

## Homework 5

**Name: Pradeep Medagiri**

You are tasked to create an http load balancer (use ALB) with autoscaling function of virtual machines which have nginx webserver (just like we did in class) installed.

These are the requirements. If any names/requirements are not stated, you can select your own.

- Create a custom VPC in us-east1 and name it yourlastname-vpc
- Create 2 subnets of the VPC in different AZ.
  - Designed each subnet with the minimum block that can handle **20 hosts**.
  - Don't forget IG and RT.
  - Choose a different AZ for each subnet
  - The 2 subnets are for load balancing redundancy (improve availability).
  - Just put Auto-scaling group in just 1 of the subnets.
- Security group: allow ping, http, and ssh from everywhere
- Add the following in your nginx webserver:
  - "Your first and last name"
- Need nginx to start on boot
- Machine type: T2-micro
- OS: ubuntu
- AMI name: yourlastname-AMI
- Minimum instance: 2
- Desired 3
- Maximum instance: 4
- Use Average CPU Utilization : 60% for scaling policy
- Application Load balancer name: yourlastname-loadbalancer

What to submit:

1. The VPC CIDR block \_\_\_\_\_ (3) **10.0.0.0/16**

The screenshot shows the AWS Management Console interface for VPCs. The left sidebar lists various services under 'VIRTUAL PRIVATE CLOUD', including 'Your VPCs', 'Subnets', 'Route Tables', 'Internet Gateways', 'Egress Only Internet Gateways', 'Carrier Gateways', 'DHCP Options Sets', 'Elastic IPs', 'Managed Prefix Lists', 'Endpoints', 'Endpoint Services', 'NAT Gateways', and 'Peering Connections'. The main content area displays 'Your VPCs (1/2)' with a table listing VPCs. The selected VPC, 'medagiri-vpc', is highlighted. Below the table, the 'CIDRs' tab is active, showing the 'IPv4 CIDRs' section with a table listing the CIDR block '10.0.0.0/16' and its status 'Associated'.

Name	VPC ID	State	IPv4 CIDR
medagiri-vpc	vpc-0c8a19bcf34b4bf5	Available	10.0.0.0/16

CIDR	Status
10.0.0.0/16	Associated

2. Subnet 1 CIDR block \_\_\_\_\_ (3) **10.0.0.0/27**

The screenshot shows the AWS Management Console interface for Subnets. The left sidebar lists various services under 'VIRTUAL PRIVATE CLOUD', including 'Your VPCs', 'Subnets', 'Route Tables', 'Internet Gateways', 'Egress Only Internet Gateways', 'Carrier Gateways', 'DHCP Options Sets', 'Elastic IPs', 'Managed Prefix Lists', 'Endpoints', 'Endpoint Services', 'NAT Gateways', and 'Peering Connections'. The main content area displays 'Subnets' with a table listing subnets. The selected subnet, 'medagiri-subnet1', is highlighted. Below the table, the 'Description' tab is active, showing details for the subnet 'subnet-01e9c5958fd480bfa'.

Name	Subnet ID	State	VPC	IPv4 CIDR	Available IPv4	IPv6 CIDR
medagiri-subnet1	subnet-01e9c5958fd480bfa	available	vpc-0c8a19bcf34b4bf5	10.0.0.0/27	20	-

Property	Value
Subnet ID	subnet-01e9c5958fd480bfa
VPC	vpc-0c8a19bcf34b4bf5   medagiri-vpc
Available IPv4 Addresses	20
Availability Zone	us-east-1a (use1-az1)
Route Table	rtb-0c57c8eba100630b0   medagiri-RT
Default subnet	No
Auto-assign customer-owned IPv4 address	No
Auto-assign IPv6 address	No

### 3. Subnet 2 CIDR block \_\_\_\_\_ (3) 10.0.32.0/27

**Create subnet** Actions

Filter by tags and attributes or search by keyword

Name	Subnet ID	State	VPC	IPv4 CIDR	Available IPv4	IPv6 CIDR
medagiri-subnet1	subnet-01e9c5958fd480bfa	available	vpc-0c8a19bcf34b4fbf5   ...	10.0.0.0/27	20	-
<b>medagiri-subnet2</b>	<b>subnet-027e3b71031648be1</b>	<b>available</b>	<b>vpc-0c8a19bcf34b4fbf5   ...</b>	<b>10.0.32.0/27</b>	<b>26</b>	<b>-</b>
	subnet-68976459	available	vpc-0de31b70	172.31.48.0/20	4090	-
	subnet-d23a938d	available	vpc-0de31b70	172.31.32.0/20	4090	-
	subnet-d23a938d	available	vpc-0de31b70	172.31.16.0/20	4090	-

Subnet: subnet-027e3b71031648be1

Description | Flow Logs | Route Table | Network ACL | Tags | Sharing

Subnet ID	subnet-027e3b71031648be1	State	available
VPC	vpc-0c8a19bcf34b4fbf5   medagiri-vpc	IPv4 CIDR	10.0.32.0/27
Available IPv4 Addresses	26	IPv6 CIDR	-
Availability Zone	us-east-1b (use-1-az2)	Network Border Group	us-east-1
Route Table	rtb-0c57c8eba100630b0   medagiri-RT	Network ACL	acl-038f5eb85525ebd76
Default subnet	No	Auto-assign public IPv4 address	Yes
Auto-assign customer-owned IPv4 address	No	Customer-owned IPv4 pool	-
Auto-assign IPv6 address	No	Outpost ID	-

https://console.aws.amazon.com/vpc/home?region=us-east-1#vpcs:filter=... © 2008 - 2020, Amazon Web Services, Inc. or its affiliates. All rights reserved. Privacy Policy Terms of Use

### 4. The screenshot of the Security Group (3)

**Details**

Security group name launch-wizard-5	Security group ID sg-0cddb620c1c3f9227	Description launch-wizard-5 created 2020-10-05T14:36:59.218-05:00	VPC ID vpc-0c8a19bcf34b4fbf5
Owner 431429019981	Inbound rules count 3 Permission entries	Outbound rules count 1 Permission entry	

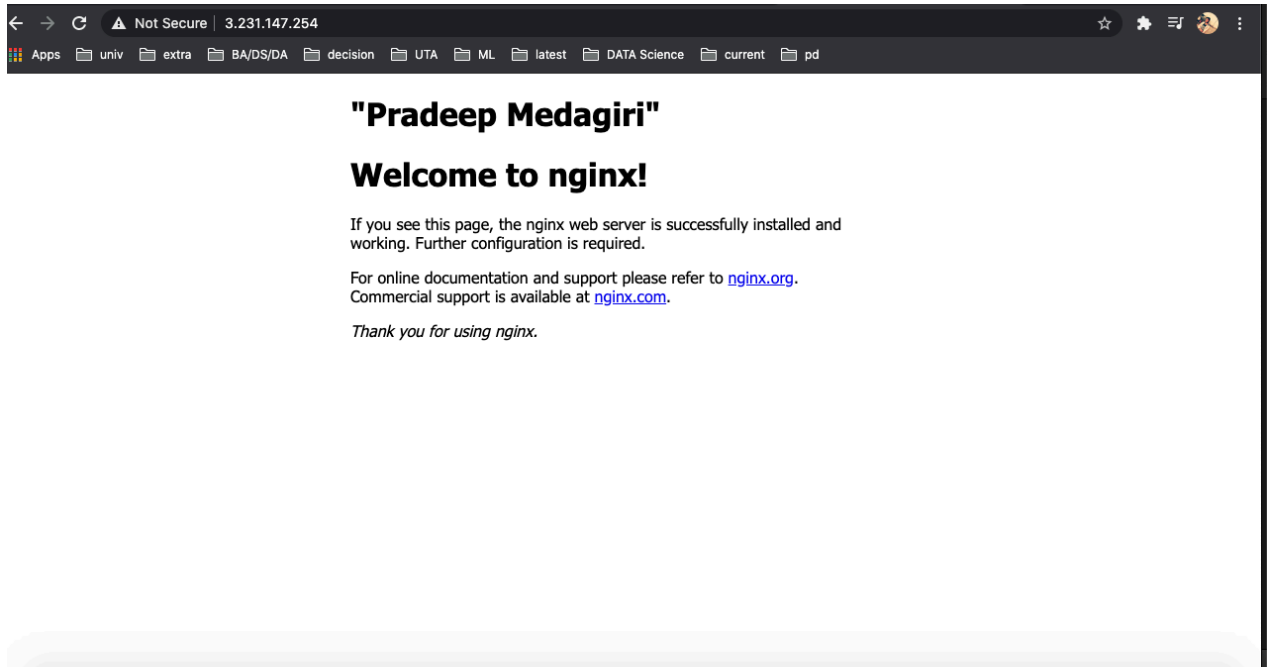
Inbound rules | Outbound rules | Tags

**Inbound rules** Edit inbound rules

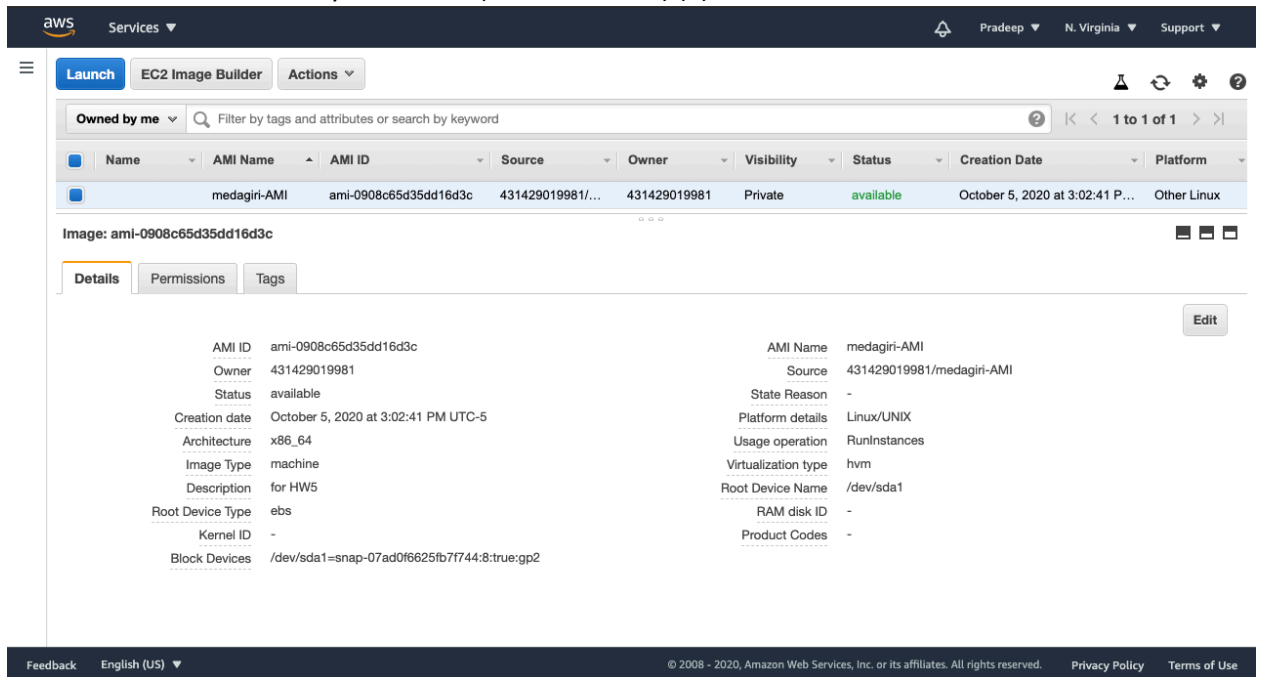
Type	Protocol	Port range	Source	Description - optional
HTTP	TCP	80	0.0.0.0/0	-
SSH	TCP	22	0.0.0.0/0	-
All ICMP - IPv4	ICMP	All	0.0.0.0/0	-

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5. The screenshot of the http call to the EC2 you will use for AMI creation(3)



6. The screenshot of the AMI you created (include Details) (5).



## 7. The screenshot of the Launch Template and its details (5)

The screenshot displays the 'Launch template details' page in the AWS Management Console. The page header includes the AWS logo, 'Services' dropdown, and user information (Pradeep, N. Virginia, Support). The main content area is titled 'Launch template details' and shows the following information:

- Launch template ID: lt-09dd3ee6b13c70aa2
- Launch template name: medagiri-LaunchTemplate
- Default version: 1
- Owner: arn:aws:iam::431429019981:root

Below this, there are tabs for 'Details', 'Versions', and 'Template tags'. The 'Details' tab is selected, showing 'Launch template version details' for version 1 (Default). The version details include:

- Description: for HW5
- Date created: 2020-10-05T20:48:01.000Z
- Created by: arn:aws:iam::431429019981:root

Further down, there are tabs for 'Instance details', 'Storage', 'Resource tags', 'Network interfaces', and 'Advanced details'. The 'Instance details' tab is selected, showing:

- AMI ID: ami-0908c65d35dd16d3c
- Instance type: t2.micro
- Availability Zone: -
- Key pair name: pradeep\_key

The footer of the console shows the URL 'https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#...', copyright information '© 2008 - 2020, Amazon Web Services, Inc. or its affiliates. All rights reserved.', and links for 'Privacy Policy' and 'Terms of Use'.

## 8. The screenshot of Auto-Scaling Group (5)

The screenshot displays the 'Auto Scaling groups' page in the AWS Management Console, specifically for the 'medagiri-ASG'. The page header includes the AWS logo, 'Services' dropdown, and user information (Pradeep, N. Virginia, Support). The breadcrumb navigation shows 'EC2 > Auto Scaling groups > medagiri-ASG'. The main content area has tabs for 'Details', 'Activity', 'Automatic scaling', 'Instance management', 'Monitoring', and 'Instance refresh'. The 'Details' tab is selected, showing 'Group details' with an 'Edit' button. The group details include:

- Desired capacity: 3
- Minimum capacity: 2
- Maximum capacity: 4
- Auto Scaling group name: medagiri-ASG
- Date created: Mon Oct 05 2020 15:49:53 GMT-0500 (Central Daylight Time)
- Amazon Resource Name (ARN): arn:aws:autoscaling:us-east-1:431429019981:autoScalingGroup:45516fe6-ba81-4382-a748-b9d53f52e72c:autoScalingGroupName/medagiri-ASG

Below the group details, there is a 'Launch template' section with an 'Edit' button. It shows the following information:

- Launch template: [medagiri-LaunchTemplate](#) (lt-09dd3ee6b13c70aa2)
- AMI ID: ami-0908c65d35dd16d3c
- Instance type: t2.micro
- Version: (not specified)
- Security groups: (not specified)
- Security group IDs: (not specified)

The footer of the console shows 'Feedback', 'English (US)' dropdown, copyright information '© 2008 - 2020, Amazon Web Services, Inc. or its affiliates. All rights reserved.', and links for 'Privacy Policy' and 'Terms of Use'.

## 9. The screenshot Load Balancer you created and its Description (5)

The screenshot shows the AWS Management Console interface for a Load Balancer. The top navigation bar includes the AWS logo, 'Services', and user information (Pradeep, N. Virginia, Support). The main content area has a 'Create Load Balancer' button and an 'Actions' dropdown. A search bar is present, and a table lists the Load Balancer 'medagiri-loadbalancer' with details like DNS name, State (active), VPC ID, Availability Zones, and Type (application). Below the table, the 'Load balancer: medagiri-loadbalancer' section is active, showing tabs for Description, Listeners, Monitoring, Integrated services, and Tags. The 'Description' tab is selected, displaying the 'Basic Configuration' section with the following details:

Property	Value
Name	medagiri-loadbalancer
ARN	arn:aws:elasticloadbalancing:us-east-1:431429019981:loadbalancer/app/medagiri-loadbalancer/26db9910f4b27ba1
DNS name	medagiri-loadbalancer-879491343.us-east-1.elb.amazonaws.com (A Record)
State	active
Type	application
Scheme	internet-facing
IP address type	ipv4

An 'Edit IP address type' button is located at the bottom of the configuration section. The footer contains 'Feedback', 'English (US)', and copyright information.

This screenshot shows the 'Security' and 'Attributes' sections of the Load Balancer 'medagiri-loadbalancer'. The 'Security' section displays the 'Security groups' as 'sg-0cddb620c1c3f9227, launch-wizard-5', with a note that 'launch-wizard-5' was created on 2020-10-05T14:36:59.218-05:00. An 'Edit security groups' button is provided. The 'Attributes' section lists various settings:

Attribute	Value
Deletion protection	Disabled
Idle timeout	60 seconds
HTTP/2	Enabled
Access logs	Disabled
Drop Invalid Header Fields	Disabled
Desync mitigation mode	Defensive

An 'Edit attributes' button is located at the bottom of the attributes section. The footer is identical to the previous screenshot.

10. Using the DNS Name, show the printout of the webpage (the screenshot must show the DNS name (5))

