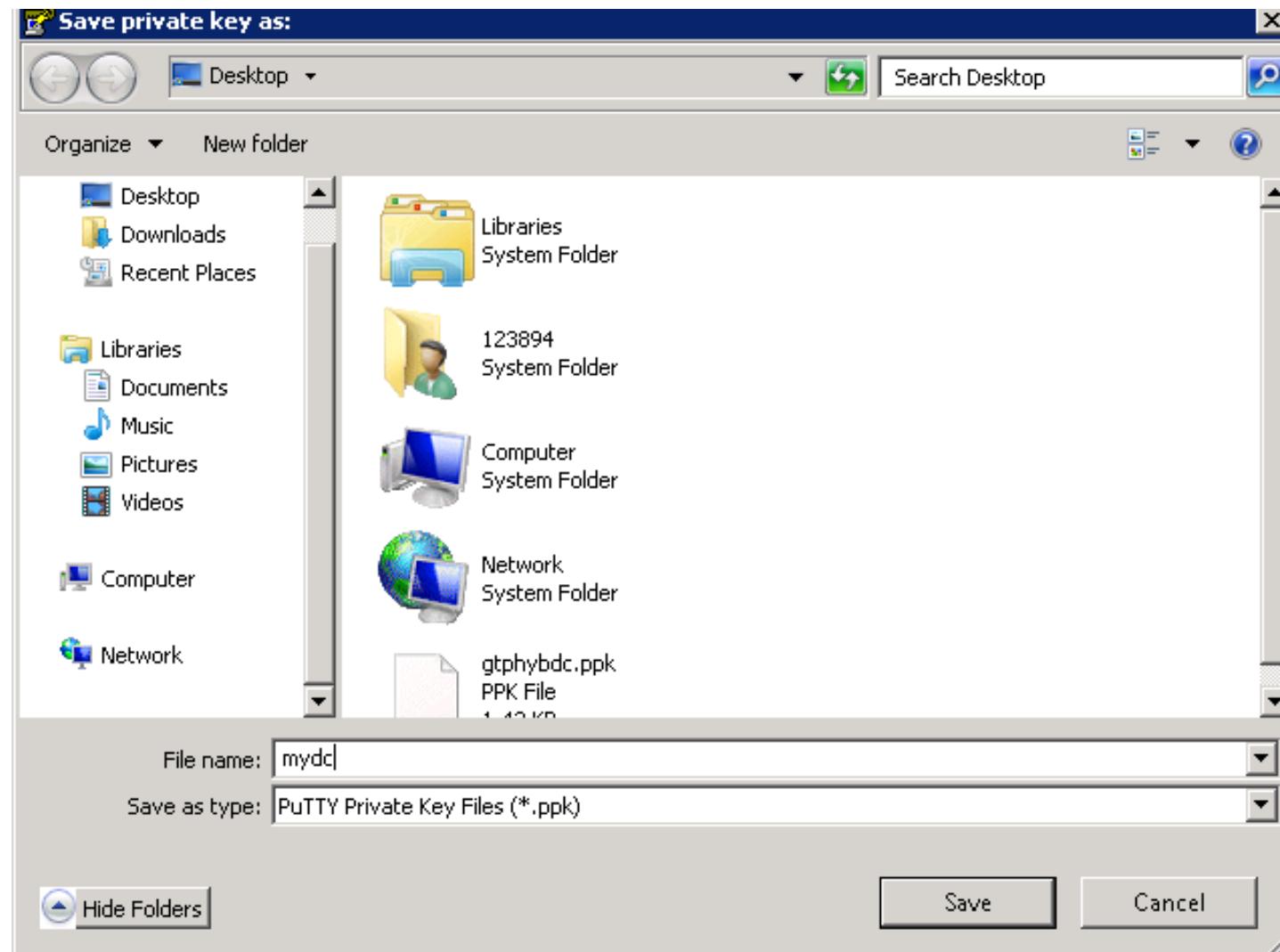
EC2 Launch Procedure



EC2 Launch Procedure

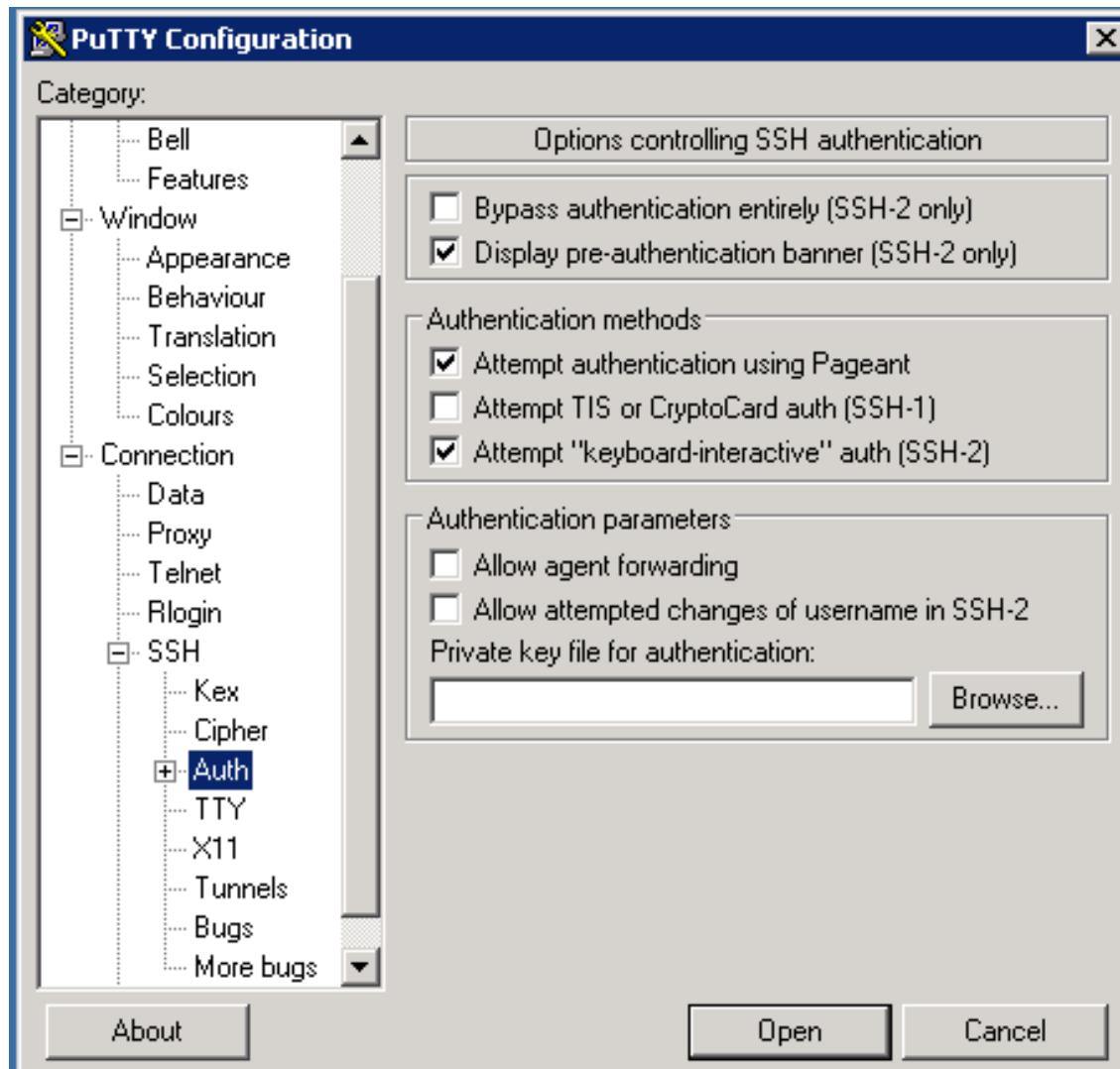


EC2 Launch Procedure



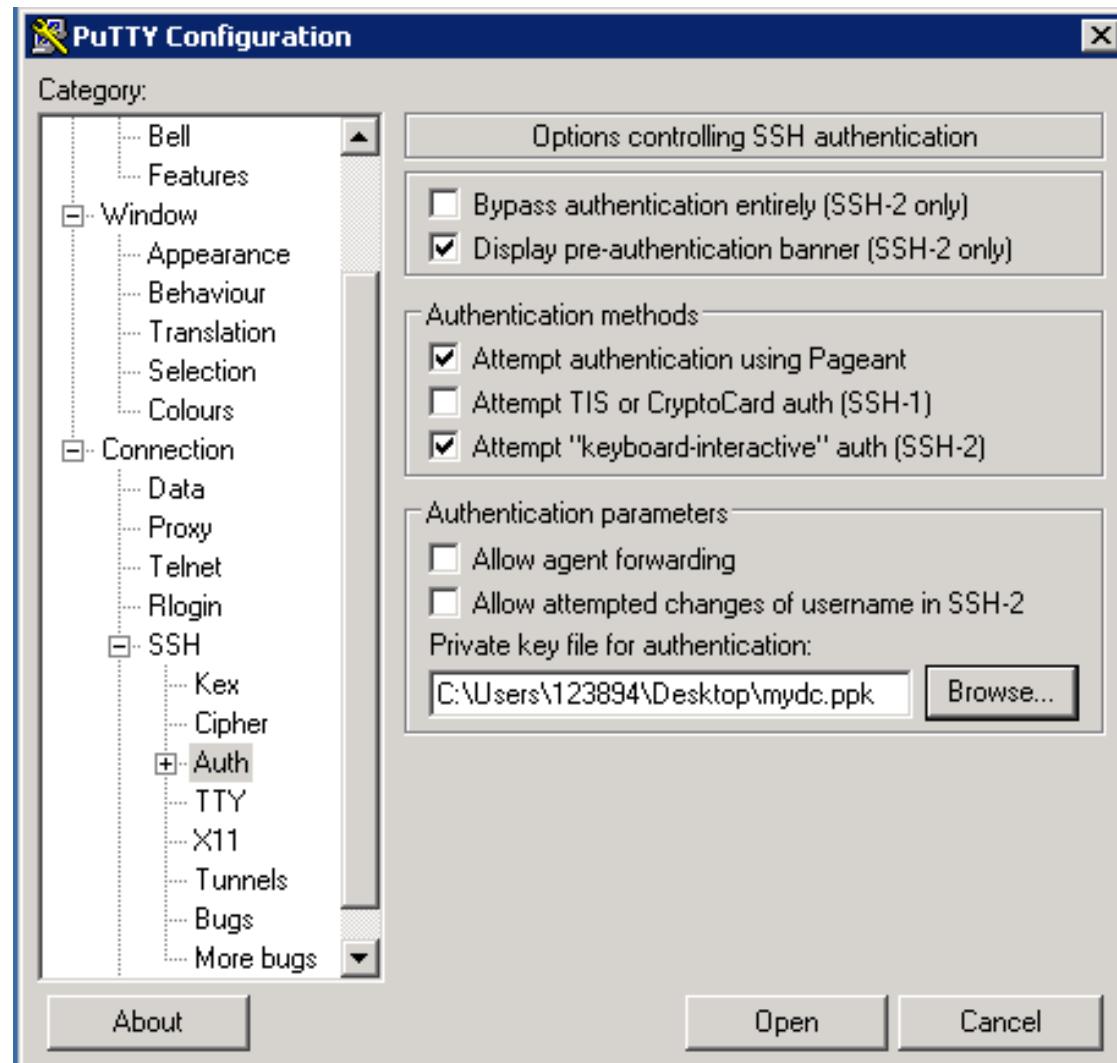
TATA TATA TATA
TATA TATA TATA

EC2 Launch Procedure

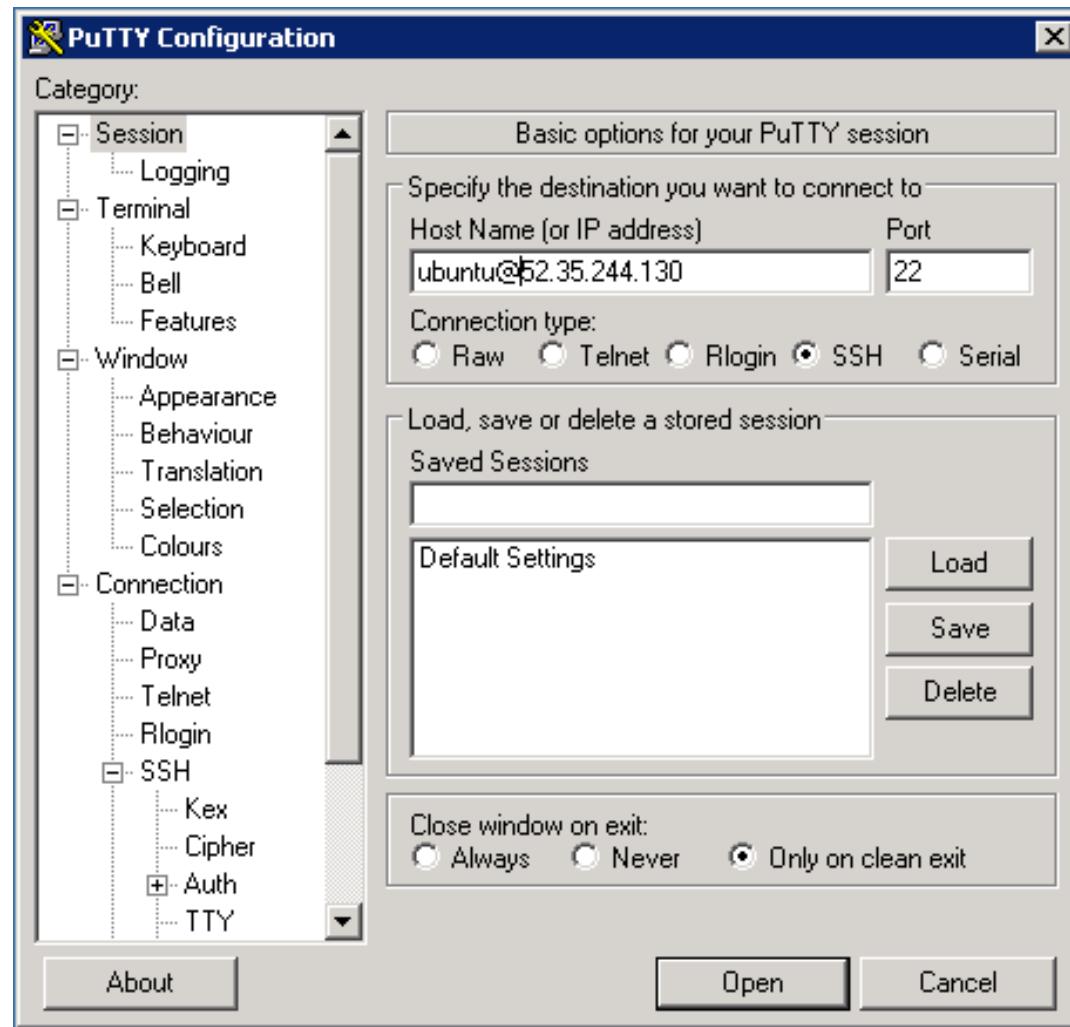


Open putty application to point to the private key by clicking on browse

EC2 Launch Procedure



EC2 Launch Procedure



EC2 Launch Procedure

```
AWS - root@ip-192-168-20-101: ~ -- ssh -- 100x30
Ananths-MacBook-Pro:AWS ananth$ ssh -i mydc.pem ubuntu@52.35.244.130
The authenticity of host '52.35.244.130 (52.35.244.130)' can't be established.
RSA key fingerprint is 78:06:bb:94:a2:c8:38:ed:f2:5b:08:32:b5:1c:9d:69.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '52.35.244.130' (RSA) to the list of known hosts.
Welcome to Ubuntu 14.04.2 LTS (GNU/Linux 3.13.0-48-generic x86_64)

 * Documentation: https://help.ubuntu.com/

 System information as of Wed Jan 13 18:40:35 UTC 2016

 System load: 0.0           Memory usage: 5%   Processes:      81
 Usage of /: 9.8% of 7.74GB Swap usage:  0%   Users logged in: 0

 Graph this data and manage this system at:
 https://landscape.canonical.com/

 Get cloud support with Ubuntu Advantage Cloud Guest:
 http://www.ubuntu.com/business/services/cloud

 0 packages can be updated.
 0 updates are security updates.

Last login: Wed Jan 13 17:23:55 2016 from 115.118.168.184
ubuntu@ip-192-168-20-101:~$ sudo su -
sudo: unable to resolve host ip-192-168-20-101
root@ip-192-168-20-101:~#
root@ip-192-168-20-101:~#
root@ip-192-168-20-101:~#
```

AMI

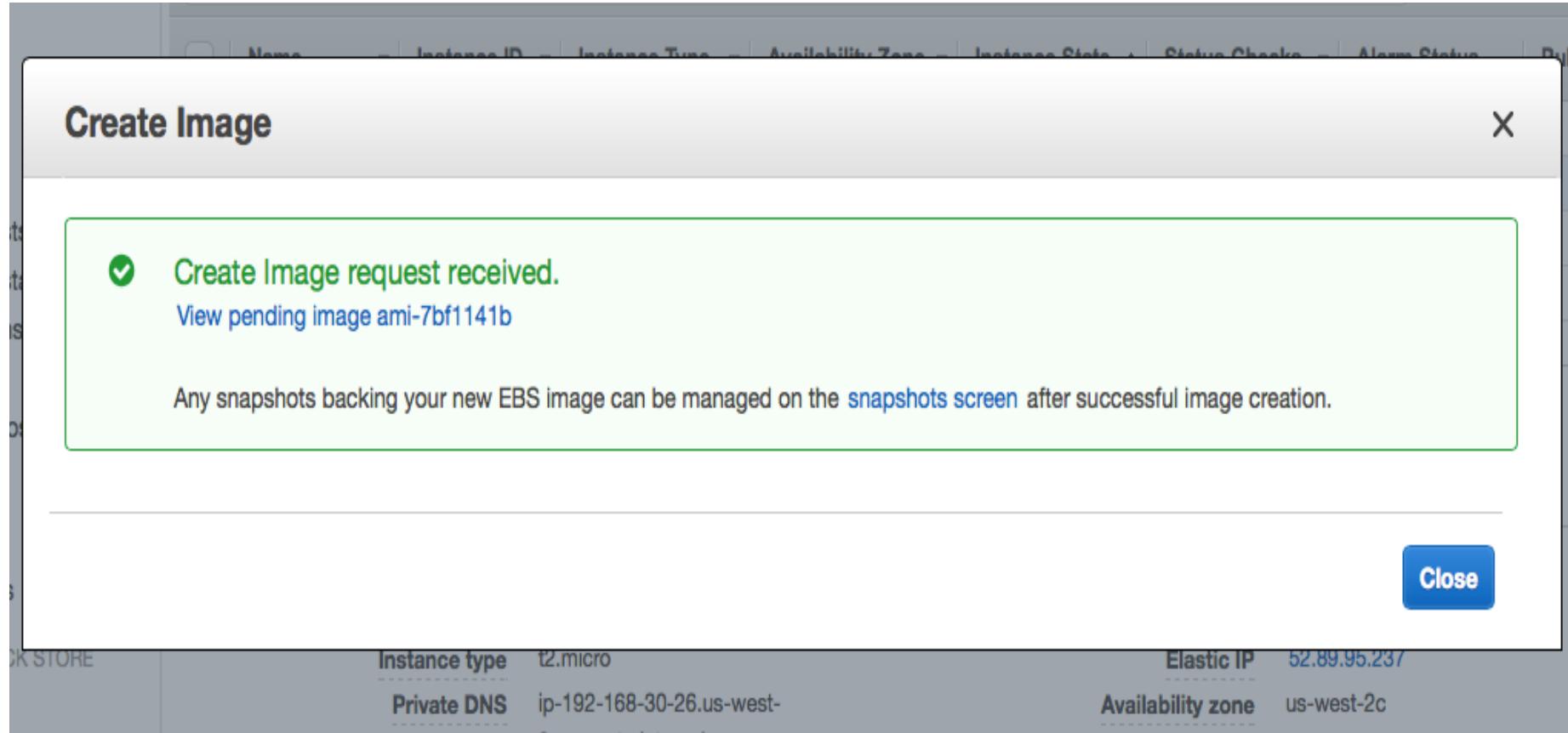


AMI Procedure

The screenshot shows the AWS EC2 Instances page. On the left, there's a sidebar with various navigation links like EC2 Dashboard, Events, Tags, Reports, Limits, INSTANCES, Instances, Spot Requests, Reserved Instances, Scheduled Instances, Commands, Dedicated Hosts, IMAGES, AMIs, and Bundle Tasks. The main area has tabs for Launch Instance, Connect, and Actions. A dropdown menu under Actions is open, showing options like Connect, Get Windows Password, Launch More Like This, Instance State, Instance Settings, Image (which is highlighted), Networking, and CloudWatch Monitoring. Under the Image option, 'Create Image' is selected. Below the instances table, it shows details for instance i-7e8000a4 (avk_b_sub3) with an Elastic IP of 52.89.95.237. At the bottom, there's a table with columns for Description, Status Checks, Monitoring, and Tags.

Description	Status Checks	Monitoring	Tags
Instance ID: i-7e8000a4	Public DNS: -	Public IP: 52.89.95.237	
Instance state: running	Elastic IP: 52.89.95.237	Availability zone: us-west-2c	
Instance type: t2.micro	Private DNS: ip-192-168-30-26.us-west-2.compute.internal	Security groups: avk_sub3_sg, view rules	
Private IPs: 192.168.30.26	Scheduled events: No scheduled events	AMI ID: ubuntu-trusty-14.04-amd64-server-	
Secondary private IPs:			
VPC ID: vpc-79b5b71c			

AMI Procedure



AMI Procedure

AWS Services Edit Ananth Oregon Support

EC2 Dashboard Events Tags Reports Limits

INSTANCES Instances Spot Requests Reserved Instances Scheduled Instances Commands Dedicated Hosts

AMIs

Bundle Tasks

ELASTIC BLOCK STORE Volumes Snapshots

NETWORK & SECURITY Security Groups

Launch Actions Owned by me Filter by tags and attributes or search by keyword

AMI Name AMI ID Source Owner Visibility Status Creation Date

myami-avk_b_... ami-7bf1141b 777255314146/... 777255314146 Private pending January 18, 2016 at 10:54:08 UTC+5:30

Image: ami-7bf1141b

Details Permissions Tags Edit

AMI ID	ami-7bf1141b	AMI Name	myami-avk_b_sub3
Owner	777255314146	Source	777255314146/myami-avk_b_sub3
Status	pending	State Reason	-
Creation date	January 18, 2016 at 10:54:08 PM UTC+5:30	Platform	Other Linux
Architecture	x86_64	Image Type	machine
Virtualization type	hvm	Description	-
Root Device Name	/dev/sda1	Root Device Type	ebs
RAM disk ID	-	Kernel ID	-
Product Codes	-	Block Devices	/dev/sda1=:8:true:gp2

AMI Procedure

The screenshot shows the AWS EC2 AMI Management interface. The left sidebar navigation includes: EC2 Dashboard, Events, Tags, Reports, Limits, INSTANCES (Instances, Spot Requests, Reserved Instances, Scheduled Instances), Commands, Dedicated Hosts, and IMAGES (AMIs, Bundle Tasks). The main content area displays a table of AMIs under the heading "Owned by me". The table has columns: Name, AMI Name, AMI ID, Source, Owner, Visibility, Status, and Creation Date. One row is visible: myami-avk_b_sub3, ami-7bf1141b, 777255314146..., 777255314146, Private, available, January 18, 2016 at 10:54:08 UTC+5:30. Below the table, a section titled "Image: ami-7bf1141b" contains tabs for Details, Permissions, and Tags. The Details tab shows the following information:

AMI ID	ami-7bf1141b	AMI Name	myami-avk_b_sub3
Owner	777255314146	Source	777255314146/myami-avk_b_sub3
Status	available	State Reason	-
Creation date	January 18, 2016 at 10:54:08 PM UTC+5:30	Platform	Other Linux
Architecture	x86_64	Image Type	machine
Virtualization type	hvm	Description	-
Root Device Name	/dev/sda1	Root Device Type	ebs

Please note that AMI can be moved across to different regions and deploy new instances from there

SNAPSHOT

Snapshot Procedure

AWS Services Edit Ananth Oregon Support

EC2 Dashboard Events Tags Reports Limits

INSTANCES Instances Spot Requests Reserved Instances Scheduled Instances Commands Dedicated Hosts

IMAGES AMIs Bundle Tasks

ELASTIC BLOCK STORE Volumes Snapshots

NETWORK & SECURITY Security Groups

Create Volume Actions

search : vol-5bc2fdbd Add filter 1 to 1 of 1

Name	Volume ID	Size	Volume Type	IOPS	Snapshot	Created	Availability Zone	Stat
	vol-5bc2fdbd	8 GiB	gp2	24 / 3000	snap-bd9c25fb	January 14, 2016 at...	us-west-2c	i

Volumes: vol-5bc2fdbd

Description Status Checks Monitoring Tags

Volume ID	vol-5bc2fdbd	Alarm status	None
Size	8 GiB	Snapshot	snap-bd9c25fb
Created	January 14, 2016 at 3:23:00 PM UTC+5:30	Availability Zone	us-west-2c
State	in-use	Encrypted	Not Encrypted
Attachment information	i-7e8000a4 (avk_b_sub3) :/dev/sda1 (attached)	KMS Key ID	
Volume type	gp2	KMS Key Aliases	
Product codes	-	KMS Key ARN	
IOPS	24 / 3000		

Snapshot Procedure

The screenshot shows the AWS EC2 Dashboard with the 'Volumes' section selected. A context menu is open over a volume named 'vol-50855990'. The menu options are: Delete Volume, Attach Volume, Detach Volume, Force Detach Volume, Create Snapshot (which is highlighted in orange), Change Auto-Enable IO Setting, and Add/Edit Tags.

Name	Volume Type	IOPS	Snapshot	Created	Availability Zone	Stat
vol-50855990	gp2	24 / 3000	snap-bd9c25fb	January 14, 2016 at... UTC+5:30	us-west-2a	Available
	gp2	24 / 3000	snap-bd9c25fb	January 14, 2016 at... UTC+5:30	us-west-2c	Available
	gp2	20 / 3000	snap-5bc57710	January 14, 2016 at... UTC+5:30	us-west-2a	Available

Description **Status Checks** **Monitoring** **Tags**

Volume ID	vol-50855990	Alarm status	None
Size	8 GiB	Snapshot	snap-bd9c25fb
Created	January 14, 2016 at 3:23:53 PM UTC+5:30	Availability Zone	us-west-2a
State	in-use	Encrypted	Not Encrypted
Attachment information	i-712520a8 (avk_b_sub4) :/dev/sda1 (attached)	KMS Key ID	
Volume type	gp2	KMS Key Aliases	
Product codes	-	KMS Key ARN	
IOPS	24 / 3000		

Snapshot Procedure

oc2f... ap-bd9c25fb January 14, 2016 at... us-west-2c

Create Snapshot

Snapshot Creation Started
View snapshot [snap-d61aa286](#)

[Close](#)

State	in-use	Alarm status	None
Volume ID	i-7e8000a4	Snapshot	snap-bd9c25fb
Volume Name	(avk_b_sub3) /dev/sda1	Availability Zone	us-west-2c
Volume type	gp2	Encrypted	Not Encrypted
Volume IOPS	-	KMS Key ID	
IOPS	24 / 3000	KMS Key Aliases	
		KMS Key ARN	

Snapshot Procedure

The screenshot shows the AWS EC2 Dashboard with the 'Schemas' section selected. The main content area displays a list of snapshots under the heading 'Owned By Me'. A single snapshot is listed: 'my_snapshot' (ID: snap-d61aa286), which is 8 GiB in size and has a status of 'completed'. Below the list, detailed information about the selected snapshot is provided.

Snapshot ID	Progress
snap-d61aa286	100%

Status	Capacity
completed	8 GiB

Volume	Encrypted
vol-5bc2fdbd	Not Encrypted

Started	KMS Key ID
January 18, 2016 at 11:03:44 PM UTC+5:30	

Owner	KMS Key Aliases
777255314146	

Product codes	KMS Key ARN
-	

Description
-

EIP

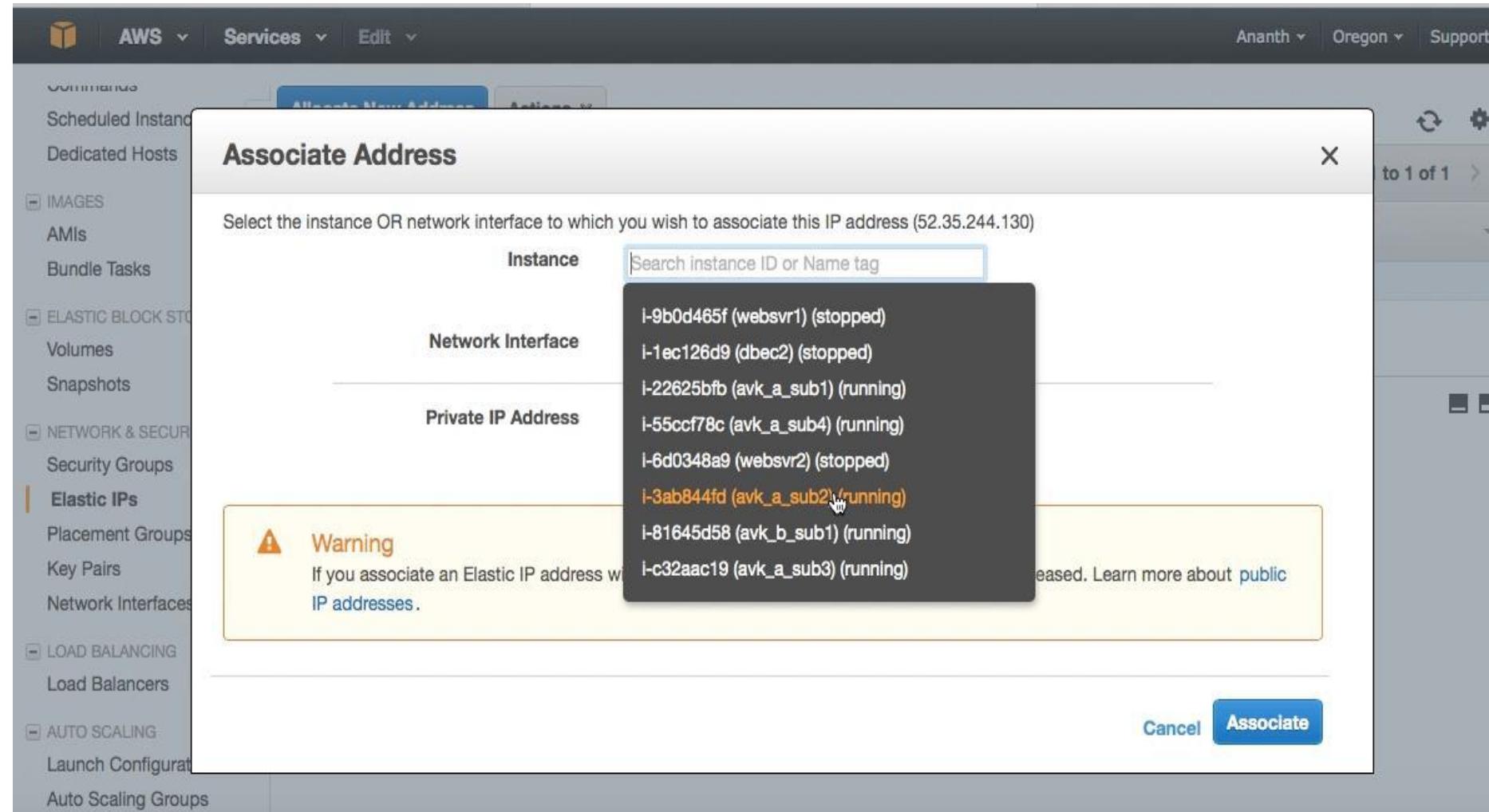


EIP Procedure

The screenshot shows the AWS EC2 Management Console interface. The URL in the browser is <https://ap-southeast-1.console.aws.amazon.com/ec2/v2/home?region=ap-southeast-1#Addresses:sort=publicIp>. The left sidebar menu is open, showing various AWS services like Commands, Dedicated Hosts, IMAGES, AMIs, Bundle Tasks, ELASTIC BLOCK STORE, Volumes, Snapshots, NETWORK & SECURITY, Security Groups, Elastic IPs (which is currently selected), Placement Groups, Key Pairs, Network Interfaces, LOAD BALANCING, Load Balancers, and AUTO SCALING. The main content area displays a message: "You do not have any elastic IPs in this region. Click on the 'Allocate New Address' button to allocate your first elastic IP." A prominent blue button labeled "Allocate New Address" is centered below the message. At the bottom of the page, there are links for Feedback, English, and footer information including copyright (© 2008 - 2016, Amazon Internet Services Private Ltd. or its affiliates. All rights reserved.), Privacy Policy, and Terms of Use.

When you click “Allocate New Address”, it will ask for a confirmation and provide you with a public IP

EIP Procedure



Choose the EIP and click actions and choose “associate address”

EIP Procedure

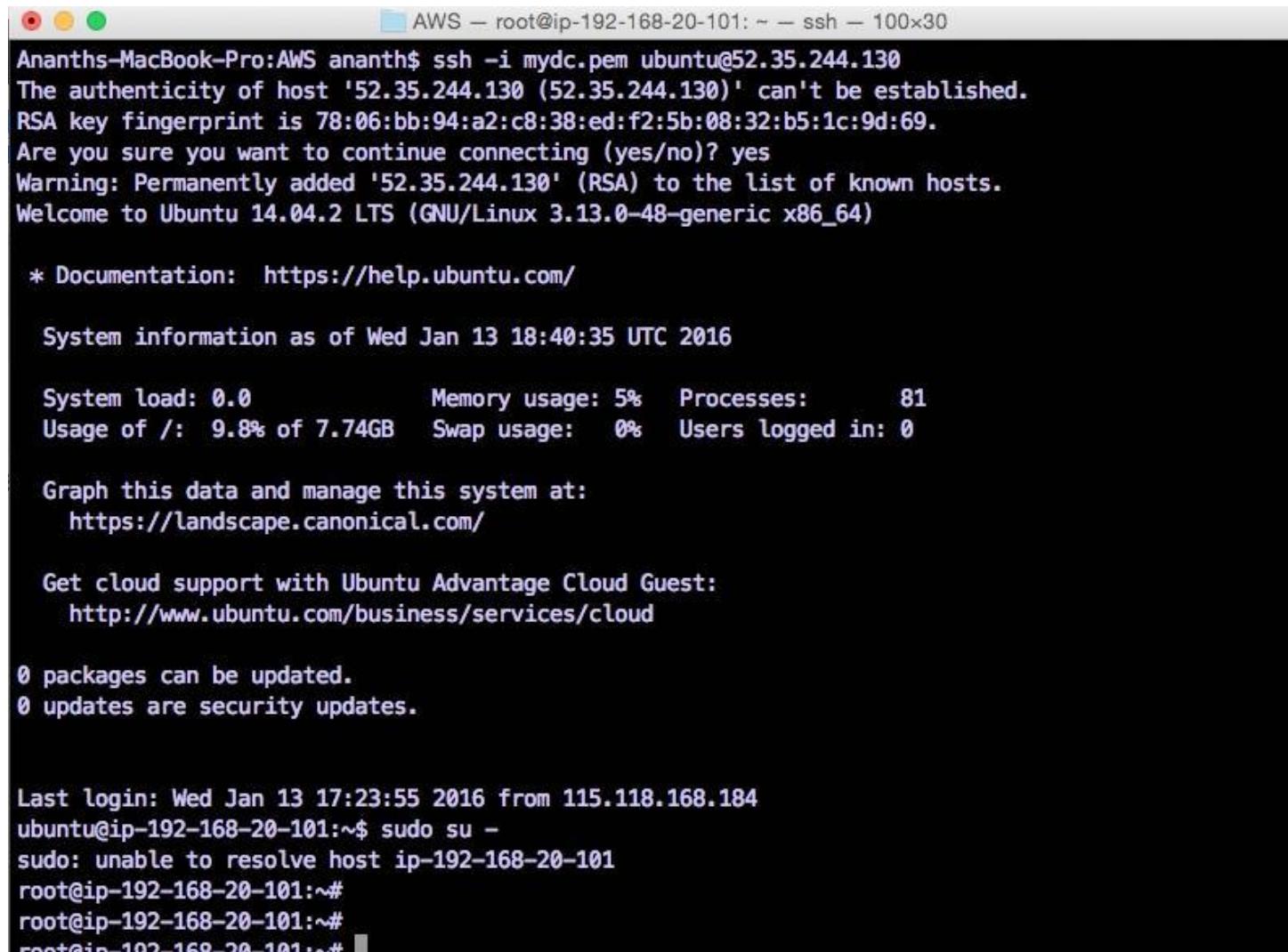
The screenshot shows the AWS Management Console interface for managing Elastic IPs. The left sidebar navigation menu includes options like Scheduled Instances, Dedicated Hosts, AMIs, Bundle Tasks, Volumes, Snapshots, Security Groups, Elastic IPs (which is the selected category), Placement Groups, Key Pairs, Network Interfaces, Load Balancers, and Launch Configurations. The main content area has tabs for 'Allocate New Address' and 'Actions'. A search bar at the top right allows filtering by attributes or keyword. The main table displays one row of data:

Elastic IP	Allocation ID	Instance	Private IP Address	Scope
52.35.244.130	eipalloc-276f4542	i-3ab844fd (avk_a_sub2)	192.168.20.101	vpc-79b5b71c

Below the table, detailed information for the selected address (52.35.244.130) is shown in a grid format:

Elastic IP	52.35.244.130	Network interface ID	eni-774bba0f
Instance	i-3ab844fd (avk_a_sub2)	Private IP address	192.168.20.101
Scope	vpc	Network interface owner	777255314146
Public DNS	-	Allocation ID	eipalloc-276f4542

EIP Procedure



AWS — root@ip-192-168-20-101: ~ — ssh — 100x30

```
Ananths-MacBook-Pro:AWS ananth$ ssh -i mydc.pem ubuntu@52.35.244.130
The authenticity of host '52.35.244.130 (52.35.244.130)' can't be established.
RSA key fingerprint is 78:06:bb:94:a2:c8:38:ed:f2:5b:08:32:b5:1c:9d:69.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '52.35.244.130' (RSA) to the list of known hosts.
Welcome to Ubuntu 14.04.2 LTS (GNU/Linux 3.13.0-48-generic x86_64)

 * Documentation:  https://help.ubuntu.com/

System information as of Wed Jan 13 18:40:35 UTC 2016

System load: 0.0           Memory usage: 5%   Processes:      81
Usage of /:  9.8% of 7.74GB Swap usage:  0%   Users logged in: 0

Graph this data and manage this system at:
https://landscape.canonical.com/

Get cloud support with Ubuntu Advantage Cloud Guest:
http://www.ubuntu.com/business/services/cloud

0 packages can be updated.
0 updates are security updates.

Last login: Wed Jan 13 17:23:55 2016 from 115.118.168.184
ubuntu@ip-192-168-20-101:~$ sudo su -
sudo: unable to resolve host ip-192-168-20-101
root@ip-192-168-20-101:~#
root@ip-192-168-20-101:~#
root@ip-192-168-20-101:~#
```

Now you can ssh to the instance with the public IP...in this case it's a Ubuntu instance. It can also be a windows instance, in that case we rdp.

Either case ensure that the appropriate security groups are allowed with required ports

ELB

ELB Launch Procedure

The screenshot shows the AWS Elastic Load Balancing (ELB) console. The top navigation bar includes the AWS logo, 'AWS Services Edit', and user account information ('Ananth', 'Oregon', 'Support'). On the left, a sidebar menu lists various AWS services: 'Scheduled Instances', 'Dedicated Hosts', 'AMIs', 'Bundle Tasks', 'ELASTIC BLOCK STORE' (with 'Volumes' and 'Snapshots'), 'NETWORK & SECURITY' (with 'Security Groups', 'Elastic IPs', 'Placement Groups', 'Key Pairs', and 'Network Interfaces'), 'LOAD BALANCING' (with 'Load Balancers' selected), and 'AUTO SCALING' (with 'Launch Configurations' and 'Auto Scaling Groups'). The main content area has a heading 'Create Load Balancer' and an 'Actions' dropdown. A search bar at the top says 'Search Load Balancers'. Below it, a message states 'You do not have any load balancers in this region.' It also provides links to 'FAQ' and 'Getting Started Guide'. A call-to-action button 'Click "Create Load Balancer" to create a load balancer that distributes traffic across your instances.' is present. At the bottom, there's a section titled 'Select a Load Balancer' with three small icons.



ELB Launch Procedure

1. Define Load Balancer
2. Assign Security Groups
3. Configure Security Settings
4. Configure Health Check
5. Add EC2 Instances
6. Add Tags
7. Review

Step 1: Define Load Balancer

Basic Configuration

This wizard will walk you through setting up a new load balancer. Begin by giving your new load balancer a unique name so that you can identify it from other load balancers you might create. You will also need to configure ports and protocols for your load balancer. Traffic from your clients can be routed from any load balancer port to any port on your EC2 instances. By default, we've configured your load balancer with a standard web server on port 80.

Load Balancer name:

Create LB Inside:

Create an internal load balancer: (what's this?)

Enable advanced VPC configuration:

Listener Configuration:

Load Balancer Protocol	Load Balancer Port	Instance Protocol	Instance Port
HTTP	80	HTTP	80

Add

Select Subnets

[Cancel](#) [Next: Assign Security Groups](#)

ELB Launch Procedure

1. Define Load Balancer 2. Assign Security Groups 3. Configure Security Settings 4. Configure Health Check 5. Add EC2 Instances 6. Add Tags 7. Review

Step 1: Define Load Balancer

Add

Select Subnets

You will need to select a Subnet for each Availability Zone where you wish traffic to be routed by your load balancer. If you have instances in only one Availability Zone, please select at least two Subnets in different Availability Zones to provide higher availability for your load balancer.

VPC vpc-79b5b71c (192.168.0.0/16) | MyCloudDC

Available Subnets

Actions	Availability Zone	Subnet ID	Subnet CIDR	Name
	us-west-2a	subnet-c3f2c7b4	192.168.10.0/24	sub1_public
	us-west-2b	subnet-ea12028f	192.168.20.0/24	sub2_dnat

Selected Subnets

Actions	Availability Zone	Subnet ID	Subnet CIDR	Name
	us-west-2a	subnet-9f5c68e8	192.168.40.0/24	sub4_private_snat
	us-west-2c	subnet-4db7f514	192.168.30.0/24	sub3_private_snat

Cancel

Next: Assign

Choose the subnet for each AZ between which you want to do load balancing

ELB Launch Procedure

1. Define Load Balancer 2. Assign Security Groups 3. Configure Security Settings 4. Configure Health Check 5. Add EC2 Instances 6. Add Tags 7. Review

Step 2: Assign Security Groups

You have selected the option of having your Elastic Load Balancer inside of a VPC, which allows you to assign security groups to your load balancer. Please select the security groups to assign to this load balancer. This can be changed at any time.

Assign a security group:

- Create a new security group
- Select an existing security group

Filter

Security Group ID	Name	Description	Actions
<input type="checkbox"/> sg-cd9077aa	avk_sub1_sg	launch-wizard-8 created 2016-01-13T00:01:11.757+05:30	Copy to new
<input type="checkbox"/> sg-776e8810	avk_sub2_sg	launch-wizard-8 created 2016-01-13T22:12:57.188+05:30	Copy to new
<input type="checkbox"/> sg-2b6c8a4c	avk_sub3_sg	launch-wizard-8 created 2016-01-13T22:20:07.266+05:30	Copy to new
<input checked="" type="checkbox"/> sg-b96c8ade	avk_sub4_sg	launch-wizard-8 created 2016-01-13T22:21:34.831+05:30	Copy to new
<input type="checkbox"/> sg-d19770b6	default	default VPC security group	Copy to new
<input type="checkbox"/> sg-2156b046	sub4-sg	launch-wizard-8 created 2016-01-14T00:10:55.198+05:30	Copy to new

[Cancel](#)

[Previous](#)

[Next: Configure Security Settings](#)

ELB Launch Procedure

1. Define Load Balancer 2. Assign Security Groups **3. Configure Security Settings** 4. Configure Health Check 5. Add EC2 Instances 6. Add Tags 7. Review

Step 3: Configure Security Settings



Improve your load balancer's security. Your load balancer is not using any secure listener.

If your traffic to the load balancer needs to be secure, use either the HTTPS or the SSL protocol for your front-end connection. You can go back to the first step to add/configure secure listeners under [Basic Configuration](#) section. You can also continue with current settings.

You can add
listeners as
required

Cancel

Previous

Next: Configure Health Check

ELB Launch Procedure

1. Define Load Balancer 2. Assign Security Groups 3. Configure Security Settings 4. Configure Health Check 5. Add EC2 Instances 6. Add Tags 7. Review

Step 4: Configure Health Check

Your load balancer will automatically perform health checks on your EC2 instances and only route traffic to instances that pass the health check. If an instance fails the health check, it is automatically removed from the load balancer. Customize the health check to meet your specific needs.

Ping Protocol

Ping Port

Ping Path

Advanced Details

Response Timeout seconds

Health Check Interval seconds

Unhealthy Threshold

Healthy Threshold

[Cancel](#) [Previous](#) [Next: Add EC2 Instances](#)

ELB Launch Procedure

1. Define Load Balancer 2. Assign Security Groups 3. Configure Security Settings 4. Configure Health Check 5. Add EC2 Instances 6. Add Tags 7. Review

Step 5: Add EC2 Instances

The table below lists all your running EC2 Instances. Check the boxes in the Select column to add those instances to this load balancer.

VPC vpc-79b5b71c (192.168.0.0/16) | MyCloudDC

Select	Instance	Name	State	Security Groups	Zone	Subnet ID	Subnet CIDR
<input type="checkbox"/>	i-22625bfb	avk_a_sub1	running	avk_sub1_sg	us-west-2a	subnet-c3f2c7b4	192.168.10.0/24
<input checked="" type="checkbox"/>	i-55ccf78c	avk_a_sub4	running	sub4-sg	us-west-2a	subnet-9f5c68e8	192.168.40.0/24
<input type="checkbox"/>	i-3ab844fd	avk_a_sub2	running	avk_sub2_sg	us-west-2b	subnet-ea12028f	192.168.20.0/24
<input type="checkbox"/>	i-81645d58	avk_b_sub1	running	avk_sub1_sg	us-west-2a	subnet-c3f2c7b4	192.168.10.0/24
<input checked="" type="checkbox"/>	i-c32aac19	avk_a_sub3	running	avk_sub3_sg	us-west-2c	subnet-4db7f514	192.168.30.0/24

Availability Zone Distribution

1 instance in us-west-2a

1 instance in us-west-2c

Enable Cross-Zone Load Balancing (i)

Add instances between which you want to do load balancing

[Cancel](#) [Previous](#) [Next: Add Tags](#)

ELB Launch Procedure

1. Define Load Balancer 2. Assign Security Groups 3. Configure Security Settings 4. Configure Health Check 5. Add EC2 Instances 6. Add Tags 7. Review

Step 6: Add Tags

Apply tags to your resources to help organize and identify them.

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver. [Learn more](#) about tagging your Amazon EC2 resources.

Key	Value
name	avkeltb X

[Create Tag](#)

█

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

ELB Launch Procedure

1. Define Load Balancer 2. Assign Security Groups 3. Configure Security Settings 4. Configure Health Check 5. Add EC2 Instances 6. Add Tags 7. Review

Step 7: Review

Please review the load balancer details before continuing

▼ Define Load Balancer

[Edit load balancer definition](#)

Load Balancer name: avk-elb

Scheme: internet-facing

Port Configuration: 80 (HTTP) forwarding to 80 (HTTP)

▼ Configure Health Check

[Edit health check](#)

Ping Target: HTTP:80/index.html

Timeout: 5 seconds

Interval: 30 seconds

Unhealthy Threshold: 2

Healthy Threshold: 10

▼ Add EC2 Instances

[Edit instances](#)

Cross-Zone Load Balancing: Enabled

Connection Draining: Enabled, 300 seconds

[Cancel](#)

[Previous](#)

[Create](#)

ELB Launch Procedure

Load Balancer Creation Status



Your load balancer is being created

Created load balancer

Configured health check

Configured attributes

ELB Launch Procedure

Load Balancer Creation Status



Load balancer `avk-elb` was successfully created.

Note: It may take a few minutes for your instances to become active in the new load balancer.

[Close](#)

ELB Launch Procedure

The screenshot shows the AWS Management Console interface for creating a Load Balancer. The left sidebar navigation includes 'Scheduled Instances', 'Dedicated Hosts', 'AMIs', 'Bundle Tasks', 'Volumes', 'Snapshots', 'Security Groups', 'Elastic IPs', 'Placement Groups', 'Key Pairs', 'Network Interfaces', 'Load Balancers' (selected), and 'Auto Scaling'. The main content area displays a table with one row for 'avk-elb'. The table columns are 'Load Balancer Name', 'DNS Name', 'Port Configuration', 'Availability Zones', 'Instance Count', and 'Health'. Below the table, the 'Description' tab is selected, showing the 'DNS Name' field set to 'avk-elb-1531365621.us-west-2.elb.amazonaws.com (A Record)'. A note explains that the set of IP addresses can change over time and suggests using a CNAME record or Amazon Route 53. Other tabs include 'Instances', 'Health Check', 'Monitoring', 'Security', 'Listeners', and 'Tags'. The top navigation bar includes 'AWS Services Edit' and user information 'Ananth | Oregon | Support'.

Load Balancer Name	DNS Name	Port Configuration	Availability Zones	Instance Count	Health
avk-elb	avk-elb-1531365621.us-west-2.elb.amazonaws.com (A Record)	80 (HTTP) forwarding to 80 (HTTP) Stickiness: Disabled (Edit)	us-west-2a, us-west-2c	2 Instances	HTTP:80

Description **Instances** **Health Check** **Monitoring** **Security** **Listeners** **Tags**

DNS Name: avk-elb-1531365621.us-west-2.elb.amazonaws.com (A Record)

Note: Because the set of IP addresses associated with a LoadBalancer can change over time, you should never create an "A" record with any specific IP address. If you want to use a friendly DNS name for your load balancer instead of the name generated by the Elastic Load Balancing service, you should create a CNAME record for the LoadBalancer DNS name, or use Amazon Route 53 to create a hosted zone. For more information, see [Using Domain Names With Elastic Load Balancing](#).

Scheme: internet-facing

Status: 0 of 2 instances in service

Port Configuration: 80 (HTTP) forwarding to 80 (HTTP)
Stickiness: Disabled (Edit)

Availability Zones: subnet-4db7f514 - us-west-2c, subnet-0f5e68e8 - us-west-2a

Note the dns name, this is accessible from internet

ELB Launch Procedure

The screenshot shows the AWS EC2 Instances page. On the left, there's a sidebar with various navigation links like EC2 Dashboard, Events, Tags, Reports, Limits, Instances, Images, and Elastic Block Store. The main content area has a header with 'Create Load Balancer' and 'Actions'. A filter bar shows 'avk-elb'. Below it is a table with columns: Load Balancer Name, DNS Name, Port Configuration, Availability Zones, Instance Count, and Health. One row is visible for 'avk-elb'. Underneath the table, it says 'Load balancer: avk-elb'. There are tabs for Description, Instances (which is selected), Health Check, Monitoring, Security, Listeners, and Tags. Below these tabs, it says 'Connection Draining: Enabled, 300 seconds (Edit)'. At the bottom, there's a section titled 'Edit Instances' with a table showing two rows:

Instance ID	Name	Availability Zone	Status	Actions
i-55ccf78c	avk_a_sub4	us-west-2a	OutOfService ⓘ	Remove from Load Balancer
i-c32aac19	avk_a_sub3	us-west-2c	OutOfService ⓘ	Remove from Load Balancer

Initially instances will be out of service

It will take sometime for them to be flagged as in service

ELB Launch Procedure

The screenshot shows the AWS EC2 Load Balancer console. The top navigation bar includes links for AWS, Services, Edit, Ananth, Oregon, and Support. On the left, a sidebar lists various EC2 services: EC2 Dashboard, Events, Tags, Reports, Limits, INSTANCES (with sub-options Instances, Spot Requests, Reserved Instances, Commands, Scheduled Instances, Dedicated Hosts), IMAGES (with sub-option AMIs), and ELASTIC BLOCK STORE (with sub-options Volumes, Snapshots). The main content area has a search bar with 'Filter: avk-elb'. A table displays one load balancer entry:

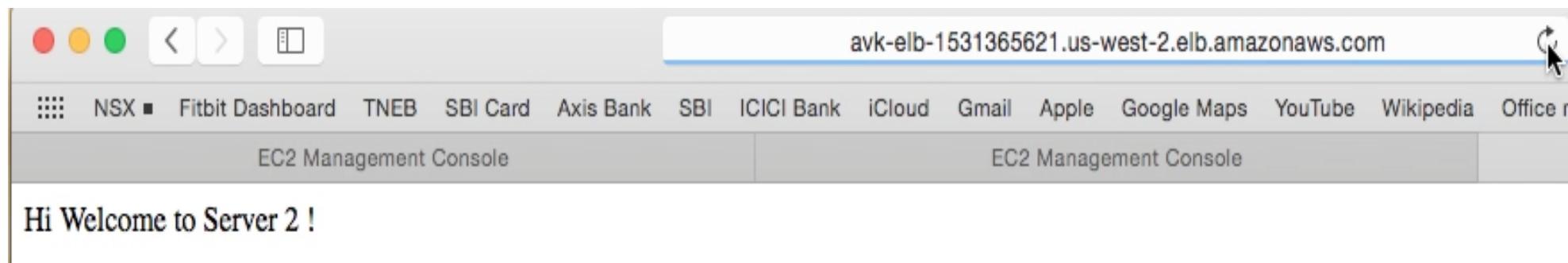
Load Balancer Name	DNS Name	Port Configuration	Availability Zones	Instance Count	Health
avk-elb	avk-elb-1531365621.us-west...	80 (HTTP) forwarding to 80 (...)	us-west-2a, us-west-2c	2 Instances	HTTP:80

Below the table, under 'Load balancer: avk-elb', there are tabs for Description, Instances (which is selected), Health Check, Monitoring, Security, Listeners, and Tags. A note says 'Connection Draining: Enabled, 300 seconds (Edit)'. A button labeled 'Edit Instances' is visible. A table lists two instances:

Instance ID	Name	Availability Zone	Status	Actions
i-55ccf78c	avk_a_sub4	us-west-2a	InService ⓘ	Remove from Load Balancer
i-c32aac19	avk_a_sub3	us-west-2c	InService ⓘ	Remove from Load Balancer

At the bottom, a button labeled 'Edit Availability Zones' is shown.

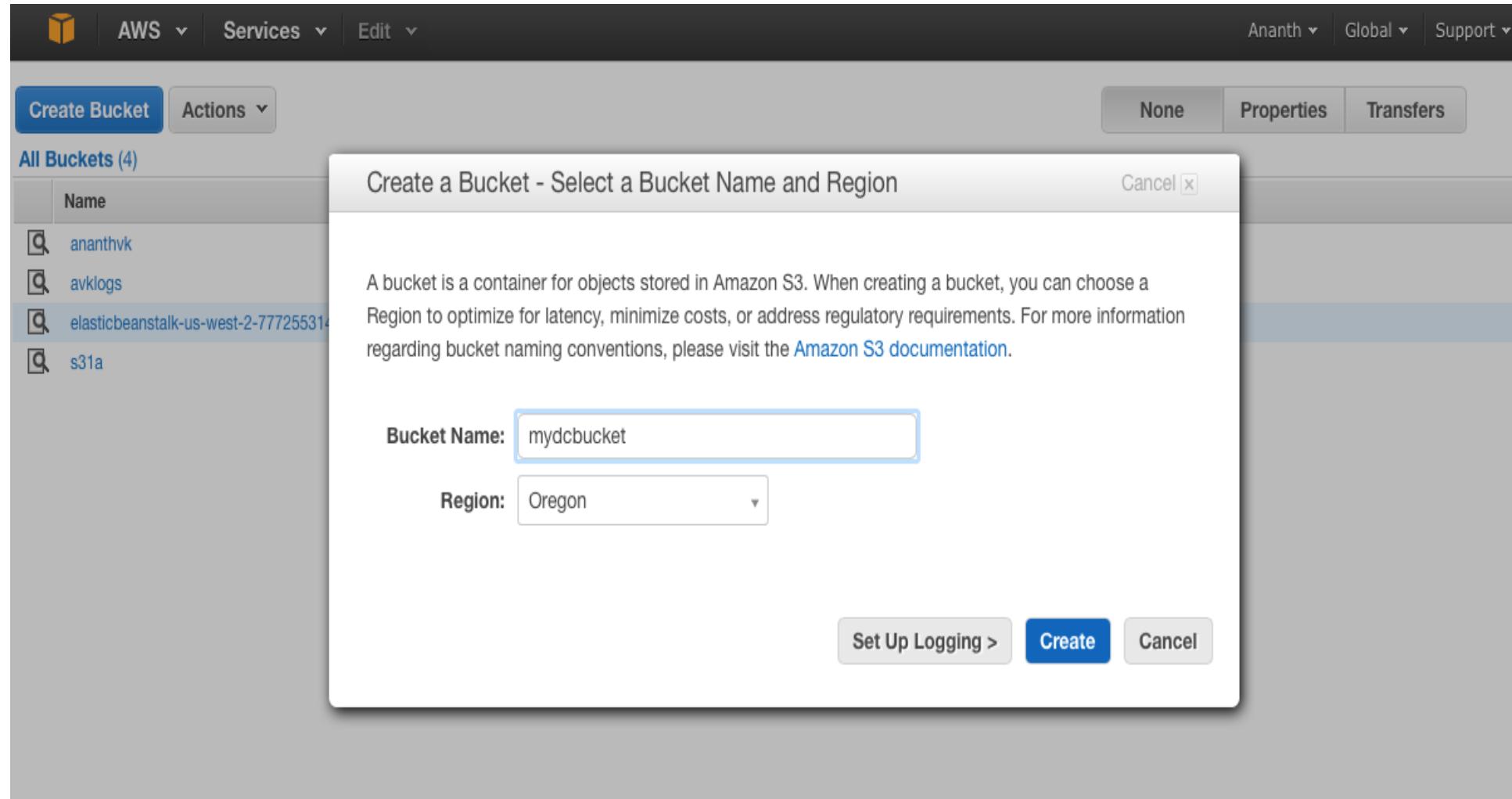
ELB Launch Procedure



S3



S3 Configuration Procedure



S3 Configuration Procedure

The screenshot shows the AWS S3 console interface. At the top, there's a navigation bar with links for AWS, Services, Edit, Ananth (user), Global, and Support. Below the navigation bar, there are buttons for Create Bucket, Actions, None, Properties, and Transfers. A sidebar on the left lists all buckets: ananthvk, avklogs, elasticbeanstalk-us-west-2-777255314146, mydcbucket (which is selected and highlighted in blue), and s31a. The main content area is titled "Bucket: mydcbucket". It displays basic information about the bucket: Bucket: mydcbucket, Region: Oregon, Creation Date: Fri Jan 15 23:35:58 GMT+530 2016, and Owner: ananthvk.aws. To the right of this information is a vertical list of configuration tabs: Permissions, Static Website Hosting, Logging, Events, Versioning, Lifecycle, Tags, and Requester Pays.

All Buckets (5)

Name
ananthvk
avklogs
elasticbeanstalk-us-west-2-777255314146
mydcbucket
s31a

Bucket: mydcbucket

Bucket: mydcbucket
Region: Oregon
Creation Date: Fri Jan 15 23:35:58 GMT+530 2016
Owner: ananthvk.aws

Permissions
Static Website Hosting
Logging
Events
Versioning
Lifecycle
Tags
Requester Pays

S3 Configuration Procedure

The screenshot shows the 'Upload - Select Files and Folders' dialog box from the AWS S3 console. The dialog is centered over a background view of the 'mydcbucket' static web data. At the top, it says 'Upload to: All Buckets / mydcbucket / Static web data'. Below this is a note about uploading files up to 5 TB each. A file named 'IMG_0831.jpg (3.2 MB)' is listed with an 'X' icon to its right. At the bottom of the dialog are buttons for 'Add Files', 'Remove Selected Files', and 'Enable Enhanced Uploader (BETA)'. It also displays the number of files (1) and total upload size (3.2 MB). At the very bottom are 'Set Details >', 'Start Upload', and 'Cancel' buttons.

The screenshot shows the 'mydcbucket' static web data details page. The file 'IMG_0831.jpg' is listed in the table with the following details: Name (IMG_0831.jpg), Storage Class (Standard), Size (3.2 MB), and Last Modified (Fri Jan 15 23:38:26 G). To the right, there's a 'Transfers' section with an option to 'Automatically clear finished transfers'. A progress bar at the bottom indicates the upload status: 'Done' with a green checkmark and 'Upload: Uploading IMG_0831.jpg to mydcbucket'.

S3 Configuration Procedure

The screenshot shows the AWS S3 console interface. At the top, there's a navigation bar with the AWS logo, 'AWS Services', 'Edit', and user account information ('Ananth', 'Global', 'Support'). Below the navigation bar, there are buttons for 'Upload', 'Create Folder', and 'Actions'. A search bar labeled 'Search by prefix' and buttons for 'None', 'Properties', and 'Transfers' are also present. The main area displays 'All Buckets / mydcbucket / Static web data'. A table lists one object: 'IMG_0831.jpg' (Standard storage class, 3.2 MB, last modified Fri Jan 15 23:38:26 GMT+530 2016). On the right, a detailed view for 'Object: IMG_0831.jpg' is shown, listing its properties: Bucket: mydcbucket, Folder: Static web data, Name: IMG_0831.jpg, Link: https://s3-us-west-2.amazonaws.com/mydcbucket/Static+web+data/IMG_0831.jpg, Size: 3451245, Last Modified: Fri Jan 15 23:38:26 GMT+530 2016, Owner: ananthvk.aws, ETag: 3a28fdb50b0f9ffd715404a1d20d8be, Expiry Date: None, and Expiration Rule: N/A. Below this, there are sections for 'Details' and 'Permissions'. The 'Permissions' section includes a note: 'You can control access to the bucket and its contents using access policies. Learn more.' It shows two permission entries: one for 'ananthvk.aws' with 'Open/Download' and 'View Permissions' checked, and another for 'Everyone' with 'Open/Download' checked and 'View Permissions' unchecked.

	Name	Storage Class	Size	Last Modified
	IMG_0831.jpg	Standard	3.2 MB	Fri Jan 15 23:38:26 GMT+530 2016

Object: IMG_0831.jpg

Bucket: mydcbucket
Folder: Static web data
Name: IMG_0831.jpg
Link: https://s3-us-west-2.amazonaws.com/mydcbucket/Static+web+data/IMG_0831.jpg
Size: 3451245
Last Modified: Fri Jan 15 23:38:26 GMT+530 2016
Owner: ananthvk.aws
ETag: 3a28fdb50b0f9ffd715404a1d20d8be
Expiry Date: None
Expiration Rule: N/A

▶ Details

▼ Permissions

You can control access to the bucket and its contents using access policies. Learn more.

Grantee: ananthvk.aws Open/Download View Permissions [Edit Permissions](#)

Grantee: Everyone Open/Download View Permissions [Edit Permissions](#)

S3 Configuration Procedure

The screenshot shows the AWS S3 console interface. On the left, there is a sidebar with buttons for 'Upload', 'Create Folder', and 'Actions'. Below these are links for 'All Buckets' and 'mydcbucket'. A table lists two items: 'Logs' and 'Static web data'. The 'Static web data' row is selected, indicated by a blue background.

The main area displays a modal window titled 'Folder: Static web data' with an 'X' button in the top right corner. Inside the modal, the 'Bucket' is listed as 'mydcbucket' and the 'Name' is 'Static web data'. Below this, a 'Details' section is expanded, showing settings for selected items.

Under 'For all selected items:', there are two sections:

- Storage Class:** A radio button group where 'Standard' is selected, while 'Standard - Infrequent Access' and 'Reduced Redundancy' are unselected. A note below states: 'Standard storage will now be used'.
- Server Side Encryption:** A radio button group where 'None' is selected, while 'AES-256' is unselected. A note below states: 'No encryption will now be used'.

At the bottom right of the modal are 'Save' and 'Cancel' buttons.

TATA TATA TATA
TATA TATA TATA

S3 Configuration Procedure



S3 Configuration Procedure

Create Bucket Actions ▾

All Buckets (5)

Name
ananthvk
avklogs
elasticbeanstalk-us-west-2-777255314146
mydcbucket
s31a

Region: Oregon
Creation Date: Fri Jan 15 23:35:58 GMT+530 2016
Owner: ananthvk.aws

Permissions

Static Website Hosting

Logging

You can enable logging to track requests for access to your bucket. [Learn more.](#)

Enabled:

Target Bucket: mydcbucket

Target Prefix: mydcbucket

Save Cancel

Events

Versioning

Lifecycle

Cross-Region Replication

TATA CONSULTANCY SERVICES

Glacier

Archiving from S3 to Glacier

AWS Services Edit Ananth Global Support

Upload Create Folder Actions Search by prefix None Properties Transfers

All Buckets / mydcbucket

	Name	Storage Class	Size	Last Modified
	Logs	--	--	--
	Static web data	--	--	--
	Test	--	--	--

Logging

Events

Versioning

Lifecycle

You can manage the lifecycle of objects by using [Lifecycle rules](#). Lifecycle rules enable you to automatically transition objects to the [Standard - Infrequent Access Storage Class](#), and/or archive objects to the [Glacier Storage Class](#), and/or remove objects after a specified time period. Rules are applied to all the objects that share the specified prefix.

Versioning is not currently enabled on this bucket.

You can use Lifecycle rules to manage all versions of your objects. This includes both the Current version and Previous versions.

Add rule

Save Cancel

Cross-Region Replication

Archiving from S3 to Glacier

Lifecycle Rules ×

Step 1: Choose Rule Target
Step 2: Configure Rule
Step 3: Review and Name

Apply the Rule to: Whole Bucket: mydcbucket
 A Prefix e.g. MyFolder/ or MyFolder/MyObject

[Cancel](#) [Configure Rule >](#)



Archiving from S3 to Glacier

Lifecycle Rules

Step 1: Choose Rule Target

Step 2: Configure Rule

Step 3: Review and Name

Lifecycle rules will help you manage your storage costs by controlling the lifecycle of your objects. Create Lifecycle rules to automatically transition your objects to the Standard - Infrequent Access Storage Class, archive them to the Glacier Storage Class, and remove them after a specified time period.

Choose different options below to see what works best for your use case. No rule will take effect until you activate them at the end of this wizard.

Action on Objects

Transition to the Standard - Infrequent Access Storage Class 45 Days after the object's creation date

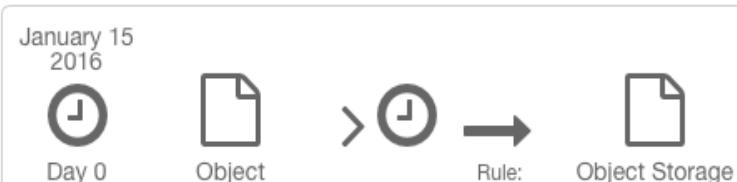
Standard - Infrequent Access has a 30-day minimum retention period and a 128KB minimum object size. Lifecycle policy will not transition objects that are less than 128KB. Refer [here](#) to learn more about Standard - Infrequent Access.

Archive to the Glacier Storage Class 45 Days after the object's creation date

This rule could reduce your storage costs. Refer [here](#) to learn more about Glacier pricing. Note that objects archived to the Glacier Storage Class are [not immediately accessible](#).

Permanently Delete 45 Days after the object's creation date

EXAMPLE:



Cancel

< Set Target

Review >

Archiving from S3 to Glacier

Lifecycle Rules X

Step 1: Choose Rule Target
Step 2: Configure Rule
Step 3: Review and Name

Rule Name
Choose a descriptive name for your rule so you can easily identify it in the future. If you do not want to enter a name now, we will generate one for you.

Rule Name: (Optional)

Rule Target [Edit](#)
This rule will apply to the whole bucket: **mydbucket**

Rule Configuration [Edit](#)

Action on Objects

Archive to the Glacier Storage Class **45** days after the object's creation date.
This rule could reduce your storage costs. Refer [here](#) to learn more about Glacier pricing. Note that objects archived to the Glacier Storage Class are **not immediately accessible**.

[Cancel](#) [< Configure Rule](#) **Create and Activate Rule**



Archiving from S3 to Glacier

Upload Create Folder Actions ▾

All Buckets / mydcbucket

	Name	Storage Class	Size	Last Modified
	Logs	--	--	--
	Static web data	--	--	--
	Test	--	--	--

Search by prefix None Properties Transfers

Logging

- Events
- Versioning
- Lifecycle

You can manage the lifecycle of objects by using Lifecycle rules. Lifecycle rules enable you to automatically transition objects to the Standard - Infrequent Access Storage Class, and/or archive objects to the Glacier Storage Class, and/or remove objects after a specified time period. Rules are applied to all the objects that share the specified prefix.

Versioning is not currently enabled on this bucket.

You can use Lifecycle rules to manage all versions of your objects. This includes both the Current version and Previous versions.

Enabled	Name	Rule Target
<input checked="" type="checkbox"/>	archive45	Whole Bucket

Add rule

Save Cancel



Auto Scaling

Auto Scaling Procedure

The screenshot shows the AWS Auto Scaling Launch Configuration page. The left sidebar lists various AWS services, with 'Launch Configurations' under 'AUTO SCALING' highlighted. The main content area has tabs for 'Create launch configuration', 'Create Auto Scaling group', and 'Actions'. A table displays one launch configuration:

Name	AMI ID	Instance Type	Creation Time
avk-as1	ami-775e4f16	t2.micro	January 14, 2016 12:57:33 AM ...

Below the table, the 'Launch Configuration: avk-as1' section shows detailed settings:

AMI ID	ami-775e4f16	Instance Type	t2.micro
IAM Instance Profile		Kernel ID	
Key Name	mydc	Monitoring	true
EBS Optimized	false	Security Groups	sg-b96c8ade
Spot Price		Creation Time	Thu Jan 14 00:57:33 GMT+530 2016
RAM Disk ID		Block Devices	/dev/sda1
User data	-	IP Address Type	Only assign a public IP address to instances launched in the default VPC and subnet. (default)

Buttons for 'Copy launch configuration' and three small icons are also present.

First create Launch configuration, here you choose the instance type (like launching a new instance) that needs to be launched if auto-scaling is triggered

Basically every instance launched will be of the specs you define here under launch configuration

Auto Scaling Procedure

AWS Services Edit Ananth | Oregon | Support

1. Configure Auto Scaling group details 2. Configure scaling policies 3. Configure Notifications 4. Configure Tags 5. Review

Create Auto Scaling Group Cancel and Exit

Launch Configuration (i) avk-as1

Group name (i) mydc-asgrp

Group size (i) Start with instances

Network (i) vpc-79b5b71c (192.168.0.0/16) | MyCloudDC C Create new VPC

Subnet (i) subnet-9f5c68e8(192.168.40.0/24) | sub4_private_snat | us-west-2a
subnet-4db7f514(192.168.30.0/24) | sub3_private_snat | us-west-2c

Create new subnet

⚠ No public IP addresses will be assigned

None of the instances in this Auto Scaling group will be assigned a public IP address because you have not chosen to launch in your default VPC and subnet.

Cancel Next: Configure scaling policies

Auto Scaling Procedure

The screenshot shows the AWS Auto Scaling 'Create Auto Scaling Group' wizard, Step 2: Configure scaling policies. The top navigation bar includes 'AWS', 'Services', 'Edit', 'Ananth', 'Oregon', and 'Support'. The steps are: 1. Configure Auto Scaling group details, 2. Configure scaling policies (highlighted), 3. Configure Notifications, 4. Configure Tags, 5. Review.

Create Auto Scaling Group

You can optionally add scaling policies if you want to adjust the size (number of instances) of your group automatically. A scaling policy is a set of instructions for making such adjustments in response to an Amazon CloudWatch alarm that you assign to it. In each policy, you can choose to add or remove a specific number of instances or a percentage of the existing group size, or you can set the group to an exact size. When the alarm triggers, it will execute the policy and adjust the size of your group accordingly. [Learn more about scaling policies.](#)

Keep this group at its initial size
 Use scaling policies to adjust the capacity of this group

Scale between and instances. These will be the minimum and maximum size of your group.

Increase Group Size

Name:

Execute policy when: awsec2-mydc-asgrp-High-CPU-Utilization [Edit](#) [Remove](#)
breaches the alarm threshold: CPUUtilization < 3 for 60 seconds
for the metric dimensions AutoScalingGroupName = mydc-asgrp

Take the action: instances >= CPUUtilization > -infinity

[Cancel](#) [Previous](#) [Review](#) [Next: Configure Notifications](#)

Auto Scaling Procedure

The screenshot shows the AWS Auto Scaling 'Create Auto Scaling Group' wizard, specifically Step 2: Configure scaling policies. The top navigation bar includes the AWS logo, Services, Edit, and user account information (Ananth, Oregon, Support). The wizard steps are numbered 1 through 5: 1. Configure Auto Scaling group details, 2. Configure scaling policies (which is active), 3. Configure Notifications, 4. Configure Tags, and 5. Review.

Create Auto Scaling Group

Instances need: seconds to warm up after each step

Create a simple scaling policy [\(i\)](#)

Decrease Group Size [\(X\)](#)

Name:

Execute policy when: awsec2-mydc-asgrp-High-CPU-Utilization [Edit](#) [Remove](#)
breaches the alarm threshold: CPUUtilization < 3 for 60 seconds
for the metric dimensions AutoScalingGroupName = mydc-asgrp

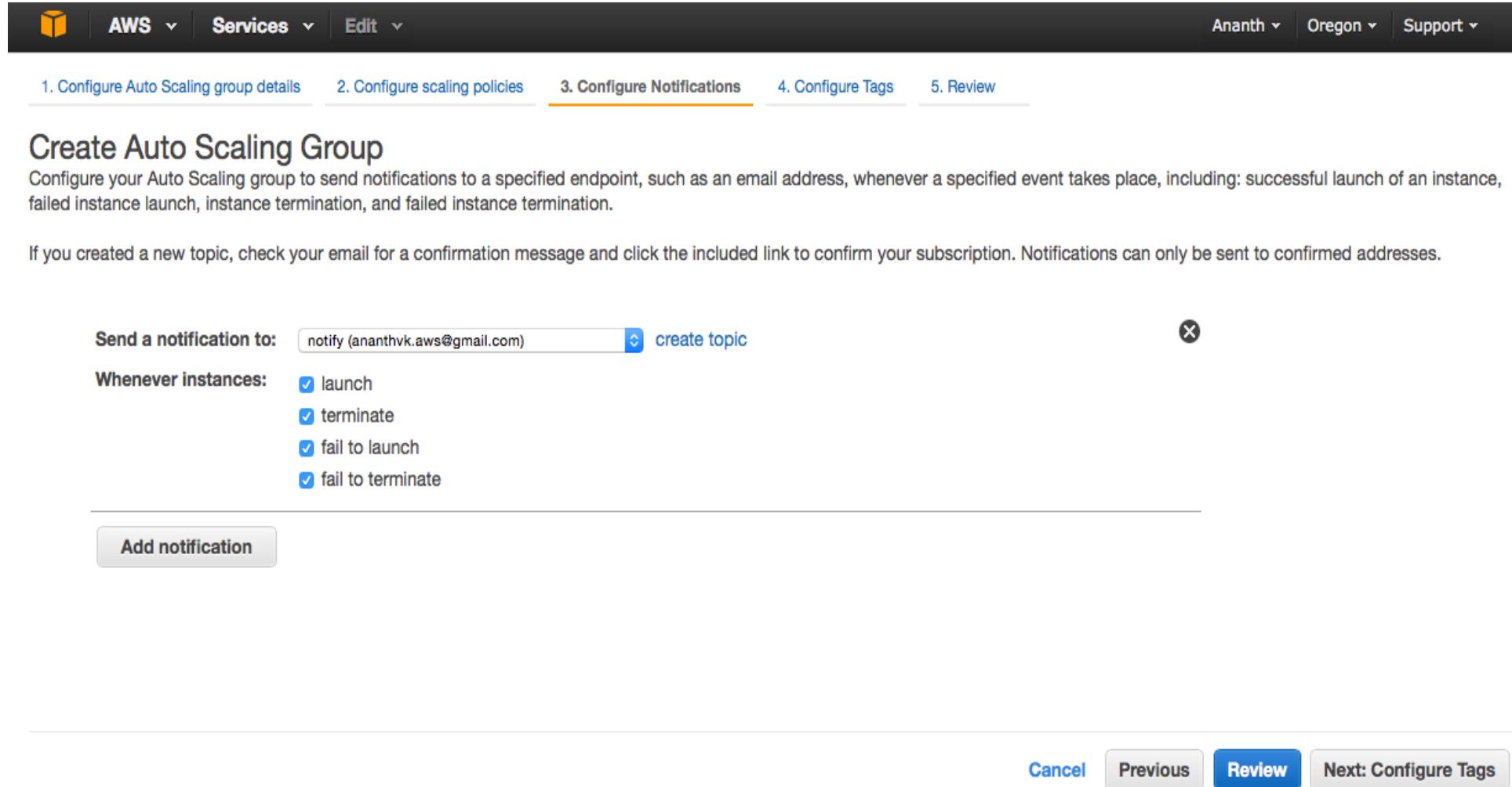
Take the action: instances >= CPUUtilization > -infinity

Add step [\(i\)](#)

Create a simple scaling policy [\(i\)](#)

Cancel [Previous](#) [Review](#) [Next: Configure Notifications](#)

Auto Scaling Procedure



The screenshot shows the AWS Auto Scaling 'Create Auto Scaling Group' wizard at step 3. The navigation bar includes 'AWS', 'Services', 'Edit', and user 'Ananth'. The steps are: 1. Configure Auto Scaling group details, 2. Configure scaling policies, 3. Configure Notifications (highlighted), 4. Configure Tags, 5. Review.

Create Auto Scaling Group

Configure your Auto Scaling group to send notifications to a specified endpoint, such as an email address, whenever a specified event takes place, including: successful launch of an instance, failed instance launch, instance termination, and failed instance termination.

If you created a new topic, check your email for a confirmation message and click the included link to confirm your subscription. Notifications can only be sent to confirmed addresses.

Send a notification to: notify (ananthvk.aws@gmail.com) [create topic](#) ×

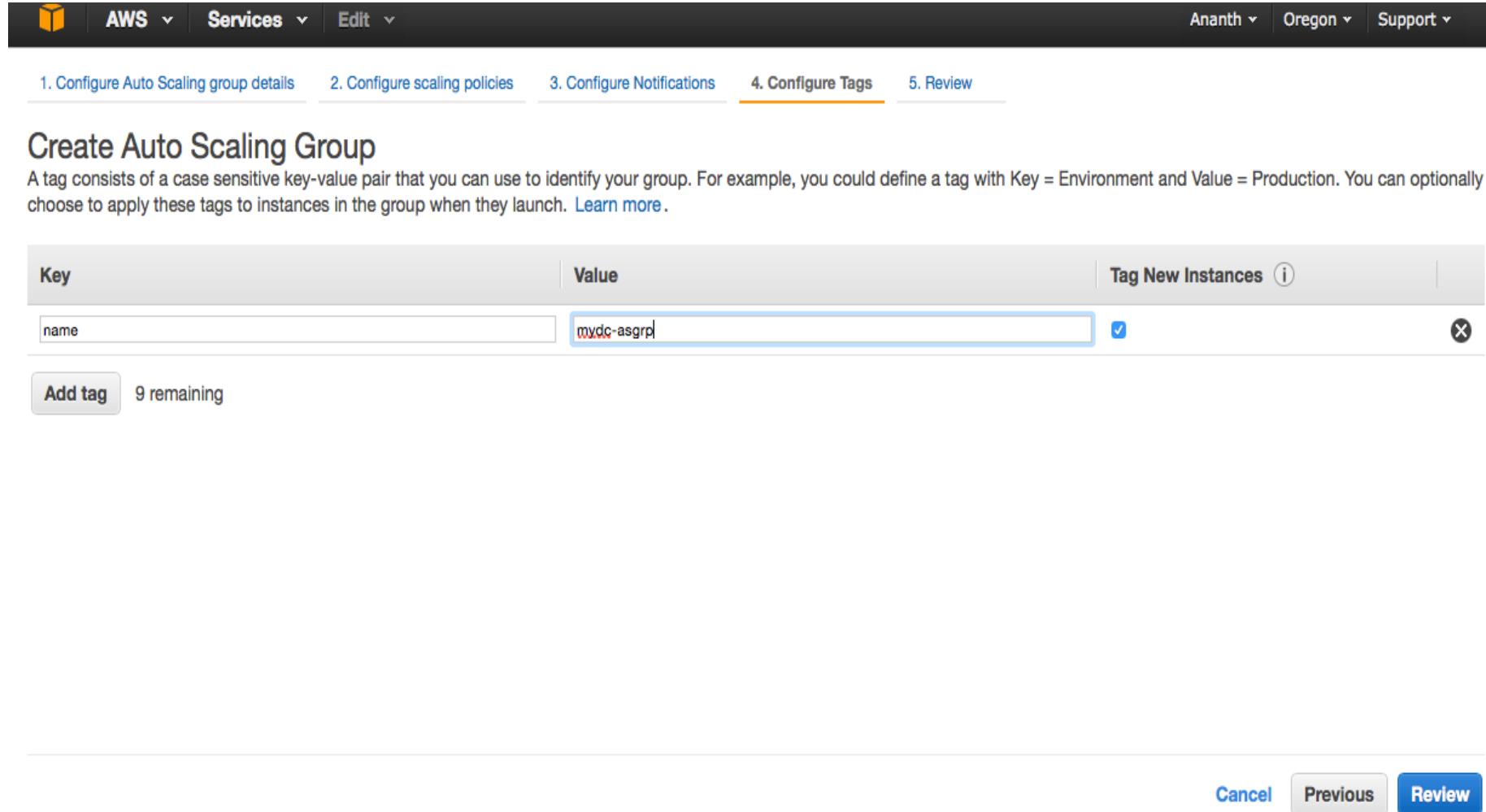
Whenever instances:

- launch
- terminate
- fail to launch
- fail to terminate

[Add notification](#)

[Cancel](#) [Previous](#) **Review** [Next: Configure Tags](#)

Auto Scaling Procedure



The screenshot shows the AWS Auto Scaling 'Create Auto Scaling Group' wizard at step 4: 'Configure Tags'. The top navigation bar includes 'AWS', 'Services', 'Edit', and user information 'Ananth', 'Oregon', 'Support'. Below the navigation is a progress bar with five steps: 1. Configure Auto Scaling group details, 2. Configure scaling policies, 3. Configure Notifications, 4. Configure Tags (which is active), and 5. Review. The main content area is titled 'Create Auto Scaling Group' and contains a note about tags: 'A tag consists of a case sensitive key-value pair that you can use to identify your group. For example, you could define a tag with Key = Environment and Value = Production. You can optionally choose to apply these tags to instances in the group when they launch.' A 'Learn more' link is provided. Below the note is a table for adding tags:

Key	Value	Tag New Instances <small>i</small>
name	mydc-asgrp	<input checked="" type="checkbox"/> X

Below the table are buttons for 'Add tag' and '9 remaining'. At the bottom right are 'Cancel', 'Previous', and a blue 'Review' button.

Auto Scaling Procedure

AWS Services Edit Ananth Oregon Support

1. Configure Auto Scaling group details 2. Configure scaling policies 3. Configure Notifications 4. Configure Tags 5. Review

Create Auto Scaling Group

Please review your Auto Scaling group details. You can go back to edit changes for each section. Click **Create Auto Scaling group** to complete the creation of an Auto Scaling group.

▼ Auto Scaling Group Details Edit details

Group name	mydc-asgrp
Group size	1
Minimum Group Size	1
Maximum Group Size	1
Subnet(s)	subnet-9f5c68e8,subnet-4db7f514
Health Check Grace Period	300
Detailed Monitoring	No
Instance Protection	None

▼ Scaling Policies Edit scaling policies

Increase Group Size With alarm = awsec2-mydc-asgrp-High-CPU-Utilization; Add 1 instances and 300 seconds for instances to warm up

Decrease Group Size With alarm = awsec2-mydc-asgrp-High-CPU-Utilization; Remove 1 instances

▼ Notifications Edit notifications

Cancel Previous **Create Auto Scaling group**

Auto Scaling Procedure



Auto Scaling group creation status

Successfully created Auto Scaling group

[View creation log](#)

▼ View

[View your Auto Scaling groups](#)

[View your launch configurations](#)

► Here are some helpful resources to get you started

[Close](#)

Auto Scaling Procedure

You are receiving this email because your Amazon CloudWatch Alarm "awsec2-mydc-asgrp-High-CPU-Utilization" in the US-West-2 region has entered the ALARM state, because "Threshold Crossed: 1 datapoint (0.17) was less than the threshold (3.0)." at "Monday 18 January, 2016 17:14:43 UTC".

View this alarm in the AWS Management Console:

<https://console.aws.amazon.com/cloudwatch/home?region=us-west-2#s=Alarms&alarm=awsec2-mydc-asgrp-High-CPU-Utilization>

Alarm Details:

- Name: awsec2-mydc-asgrp-High-CPU-Utilization
- Description:
- State Change: OK -> ALARM
- Reason for State Change: Threshold Crossed: 1 datapoint (0.17) was less than the threshold (3.0).
- Timestamp: Monday 18 January, 2016 17:14:43 UTC
- AWS Account: 777255314146

Threshold:

- The alarm is in the ALARM state when the metric is LessThanThreshold 3.0 for 60 seconds.

Monitored Metric:

- MetricNamespace: AWS/EC2
- MetricName: CPUUtilization
- Dimensions: [AutoScalingGroupName = mydc-asgrp]
- Period: 60 seconds
- Statistic: Average
- Unit: not specified

State Change Actions:

- OK:
- ALARM: [arn:aws:sns:us-west-2:777255314146:notify] [arn:aws:autoscaling:us-west-2:777255314146:scalingPolicy:256cf7e7-163f-422e-8957-68b13f3fdeec:autoScalingGroupName/mydc-asgrp:policyName/Decrease Group Size] [arn:aws:autoscaling:us-west-2:777255314146:scalingPolicy:c6afb2e4-8dde-4523-ab6d-1c09f9d5fde1:autoScalingGroupName/mydc-asgrp:policyName/Increase Group Size]
- INSUFFICIENT_DATA:



Auto Scaling Procedure

Create Alarm **Modify** **Copy** **Delete**

Filter: State is ALARM 1 to 1 of 1 Alarms

State	Name	Threshold	Config Status
<input checked="" type="checkbox"/> ALARM	awsec2-mydc-asgrp-High-CPU-Utilization	CPUUtilization < 3 for 1 minute	

Alarm:awsec2-mydc-asgrp-High-CPU-Utilization

Details **History**

State Details: State changed to ALARM at 2016/01/18. Reason: Threshold Crossed: 1 datapoint (0.17) was less than the threshold (3.0).

Description:

Threshold: CPUUtilization < 3 for 1 minute

Actions: In ALARM:

- Your Auto Scaling policy Decrease Group Size could not be found at this time. Please try reselecting this alarm. If the policy does not exist you may modify this alarm to set up a valid action.
- Send message to topic "notify" (ananthvk.aws@gmail.com)
- Your Auto Scaling policy Increase Group Size could not be found at this time. Please try reselecting this alarm. If the policy does not exist you may modify this alarm to set up a valid action.

Namespace: AWS/EC2

Metric Name: CPUUtilization

Dimensions: AutoScalingGroupName = mydc-asgrp

Statistic: Average

awsec2-mydc-asgrp-High-CPU-Uti...

CPUUtilization < 3

Time	CPUUtilization
1/18 15:00	45
1/18 16:00	0
1/18 17:00	0

RDS

RDS Build Procedure

AWS Services Edit Ananth | Oregon

RDS Dashboard Instances Reserved Purchases Snapshots Security Groups Parameter Groups Option Groups Subnet Groups Events Event Subscriptions Notifications

Create DB Subnet Group

To create a new Subnet Group give it a name, description, and select an existing VPC below. Once you select an existing VPC, you will be able to add subnets related to that VPC.

Name: mydbsubgrp Description: mydbgrp VPC ID: MyCloudDC (vpc-79b5b71c)

Add Subnet(s) to this Subnet Group. You may add subnets one at a time below or [add all the subnets](#) related to this VPC. You may make additions/edits after this group is created. A minimum of 2 subnets is required.

Availability Zone: us-west-2a Subnet ID: subnet-c3f2c7b4 (192.168.10.0/24) Add

Availability Zone	Subnet ID	CIDR Block	Action
us-west-2b	subnet-ea12028f	192.168.20.0/24	Remove
us-west-2a	subnet-c3f2c7b4	192.168.10.0/24	Remove

RDS Build Procedure

Network & Security



This instance will be created with the new Certificate Authority rds-ca-2015.
If you are using SSL to connect to this instance, you should use the [new certificate bundle](#). Learn more [here](#)

VPC* MyCloudDC (vpc-79b5b71c)

Subnet Group default-vpc-79b5b71c

Publicly Accessible Yes

Availability Zone us-west-2b

VPC Security Group(s)

- Create new Security Group
- avk_sub1_sg (VPC)
- avk_sub2_sg (VPC) (selected)
- avk_sub3_sg (VPC)

RDS Build Procedure

AWS Services Edit Ananth Oregon Support

Step 1: Select Engine

To get started, choose a DB Engine below and click Select.

Amazon Aurora	MySQL MySQL Community Edition	Select
MySQL		
MariaDB		
PostgreSQL		
ORACLE		
Microsoft SQL Server		

RDS Build Procedure

The screenshot shows the AWS RDS build procedure at Step 2: Production?. The left sidebar lists steps 1 through 4. The main area asks if the database is for production purposes, with options for Production or Dev/Test. The Production section shows Amazon Aurora as recommended, while the Dev/Test section shows MySQL as selected.

Step 1: Select Engine

Step 2: Production?

Step 3: Specify DB Details

Step 4: Configure Advanced Settings

Do you plan to use this database for production purposes?

Production

Amazon Aurora
Recommended
MySQL-compatible, enterprise-class database at 1/10th the cost of commercial databases.

MySQL
Use Multi-AZ Deployment and Provisioned IOPS Storage as defaults for high availability and fast, consistent performance.

Dev/Test

MySQL
This instance is intended for use outside of production or under the RDS Free Usage Tier.

Billing is based on [RDS pricing](#).

[Cancel](#) [Previous](#) **Next Step**

Please watch out for the RDS free tier note as per below

RDS Build Procedure

- ▶ Step 1: Select Engine
- Step 2: Production?
- Step 3: Specify DB Details**
- Step 4: Configure Advanced Settings

i Your current selection is eligible for the free tier.

[Learn More.](#)

i Estimate your monthly costs for the DB Instance using the [RDS Instance Cost Calculator](#).

Specify DB Details

Instance Specifications

DB Engine mysql

License Model general-public-license

DB Engine Version 5.6.23

 Review the [Known Issues/Limitations](#) to learn about potential compatibility issues with specific database versions.

DB Instance Class db.t2.micro – 1 vCPU, 1 GiB RAM

Multi-AZ Deployment No

Storage Type General Purpose (SSD)

Allocated Storage*

5 GB



Provisioning less than 100 GB of General Purpose (SSD) storage for high throughput workloads could result in higher latencies upon exhaustion of the initial General Purpose (SSD) IO credit balance. [Click here](#) for more details.

Select Yes to have Amazon RDS maintain a synchronous standby replica in a different Availability Zone than the DB instance. Amazon RDS will automatically fail over to the standby in the case of a planned or unplanned outage of the primary. [Learn More.](#)

RDS Build Procedure



Provisioning less than 100 GB of General Purpose (SSD) storage for high throughput workloads could result in higher latencies upon exhaustion of the initial General Purpose (SSD) IO credit balance.
[Click here](#) for more details.

Settings

DB Instance Identifier*

Master Username*

Master Password*

Confirm Password*

Retype the value you specified for Master Password.

* Required

[Cancel](#)

[Previous](#)

[Next Step](#)

RDS Build Procedure

- Step 1: Select Engine
- Step 2: Production?
- Step 3: Specify DB Details
- Step 4: Configure Advanced Settings**

Configure Advanced Settings

Network & Security

This instance will be created with the new Certificate Authority rds-ca-2015. If you are using SSL to connect to this instance, you should use the [new certificate bundle](#). Learn more [here](#).

VPC* MyCloudDC (vpc-79b5b71c)

Subnet Group mydbsubgrp

Publicly Accessible Yes

Availability Zone us-west-2b

VPC Security Group(s) Create new Security Group
avk_sub1_sg (VPC)
avk_sub2_sg (VPC)
avk_sub3_sg (VPC)

Database Options

Please note that db subnet group is a prerequisite for launching database

RDS Build Procedure

Database Name mydb1

Note: if no database name is specified then no initial MySQL database will be created on the DB Instance.

Database Port 3306

DB Parameter Group default.mysql5.6

Option Group default:mysql-5-6

Copy Tags To Snapshots

Enable Encryption No



The selected Engine or DB Instance Class does not support storage encryption.

Backup

Please note that automated backups are currently supported for InnoDB storage engine only. If you are using MyISAM, refer to detail [here](#).

Backup Retention Period 7 days

Backup Window No Preference

RDS Build Procedure

The screenshot shows the AWS VPC console. On the left, there's a sidebar with various network-related services: Your VPCs, Subnets, Route Tables, Internet Gateways, DHCP Options Sets, Elastic IPs, Endpoints, NAT Gateways, Peering Connections, Security, Network ACLs, Security Groups, VPN Connections, Customer Gateways, and Virtual Private Gateways. At the top, there are navigation links for AWS, Services, Edit, and user-specific options like Ananth, Oregon, and Support.

In the main area, a VPC named "MyCloudDC" is listed. The "Actions" dropdown menu is open, showing options: Delete VPC, Edit DHCP Options Set, Edit DNS Resolution, Edit DNS Hostnames (which is highlighted with a mouse cursor), and Create Flow Log. Below the table, there's a summary section for the VPC "vpc-79b5b71c (192.168.0.0/16) | MyCloudDC".

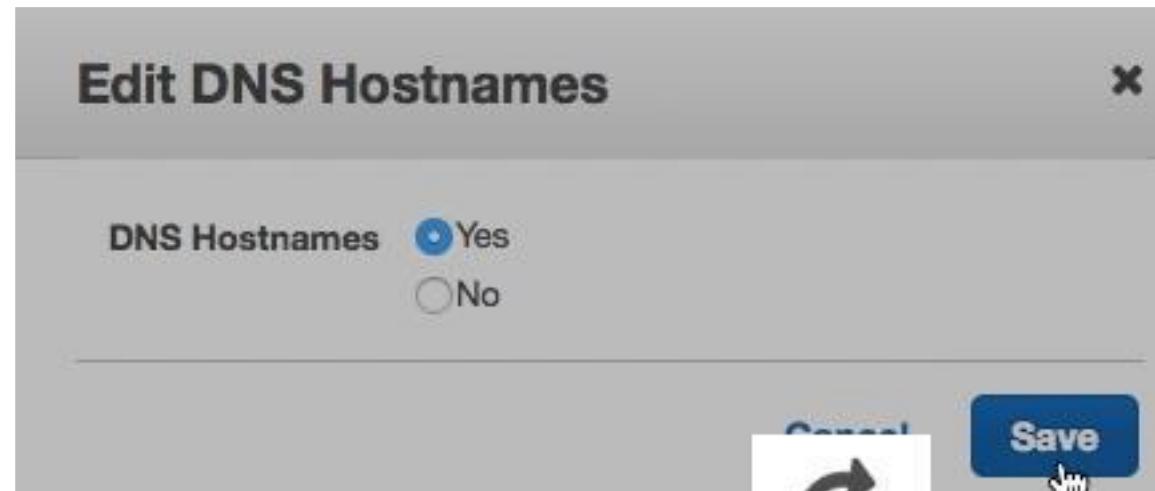
Name	State	VPC CIDR	DHCP options set	Route table	Network ACL	Tenancy
	available	172.31.0.0/16	dopt-c58e71a0	rtb-376a2952	acl-25205840	Default
	available	192.168.0.0/16	dopt-c58e71a0	rtb-806d74e5	acl-898388ec	Default

Summary **Flow Logs** **Tags**

VPC ID: vpc-79b5b71c | MyCloudDC **Network ACL:** acl-898388ec
State: available **Tenancy:** Default
VPC CIDR: 192.168.0.0/16 **DNS resolution:** yes
DHCP options set: dopt-c58e71a0 **DNS hostnames:** no
Route table: rtb-806d74e5 **ClassicLink DNS Support:** no

DNS hostname needs to be enabled for the VPC by going to the VPC

RDS Build Procedure



RDS Build Procedure

Create VPC Actions ▾

Search VPCs and their properties X

« « 1 to 2 of 1

Name	VPC ID	State	VPC CIDR	DHCP options set	Route table	Network ACL
vpc-e944018c	available	172.31.0.0/16	dopt-c58e71a0	rtb-376a2952	acl-25205840	
MyCloudDC	available	192.168.0.0/16	dopt-c58e71a0	rtb-806d74e5	acl-898388ec	

MyCloudDC (192.168.0.0/16) | MyCloudDC

Summary Flow Logs Tags

VPC ID: vpc-79b5b71c | MyCloudDC Network ACL: acl-898388ec
State: available Tenancy: Default
VPC CIDR: 192.168.0.0/16 DNS resolution: yes
DHCP options set: dopt-c58e71a0 DNS hostnames: yes
Route table: rtb-806d74e5 ClassicLink DNS Support: no

RDS Build Procedure

- Step 1: [Select Engine](#)
- Step 2: [Production?](#)
- Step 3: [Specify DB Details](#)
- Step 4: [Configure Advanced Settings](#)

 Your DB Instance is being created.

Note: Your instance may take a few minutes to launch.

Connecting to your DB Instance

You will be unable to connect to your database instance unless you have previously authorized access on your chosen security group.

[Go to the Security Groups Page](#)



Related AWS Services

Amazon ElastiCache

Add a managed Memcached or Redis-compatible in-memory cache to speed up your database access.

[Click here to learn more and launch your Cache Cluster](#)

[View Your DB Instances](#)

RDS Build Procedure

The screenshot shows the AWS RDS console interface. At the top, there are buttons for 'Launch DB Instance', 'Show Monitoring', and 'Instance Actions'. Below the header is a search bar labeled 'Search DB Instances...' and a status indicator 'Viewing 1 of 1 DB Instances'. The main table has columns for Engine, DB Instance, Status, CPU, Current Activity, Maintenance, Class, VPC, and Multi-AZ. A single row is displayed for a MySQL instance named 'mydb1', which is currently in the 'creating' state. The status bar at the bottom indicates 'Creating'.

When you create database, its first creating and then it becomes available

This screenshot shows the same AWS RDS console interface after some time. The MySQL instance 'mydb1' is now listed as 'available'. The status bar at the bottom indicates 'Available'.

The screenshot shows the monitoring section of the AWS RDS console. On the left, there are tabs for 'Alarms and Recent Events' and 'Monitoring'. The 'Alarms and Recent Events' tab lists four events: 'Backing up DB instance' (Jan 19 11:01 PM), 'DB instance created' (Jan 19 10:59 PM), and 'DB instance restarted' (Jan 19 10:59 PM). The 'Monitoring' tab displays real-time metrics for CPU, Memory, Storage, and Swap Usage. For CPU, the current value is 2.5% with a threshold of 10%. For Memory, the current value is 561 MB with a threshold of 1024 MB. For Storage, the current value is 4,540 MB with a threshold of 10240 MB. For Swap Usage, the current value is 0 MB.

RDS Build Procedure

The screenshot shows the MySQL Workbench interface. On the left, under 'MySQL Connections', there are two entries: 'dbinstconnect' (root user, mydbinst1...), which has a warning icon, and 'dbinstrconnect' (root user, mydbinst1...), which has a cursor icon indicating it is selected. A search bar at the top says 'Filter connections'. On the right, under 'Shortcuts', there are seven items: 'MySQL Utilities' (gear icon), 'Database Migration' (blue arrow icon), 'MySQL Bug Reporter' (red circle with bug icon), 'Workbench Blogs' (blue megaphone icon), 'Planet MySQL' (globe icon), 'Workbench Forum' (chat bubble icon), and 'Scripting Shell' (code icon). At the bottom left, under 'Models', there is a single entry: 'sakila_full' (with a file icon), which contains '...tents/Resources/.SharedSupport', 'sakila', and a timestamp '10 Dec 15, 19:25'.

Mysql workbench is a tool for connecting to the aws database from on premise

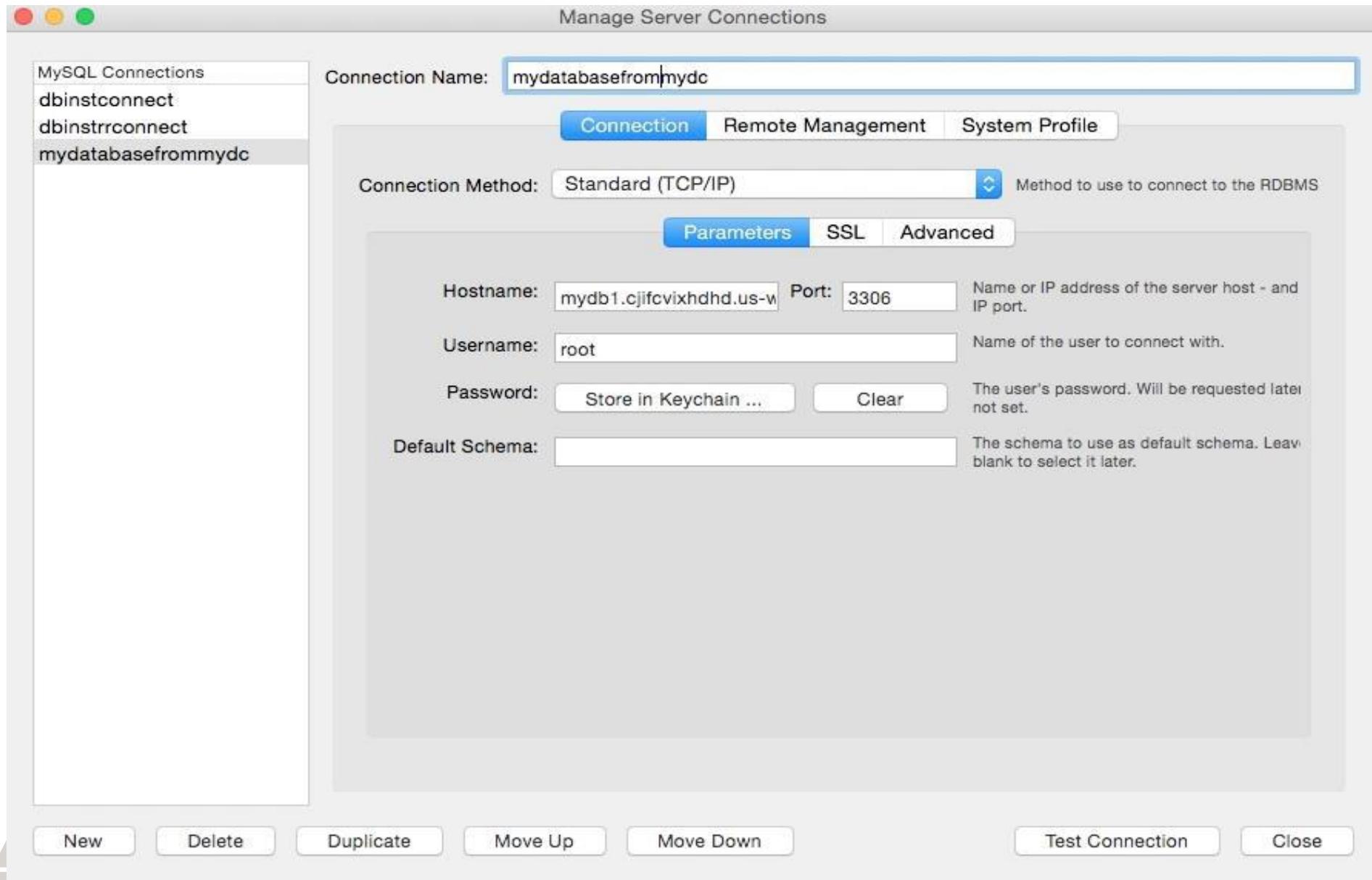
RDS Build Procedure

The screenshot shows the AWS VPC Dashboard with the 'Services' menu selected. In the center, the 'Create Security Group' button is highlighted. The main area displays a list of security groups, with one named 'sg-776e8810' selected. Below the list, the 'Inbound Rules' tab is active, showing three rules: SSH (22) allowing TCP port 22 from 0.0.0.0/0, MySQL/Aurora (3306) allowing TCP port 3306 from 0.0.0.0/0, and ALL ICMP allowing ICMP port ALL from 0.0.0.0/0. A cursor is hovering over the 'Save' button.

Type	Protocol	Port Range	Source	Remove
SSH (22)	TCP (6)	22	0.0.0.0/0	X
MySQL/Aurora (3306)	TCP (6)	3306	0.0.0.0/0	X
ALL ICMP	ICMP (1)	ALL	0.0.0.0/0	X

Create a security group to allow database ports

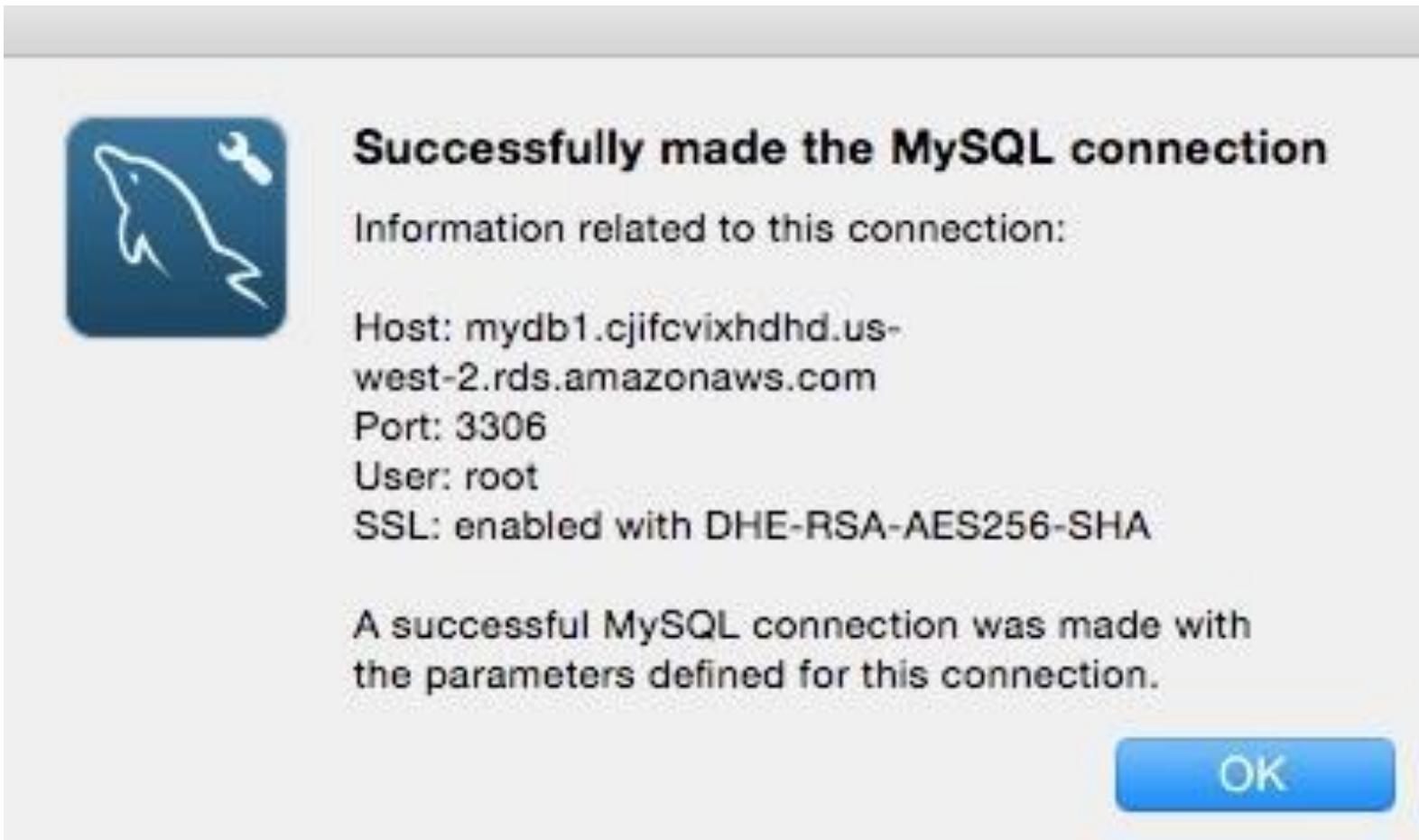
RDS Build Procedure



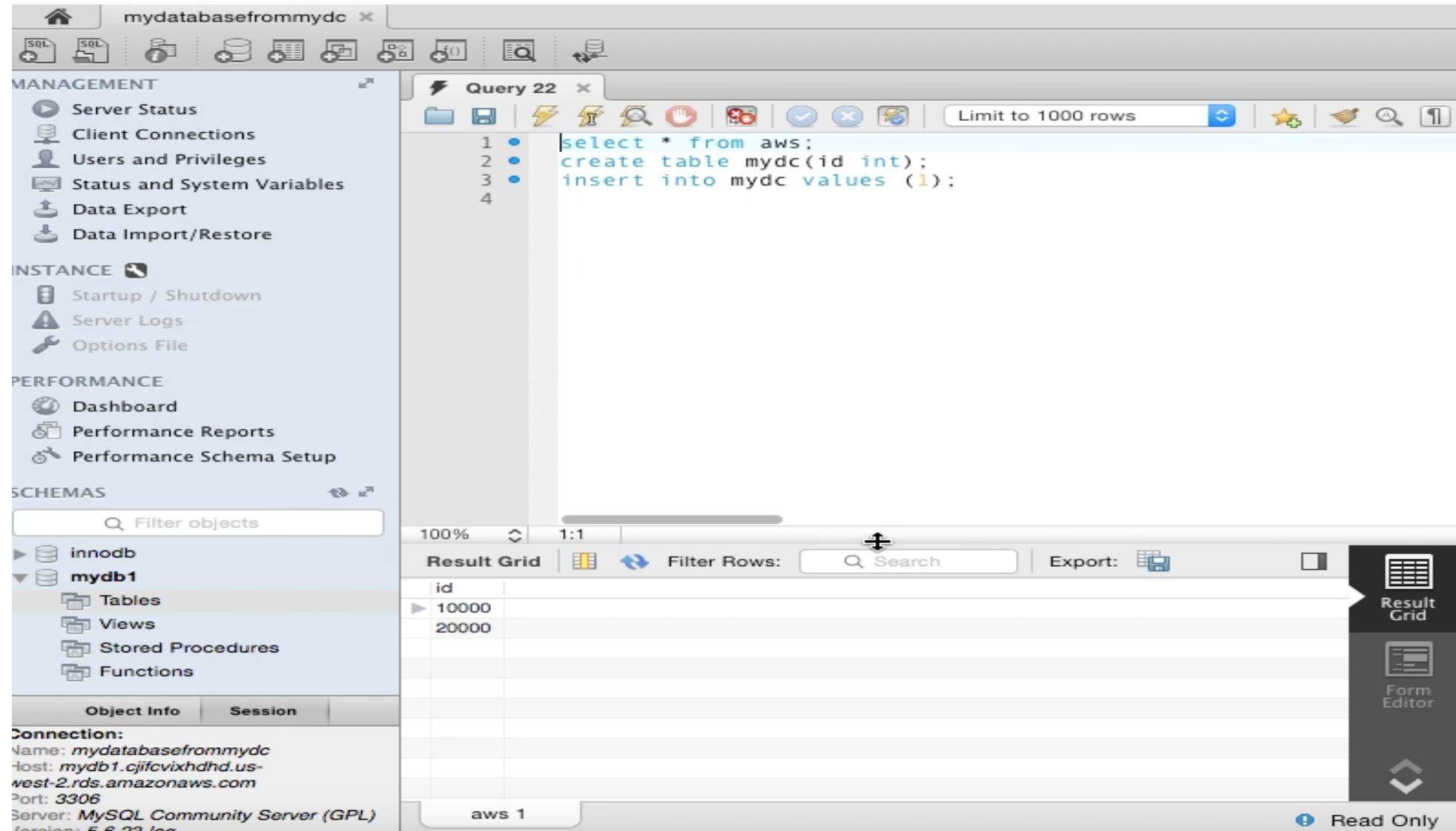
RDS Build Procedure



RDS Build Procedure



RDS Build Procedure



RDS Build Procedure

The screenshot shows the AWS RDS Dashboard. On the left, there's a sidebar with links like RDS Dashboard, Instances, Reserved Purchases, Snapshots, Security Groups, Parameter Groups, Option Groups, Subnet Groups, Events, Event Subscriptions, and Notifications. The main area has tabs for Launch DB Instance, Show Monitoring, and Instance Actions. A modal window titled "See Details" is open over the instance list, showing options: Create Read Replica (which is highlighted in orange), Promote Read Replica, Take Snapshot, Restore to Point in Time, and Migrate Latest Snapshot. Below this, there's a section for Alarms and Recent Events with a table:

TIME (UTC+5:30)	EVENT
Jan 19 11:02 PM	Finished DB Instance backup
Jan 19 11:01 PM	Backing up DB instance
Jan 19 10:59 PM	DB instance created
Jan 19 10:59 PM	DB instance restarted

At the bottom, there are buttons for Instance Actions, Tags, and Logs.

Creating a read replica is to mirror db in another AZ and make changes in master database and see if its replicated to backup

RDS Build Procedure

Instance Specifications

DB Instance Class

db.t2.micro — 1 vCPU, 1 GiB RAM

Storage Type

General Purpose (SSD)



Provisioning less than 100 GB of General Purpose (SSD) storage for high throughput workloads could result in higher latencies upon exhaustion of the initial General Purpose (SSD) IO credit balance. [Click here](#) for more details.

Settings

Read Replica Source

mydb1

DB Instance Identifier*

mydbrr

Network & Security

This instance will be created with the new Certificate Authority rds-ca-2015. If you are using SSL to connect to this instance, you should use the [new certificate bundle](#). Learn more [here](#)

RDS Build Procedure

Destination Region	US West (Oregon)
Destination DB Subnet Group	mydbsubgrp
Publicly Accessible	Yes
Availability Zone	No Preference

Database Options

Database Port 3306

Copy Tags To Snapshots

Monitoring

Enable Enhanced Monitoring No

Maintenance

Auto Minor Version Upgrade Yes

RDS Build Procedure

	Engine	DB Instance	Status	CPU	Current Activity	Maintenance	Class	VPC
	MySQL	mydb1	modifying	<div style="width: 0.83%;"><div style="width: 0.83%;"></div></div> 0.83%	<div style="width: 1%;"><div style="width: 1%;"></div></div> 1 Connections	None	db.t2.micro	MyCloudDC
	MySQL	mydbrr	creating			None	db.t2.micro	MyCloudDC

RDS Build Procedure

Launch DB Instance Show Monitoring Instance Actions

Filter: All Instances Search DB Instances... Viewing 2 of 2 DB Instances

	Engine	DB Instance	Status	CPU	Current Activity	Maintenance	Class	VPC	Multi-AZ
▶	MySQL	mydb1	available	<div style="width: 1.17%;">1.17%</div>	<div style="width: 0%;">0 Connections</div>	None	db.t2.micro	MyCloudDC	No
▼	MySQL	mydbrr	available	<div style="width: 0%;">0 Connections</div>	None	None	db.t2.micro	MyCloudDC	No

Endpoint: mydbrr.cjifcvixhdhd.us-west-2.rds.amazonaws.com:3306 (authorized) i

Alarms and Recent Events

TIME (UTC+5:30)	EVENT
Jan 19 11:37 PM	Replication for the Read Replica resumed
Jan 19 11:36 PM	Restored from snapshot

Monitoring

	CURRENT VALUE	THRESHOLD	LAST HOUR	CURRENT VALUE	LAST H
CPU	No Data	<div style="width: 0%; height: 10px;"></div>	<div style="width: 0%; height: 10px;"></div>	Read IOPS	6.36/sec
Memory	568 MB	<div style="width: 56.8%; height: 10px;"></div>	<div style="width: 0%; height: 10px;"></div>	Write IOPS	11.7/sec
Storage	4,540 MB	<div style="width: 45.4%; height: 10px;"></div>	<div style="width: 0%; height: 10px;"></div>	Swap Usage	0 MB

RDS Build Procedure

Setup New Connection

Connection Name: mydcdbreadreplica Type a name for the connection

Connection Method: Standard (TCP/IP) Method to use to connect to the RDBMS

Parameters **SSL** **Advanced**

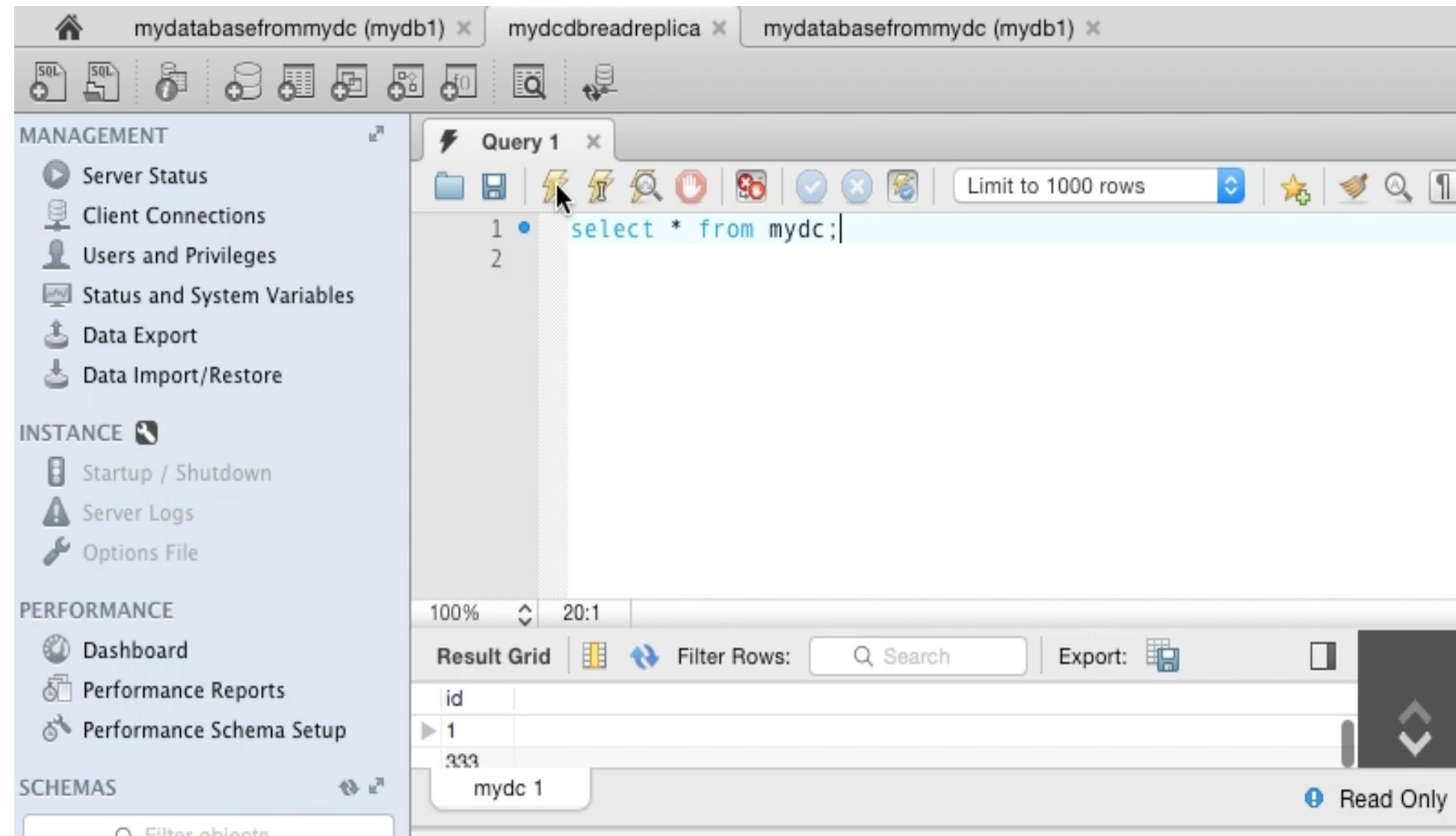
Hostname: mydbrr.cjifcvixhdhd.us-west-2.r Port: 3306 Name or IP address of the server host - and TCP/IP port.

Username: root Name of the user to connect with.

Password: The user's password. Will be requested later if it's not set.

Default Schema: The schema to use as default schema. Leave blank to select it later.

RDS Build Procedure



RDS Build Procedure

The screenshot shows the MySQL Workbench interface during a database build procedure. The left sidebar contains navigation panels for MANAGEMENT, INSTANCE, PERFORMANCE, SCHEMAS, and a central pane for Query Editor and Result Grid.

Management Panel:

- Server Status
- Client Connections
- Users and Privileges
- Status and System Variables
- Data Export
- Data Import/Restore

Instance Panel:

- Startup / Shutdown
- Server Logs
- Options File

Performance Panel:

- Dashboard
- Performance Reports
- Performance Schema Setup

Schemas Panel:

- innodb
- mydb1
 - Tables
 - aws
 - mydc
 - newtable
 - oldtable

Query Editor:

Query 1

```
1 • insert into mydc values (333);
2 • select * from mydc;
```

Result Grid:

id
1
333

SNS



SNS Enablement Procedure

The screenshot shows the AWS SNS Home page. The browser title bar reads "AWS SNS". The URL is "https://console.aws.amazon.com/sns/v2/home?region=ap-southeast-1#/home". The top navigation bar includes links for Bookmarks, Ultimatix - Get Conn, TCS MasterCraft Sust, RD Web Access, WebEx Meeting Cente, AWS Management Co, Cisco.com Login Page, vsme, and Other bookmarks. The AWS logo is on the left, followed by "AWS", "Services", and "Edit". On the right, there are dropdowns for "Ananth", "Singapore", and "Support".

SNS Home

Common actions

- Create Topic**
Create a communication channel to send messages and subscribe to notifications
- Create Platform Application**
Create a platform application for mobile devices
- Create Subscription**
Subscribe an endpoint to a topic to receive messages published to that topic
- Publish Message**
Publish a message to a topic or as a direct publish to a platform endpoint

Resources

You are using the following Amazon SNS resources in the ap-southeast-1 region:

Topic	0
Subscriptions	0
Applications	0
Endpoints	0

More info

[Getting Started](#)
[Documentation](#)
[API Reference](#)
[Forums](#)
[Service Health](#)

SNS Enablement Procedure

The screenshot shows a web browser window for the AWS SNS service. The URL in the address bar is <https://console.aws.amazon.com/sns/v2/home?region=ap-southeast-1#/home>. The browser's toolbar includes icons for back, forward, search, and refresh, along with a star for bookmarks and a menu icon. The main navigation bar at the top has links for AWS, Services, Edit, and user information (Ananth, Singapore, Support). On the left, there is a sidebar with links for SNS Home, Topics, Applications, and Subscriptions. A modal dialog box titled "Create new topic" is open in the center. It contains two input fields: "Topic name" with the value "Test" and "Display name" with the value "notify". Below the inputs is a note: "A topic name will be used to create a permanent unique identifier called an Amazon Resource Name (ARN)". At the bottom of the dialog are "Cancel" and "Create topic" buttons. The background of the page shows the SNS home interface with sections for publishing messages and viewing documentation.

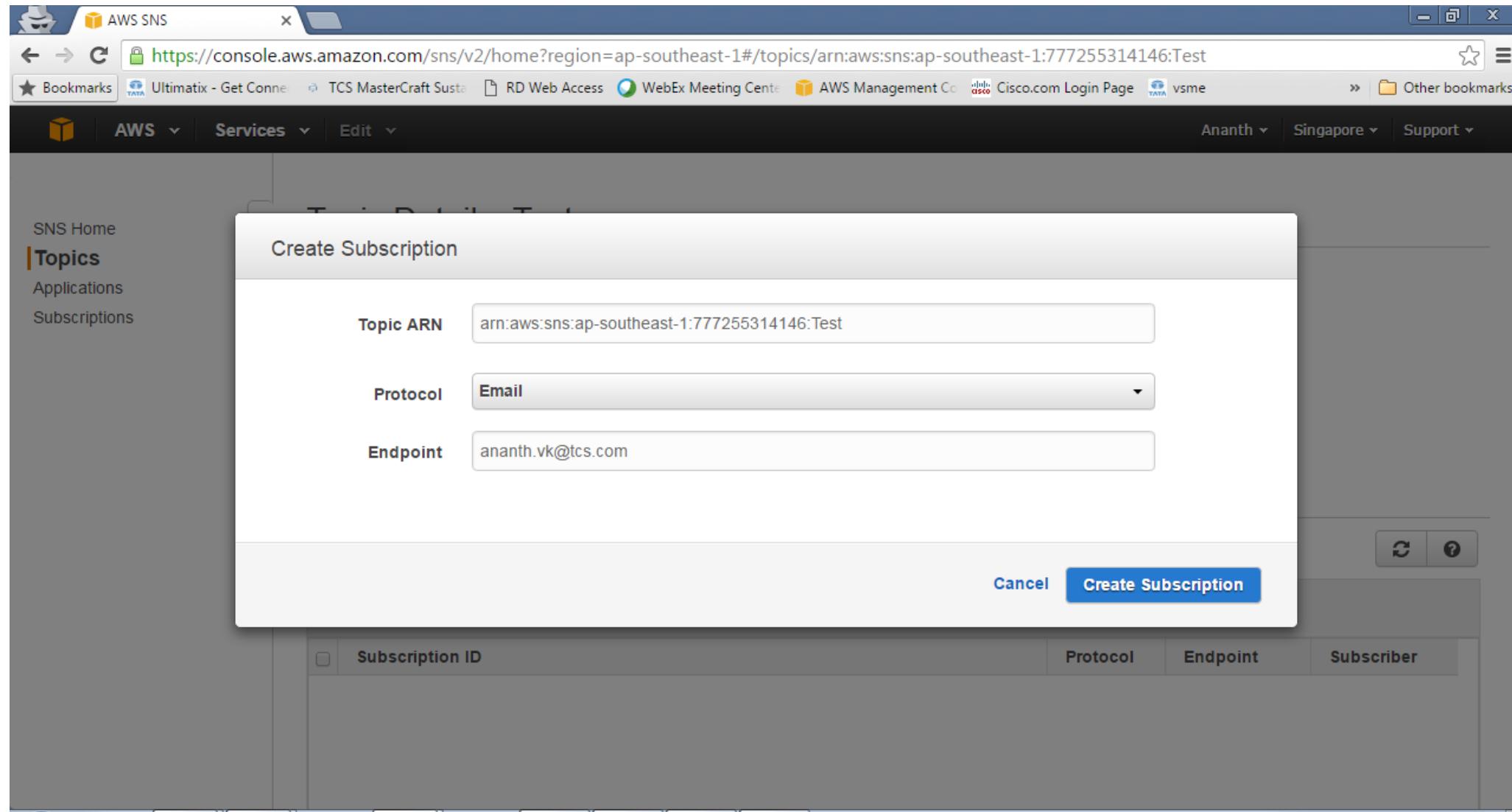


SNS Enablement Procedure

The screenshot shows the AWS SNS Topic Details page for a topic named "Test". The top navigation bar includes links for AWS Home, Services, and Edit. The left sidebar shows options for SNS Home, Topics (which is selected), Applications, and Subscriptions. The main content area displays the topic's ARN (arn:aws:sns:ap-southeast-1:777255314146:Test), owner (777255314146), region (ap-southeast-1), and display name (notify). Below this, the "Subscriptions" section is shown, featuring buttons for Create Subscription, Request confirmations, Confirm Subscription, and Other Subscription Actions. A "Filter" input field is also present.

Create subscription for choosing how and where notifications should go to

SNS Enablement Procedure



SNS Enablement Procedure

The screenshot shows the AWS SNS Topic Details page for a topic named "Test". The top navigation bar includes links for SNS Home, Topics, Applications, and Subscriptions. The main content area displays the topic's ARN, owner, region, and display name. Below this, a "Subscriptions" section lists a single pending confirmation subscription. The subscription details include the ID, protocol (email), endpoint (ananth.vk@tc...), and subscriber.

Subscription ID	Protocol	Endpoint	Subscriber
PendingConfirmation	email	ananth.vk@tc...	

A mail will be sent to the end point, once confirmed from end point, the subscription will change to confirmed

CLOUDTRAIL

Cloud Trail Enablement Procedure

The screenshot shows the AWS CloudTrail Management console with the URL <https://ap-southeast-1.console.aws.amazon.com/cloudtrail/home?region=ap-southeast-1#/subscribe>. The page is titled "Turn on CloudTrail".

Trail name*: Trailtest

Apply trail to all regions: Yes No

Create a new S3 bucket: Yes No

S3 bucket*: newtrail

Log file prefix: (empty)

Location: /AWSLogs/777255314146/CloudTrail/ap-southeast-1

Enable log file validation: Yes No

Send SNS notification for every log file delivery: Yes No

* Required field

Cancel Turn On

Learn more

Documentation
Forums
FAQs

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Cloud Trail Enablement Procedure

The screenshot shows the AWS CloudTrail Management console with the URL <https://ap-southeast-1.console.aws.amazon.com/cloudtrail/home?region=ap-southeast-1#/configuration>. The left sidebar has 'API activity history' and 'Trails' selected. The main content area is titled 'Trails' and contains a message about listing trails across regions. A blue button labeled '+ Add new trail' is visible. A table lists one trail: 'Trailtest' in the 'Asia Pacific (Singapore)' region, pointing to 'newtrail'. The table columns are Name, Region, S3 bucket, Log file prefix, and CloudWatch Logs Log group.

Name	Region	S3 bucket	Log file prefix	CloudWatch Logs Log group
Trailtest	Asia Pacific (Singapore)		newtrail	

Enabling cloud trail will help audit the activities done

TRUSTED ADVISOR



Trusted Advisor

The screenshot shows the Trusted Advisor Dashboard in the AWS Management Console. The dashboard is divided into four main sections: Cost Optimization, Performance, Security, and Fault Tolerance. Each section contains a summary icon, a status count (green checkmark for good, orange triangle for warning, red exclamation mark for critical), and a detailed list of recommended actions.

- Cost Optimization:** Summary icon of a money bag with a dollar sign. Status: 0 (green checkmark), 0 (orange triangle), 0 (red exclamation mark). Recommended Action: MFA on Root Account (Refreshed: 3 months ago).
- Performance:** Summary icon of a speedometer. Status: 1 (green checkmark), 0 (orange triangle), 0 (red exclamation mark). Recommended Action: Security Groups - Specific Ports Unrestricted (Refreshed: 3 months ago).
- Security:** Summary icon of a padlock. Status: 2 (green checkmark), 1 (orange triangle), 0 (red exclamation mark). Recommended Action: MFA on Root Account (Refreshed: 3 months ago).
- Fault Tolerance:** Summary icon of an umbrella. Status: 0 (green checkmark), 0 (orange triangle), 0 (red exclamation mark). Recommended Action: Security Groups - Specific Ports Unrestricted (Refreshed: 3 months ago).

Recommended Actions:

- MFA on Root Account** (Refreshed: 3 months ago)
Checks the root account and warns if multi-factor authentication (MFA) is not enabled.
MFA is not enabled on the root account. [To take action, go to the Identity and Access Management console.](#)
- Security Groups - Specific Ports Unrestricted** (Refreshed: 3 months ago)
Checks security groups for rules that allow unrestricted access (0.0.0.0/0) to specific ports.
0 of 9 security group rules allow unrestricted access to a specific port.

Trusted Advisor provides out of the box recommendations on cost, performance, security and fault tolerance

Thank You

