AUTOSCALING AND LOAD BALANCING

1.Differences between ELB, ALB, and NLB. Where will you use which one?

Feature	ALB	NLB	ELB
Protocols	HTTP, HTTPS	TCP, TLS	TCP, SSL/TLS, HTTP, HTTPS
Platforms	VPC	VPC	EC2-Classic, VPC
Sticky sessions	YES	NO	YES
Static IP Support	NO	YES	NO
Native HTTP/2	YES	NO	NO

2.Differences between step scaling and target scaling.

Target Scaling With target tracking scaling policies, you select a scaling metric and set a target value. Amazon EC2 Auto Scaling creates and manages the CloudWatch alarms that trigger the scaling policy and calculates the scaling adjustment based on the metric and the target value. The scaling policy adds or removes capacity as required to keep the metric at, or close to, the specified target value. In addition to keeping the metric close to the target value, a target tracking scaling policy also adjusts to the changes in the metric due to a changing load pattern.

Step Scaling With step scaling, you choose scaling metrics and threshold values for the CloudWatch alarms that trigger the scaling process as well as define how your scalable target should be scaled when a threshold is in breach for a specified number of evaluation periods.

3.Differences between Launch configuration and launch template.

ANS : Launch template is similar to launch configuration which usually Auto Scaling group uses to launch EC2 instances. However, defining a launch template instead of a launch configuration allows you to have multiple versions of a template.

AWS recommends that we should use launch templates instead of launch configurations to ensure that we can leverage the latest features of Amazon EC2, such as T2 Unlimited instances.

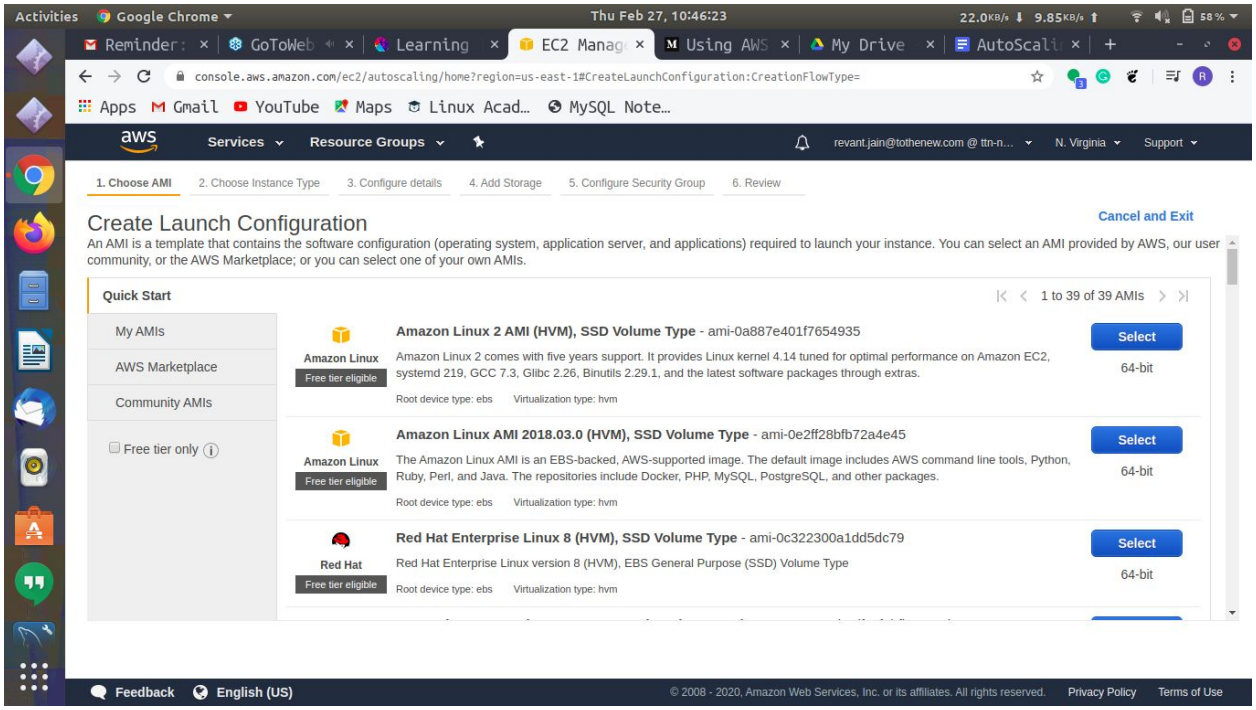
4.Differences between EC2 health check and load balancer health check

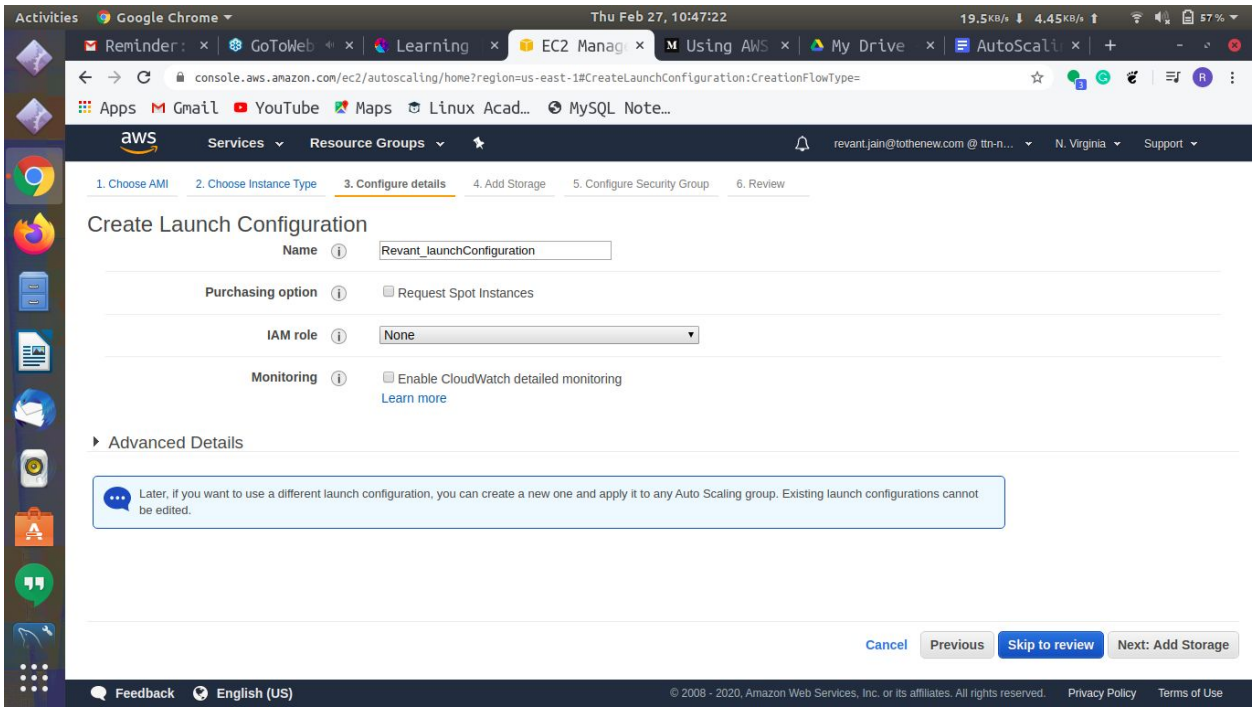
EC2 health check watches for instance availability from hypervisor and networking point of view. For example, in case of a hardware problem, the check will fail. Also, if an instance was misconfigured and doesn't respond to network requests, it will be marked as faulty.

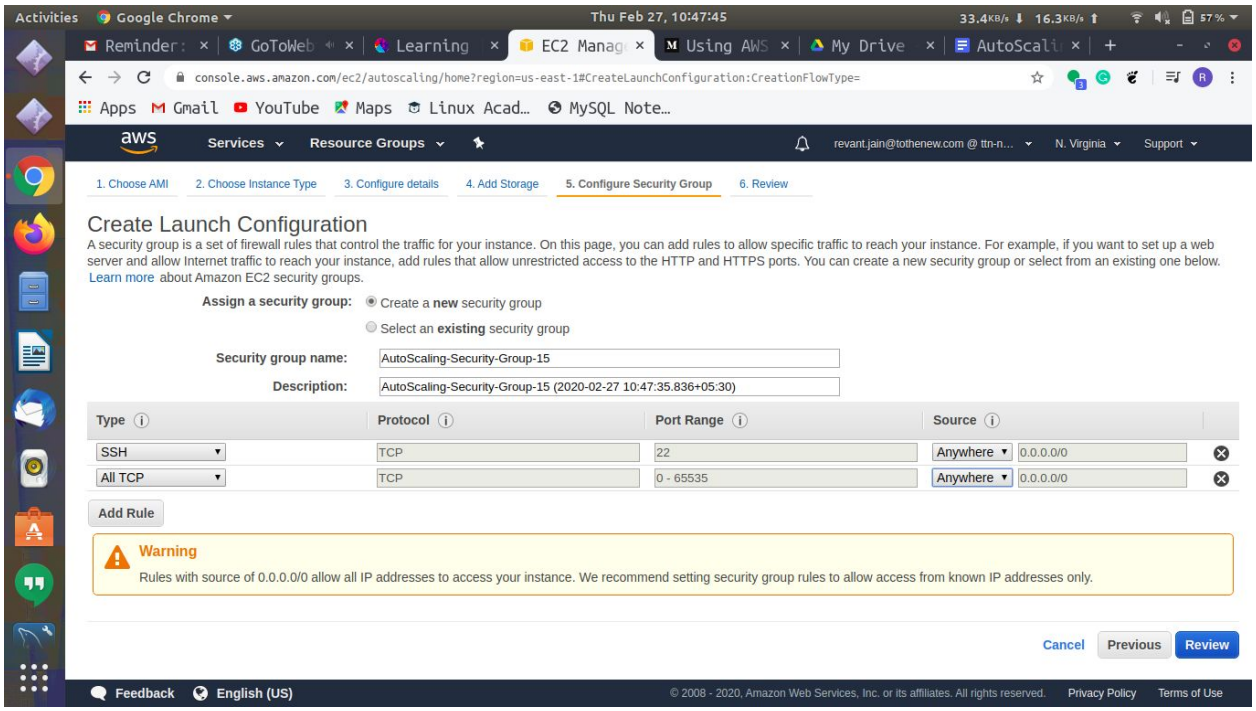
ELB health check verifies that a specified TCP port on an instance is accepting connections OR a specified web page returns 2xx code. Thus ELB health checks are a little bit smarter and verify that actual app works instead of verifying that just an instance works.

5.Create 2 auto-scaling groups with

- **launch configuration**






Activities
Google Chrome
Thu Feb 27, 10:47:45
console.aws.amazon.com/ec2/autoscaling/home?region=us-east-1#CreateLaunchConfiguration:CreationFlowType=
Services
Resource Groups
N. Virginia
Support
1. Choose AMI
2. Choose Instance Type
3. Configure details
4. Add Storage
5. Configure Security Group
6. Review
Create Launch Configuration
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:
AutoScaling-Security-Group-15
Description:
AutoScaling-Security-Group-15 (2020-02-27 10:47:35.836+05:30)
Type
Protocol
Port Range
Source
SSH
TCP
22
Anywhere
0.0.0.0/0
All TCP
TCP
0 - 65535
Anywhere
0.0.0.0/0
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
Feedback
English (US)
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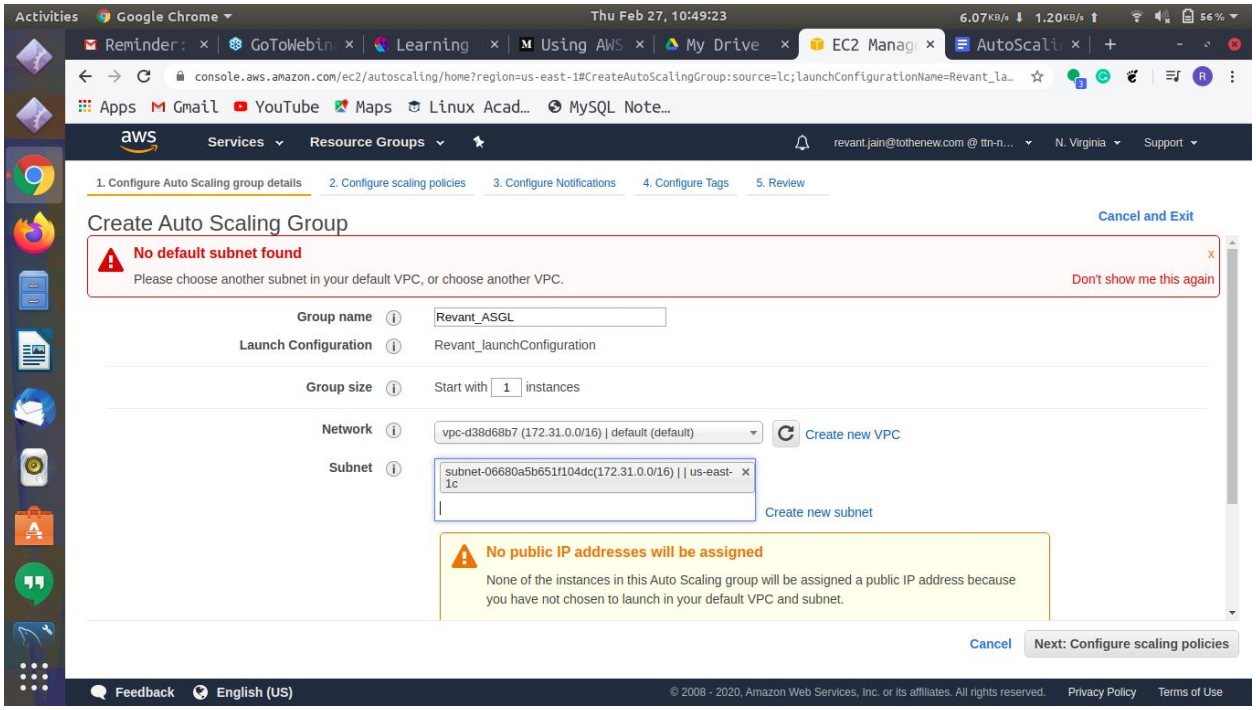
Activities
Google Chrome
Thu Feb 27, 10:49:23
console.aws.amazon.com/ec2/autoscaling/home?region=us-east-1#CreateAutoScalingGroup:source=lc;launchConfigurationName=Revant_la…
Services
Resource Groups
N. Virginia
Support
1. Configure Auto Scaling group details
2. Configure scaling policies
3. Configure Notifications
4. Configure Tags
5. Review
Create Auto Scaling Group
Cancel and Exit
No default subnet found
Please choose another subnet in your default VPC, or choose another VPC.
Don't show me this again
Group name
Revant_ASGL
Launch Configuration
Revant_launchConfiguration
Group size
Start with 1 instances
Network
vpc-d38d68b7 (172.31.0.0/16) | default (default)
Create new VPC
Subnet
subnet-06680a5b651f104dc(172.31.0.0/16) | | us-east-1c
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
Feedback
English (US)
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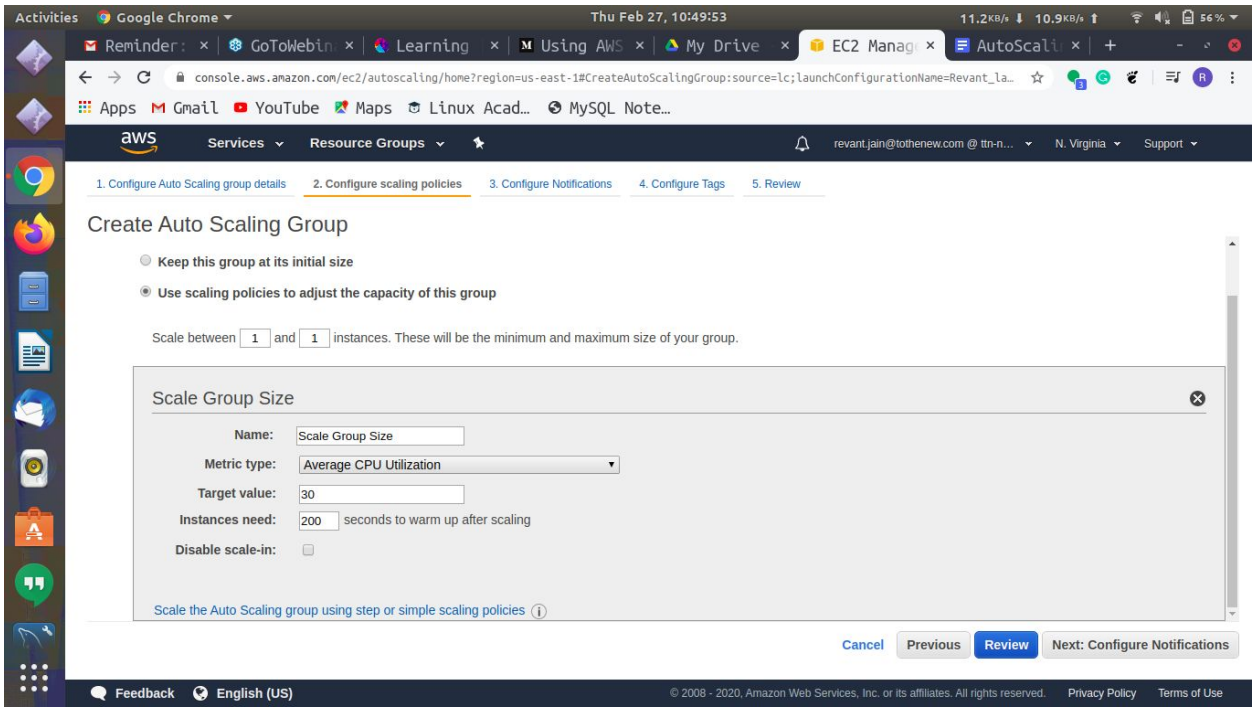
Activities
Google Chrome
Thu Feb 27, 10:49:53
console.aws.amazon.com/ec2/autoscaling/home?region=us-east-1#CreateAutoScalingGroup:source=lc;launchConfigurationName=Revant_la...
Apps
Gmail
YouTube
Maps
Linux Acad...
MySQL Note...
aws
Services
Resource Groups
revant.jain@tothenew.com @ ttn-n...
N. Virginia
Support
1. Configure Auto Scaling group details
2. Configure scaling policies
3. Configure Notifications
4. Configure Tags
5. Review
Create Auto Scaling Group
Keep this group at its initial size
Use scaling policies to adjust the capacity of this group
Scale between 1 and 1 instances. These will be the minimum and maximum size of your group.
Scale Group Size
Name: Scale Group Size
Metric type: Average CPU Utilization
Target value: 30
Instances need: 200 seconds to warm up after scaling
Disable scale-in:
Scale the Auto Scaling group using step or simple scaling policies
Cancel
Previous
Review
Next: Configure Notifications
Feedback
English (US)
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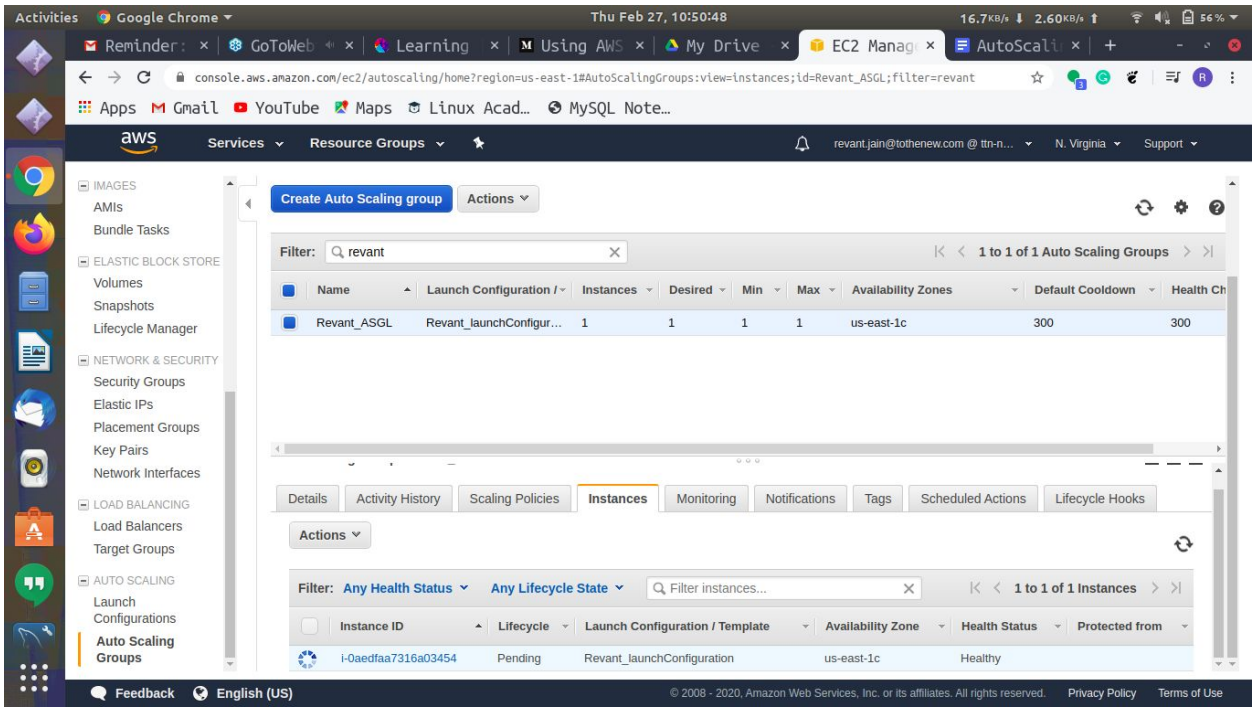
Activities
Google Chrome
Thu Feb 27, 10:50:48
console.aws.amazon.com/ec2/autoscaling/home?region=us-east-1#AutoScalingGroups:view=instances;id=Revant_ASGL;filter=revant
Apps
Gmail
YouTube
Maps
Linux Acad...
MySQL Note...
aws
Services
Resource Groups
revant.jain@tothenew.com @ ttn-n...
N. Virginia
Support
IMAGES
AMIs
Bundle Tasks
ELASTIC BLOCK STORE
Volumes
Snapshots
Lifecycle Manager
NETWORK & SECURITY
Security Groups
Elastic IPs
Placement Groups
Key Pairs
Network Interfaces
LOAD BALANCING
Load Balancers
Target Groups
AUTO SCALING
Launch Configurations
Auto Scaling Groups
Create Auto Scaling group
Actions
Filter: revant
1 to 1 of 1 Auto Scaling Groups
Name
Launch Configuration /
Instances
Desired
Min
Max
Availability Zones
Default Cooldown
Health Ch
Revant_ASGL
Revant_launchConfigur...
1
1
1
1
us-east-1c
300
300
Details
Activity History
Scaling Policies
Instances
Monitoring
Notifications
Tags
Scheduled Actions
Lifecycle Hooks
Actions
Filter: Any Health Status
Any Lifecycle State
Filter instances...
1 to 1 of 1 Instances
Instance ID
Lifecycle
Launch Configuration / Template
Availability Zone
Health Status
Protected from
i-0aedfaa7316a03454
Pending
Revant_launchConfiguration
us-east-1c
Healthy
Feedback
English (US)
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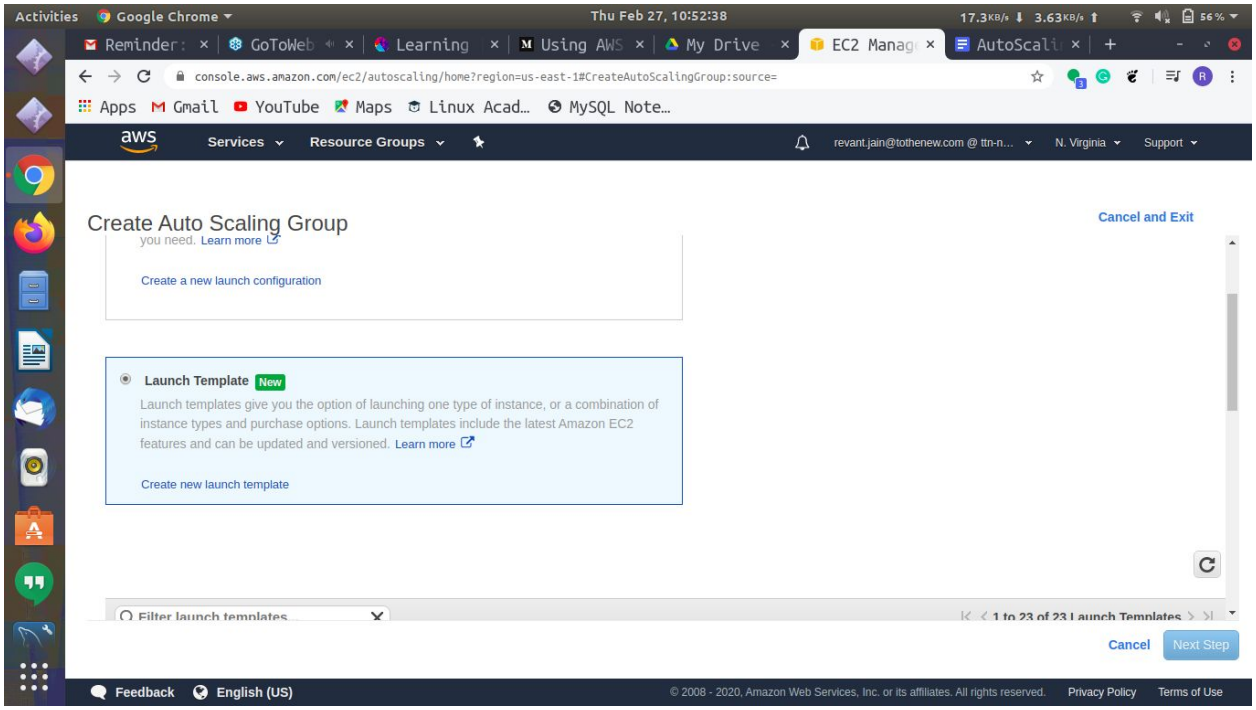
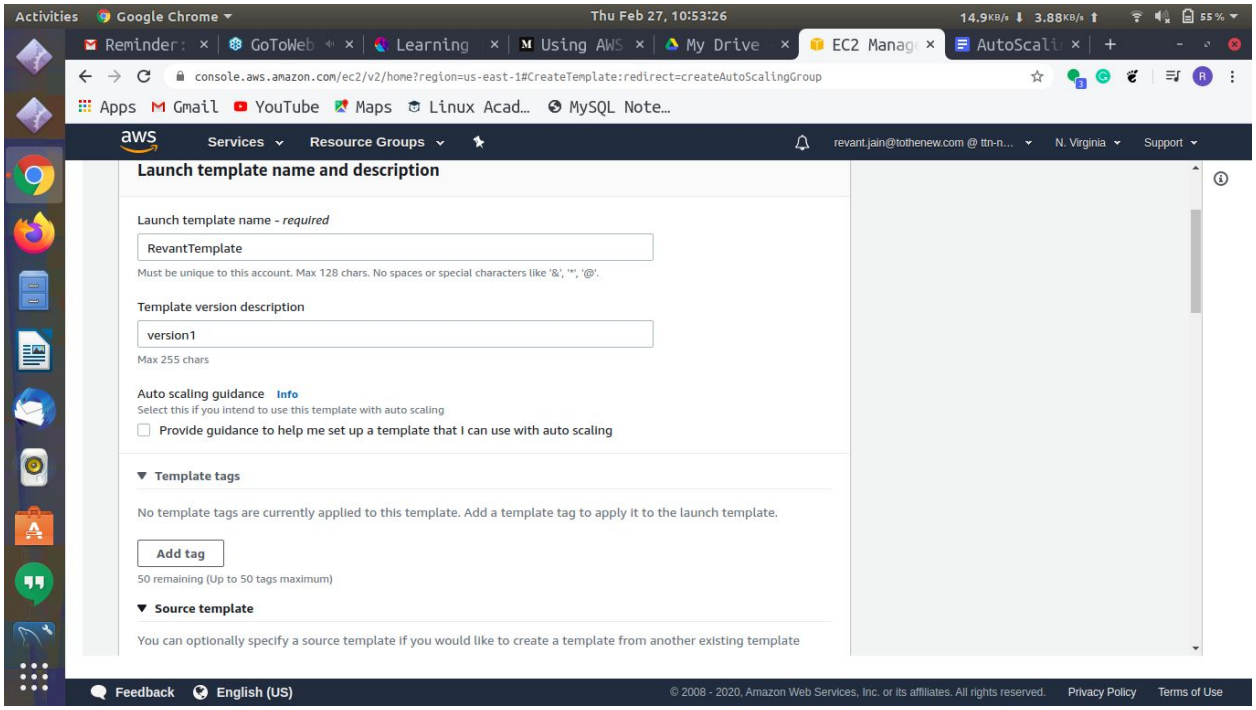
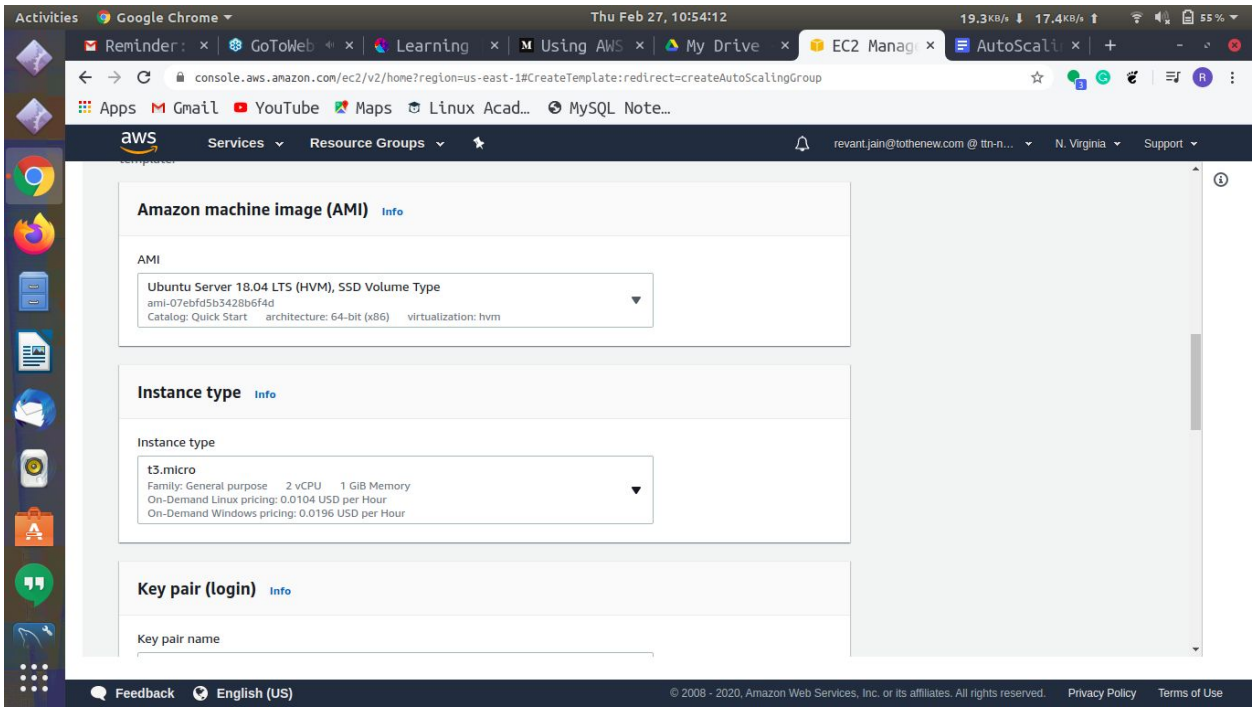
Launch template






Activities
Google Chrome
Thu Feb 27, 10:54:12
console.aws.amazon.com/ec2/v2/home?region=us-east-1#CreateTemplate:redirect=createAutoScalingGroup
Apps
Gmail
YouTube
Maps
Linux Acad...
MySQL Note...
aws
Services
Resource Groups
revant.jain@tothenew.com @ ttn-n...
N. Virginia
Support
Amazon machine image (AMI) Info
AMI
Ubuntu Server 18.04 LTS (HVM), SSD Volume Type
ami-07ebfd5b3428b6f4d
Catalog: Quick Start architecture: 64-bit (x86) virtualization: hvm
Instance type Info
Instance type
t3.micro
Family: General purpose 2 vCPU 1 GiB Memory
On-Demand Linux pricing: 0.0104 USD per Hour
On-Demand Windows pricing: 0.0196 USD per Hour
Key pair (login) Info
Key pair name
Feedback
English (US)
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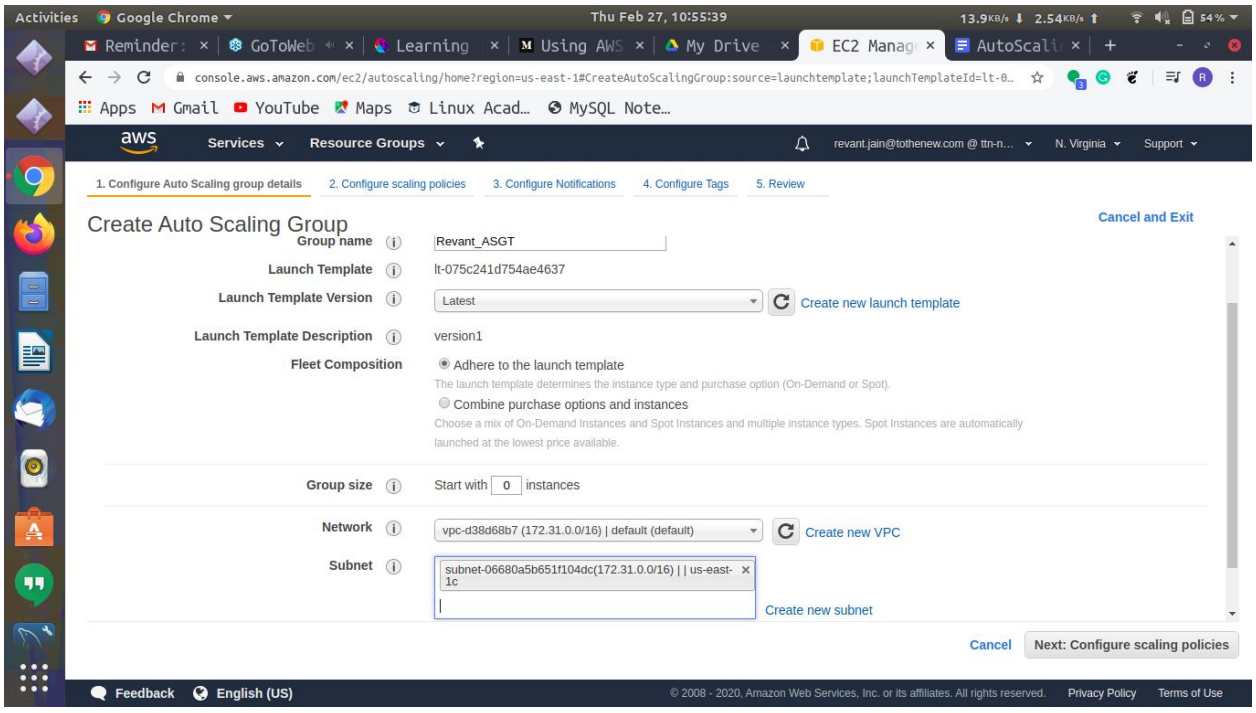
Activities
Google Chrome
Thu Feb 27, 10:55:39
console.aws.amazon.com/ec2/autoscaling/home?region=us-east-1#CreateAutoScalingGroup:source=launchtemplate;launchTemplateId=lt-0...
Apps
Gmail
YouTube
Maps
Linux Acad...
MySQL Note...
aws
Services
Resource Groups
revant.jain@tothenew.com @ ttn-n...
N. Virginia
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
Group name
Revant_ASGT
Launch Template
lt-075c241d754ae4637
Launch Template Version
Latest
Create new launch template
Launch Template Description
version1
Fleet Composition
Adhere to the launch template
The launch template determines the instance type and purchase option (On-Demand or Spot).
Combine purchase options and instances
Choose a mix of On-Demand Instances and Spot Instances and multiple instance types. Spot Instances are automatically launched at the lowest price available.
Group size
Start with 0 instances
Network
vpc-d38d68b7 (172.31.0.0/16) | default (default)
Create new VPC
Subnet
subnet-06680a5b651f104dc(172.31.0.0/16) | | us-east-1c
Create new subnet
Cancel
Next: Configure scaling policies
Feedback
English (US)
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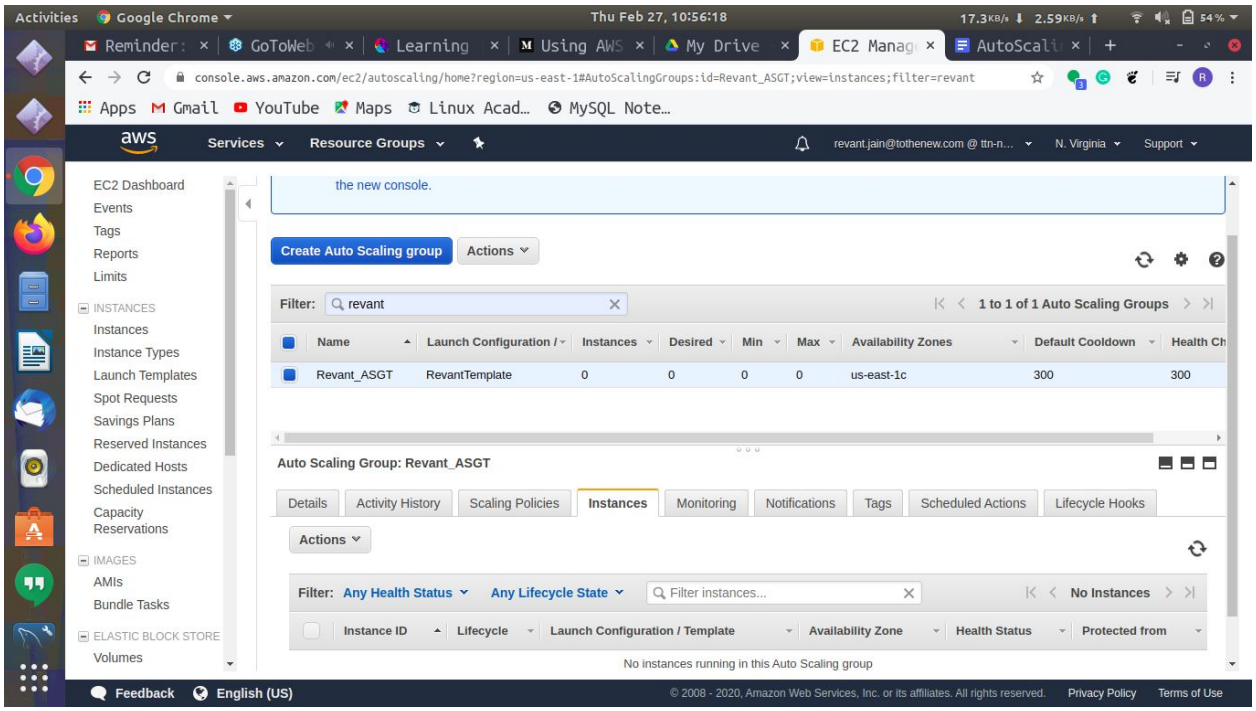
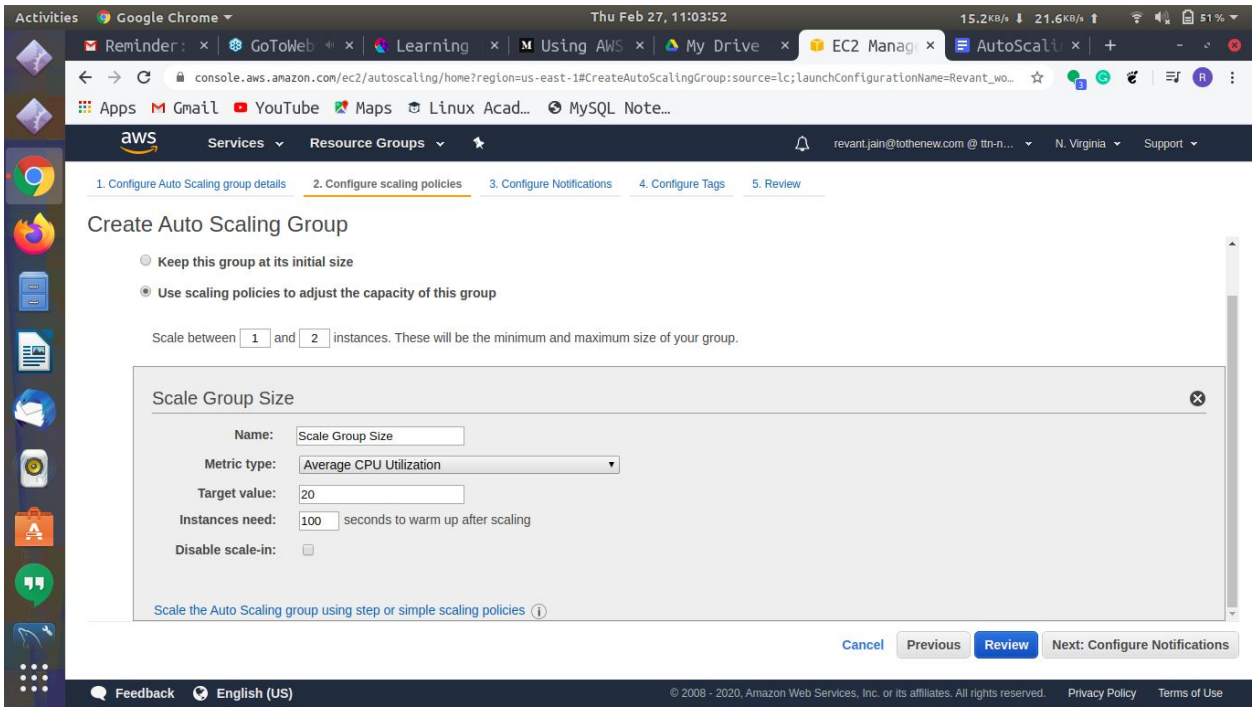


6.Setup autoscaling Wordpress application with the Application load balancer. Auto-scaling should be triggered based on CPU usage of EC2 instances.


Activities
Google Chrome
Thu Feb 27, 11:03:52
Reminder:
GoToWeb
Learning
Using AWS
My Drive
EC2 Manag
AutoScali
console.aws.amazon.com/ec2/autoscaling/home?region=us-east-1#CreateAutoScalingGroup:source=lc;launchConfigurationName=Revant_wo...
Apps
Gmail
YouTube
Maps
Linux Acad...
MySQL Note...
aws
Services
Resource Groups
revant.jain@tothenew.com @ ttn-n...
N. Virginia
Support
1. Configure Auto Scaling group details
2. Configure scaling policies
3. Configure Notifications
4. Configure Tags
5. Review
Create Auto Scaling Group
Keep this group at its initial size
Use scaling policies to adjust the capacity of this group
Scale between 1 and 2 instances. These will be the minimum and maximum size of your group.
Scale Group Size
Name: Scale Group Size
Metric type: Average CPU Utilization
Target value: 20
Instances need: 100 seconds to warm up after scaling
Disable scale-in:
Scale the Auto Scaling group using step or simple scaling policies
Cancel
Previous
Review
Next: Configure Notifications
Feedback
English (US)
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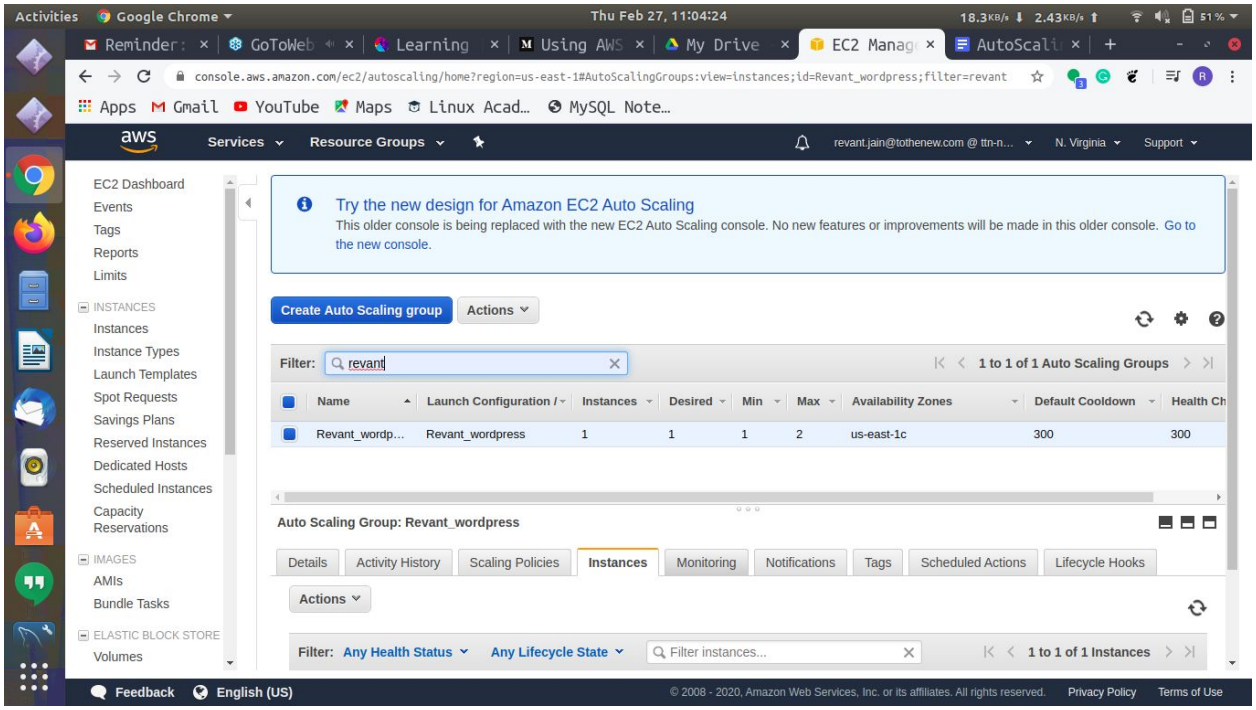
Activities
Google Chrome
Thu Feb 27, 11:04:24
Reminder:
GoToWeb
Learning
Using AWS
My Drive
EC2 Manag
AutoScali
console.aws.amazon.com/ec2/autoscaling/home?region=us-east-1#AutoScalingGroups:view=instances;id=Revant_wordpress;filter=revant
Apps
Gmail
YouTube
Maps
Linux Acad...
MySQL Note...
aws
Services
Resource Groups
revant.jain@tothenew.com @ ttn-n...
N. Virginia
Support
EC2 Dashboard
Events
Tags
Reports
Limits
INSTANCES
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Scheduled Instances
Capacity Reservations
IMAGES
AMIs
Bundle Tasks
ELASTIC BLOCK STORE
Volumes
Try the new design for Amazon EC2 Auto Scaling
This older console is being replaced with the new EC2 Auto Scaling console. No new features or improvements will be made in this older console. Go to the new console.
Create Auto Scaling group
Actions
Filter: revant
1 to 1 of 1 Auto Scaling Groups
Name
Launch Configuration
Instances
Desired
Min
Max
Availability Zones
Default Cooldown
Health Ch
Revant_wordp...
Revant_wordpress
1
1
1
2
us-east-1c
300
300
Auto Scaling Group: Revant_wordpress
Details
Activity History
Scaling Policies
Instances
Monitoring
Notifications
Tags
Scheduled Actions
Lifecycle Hooks
Actions
Filter: Any Health Status
Any Lifecycle State
Filter instances...
1 to 1 of 1 Instances
Feedback
English (US)
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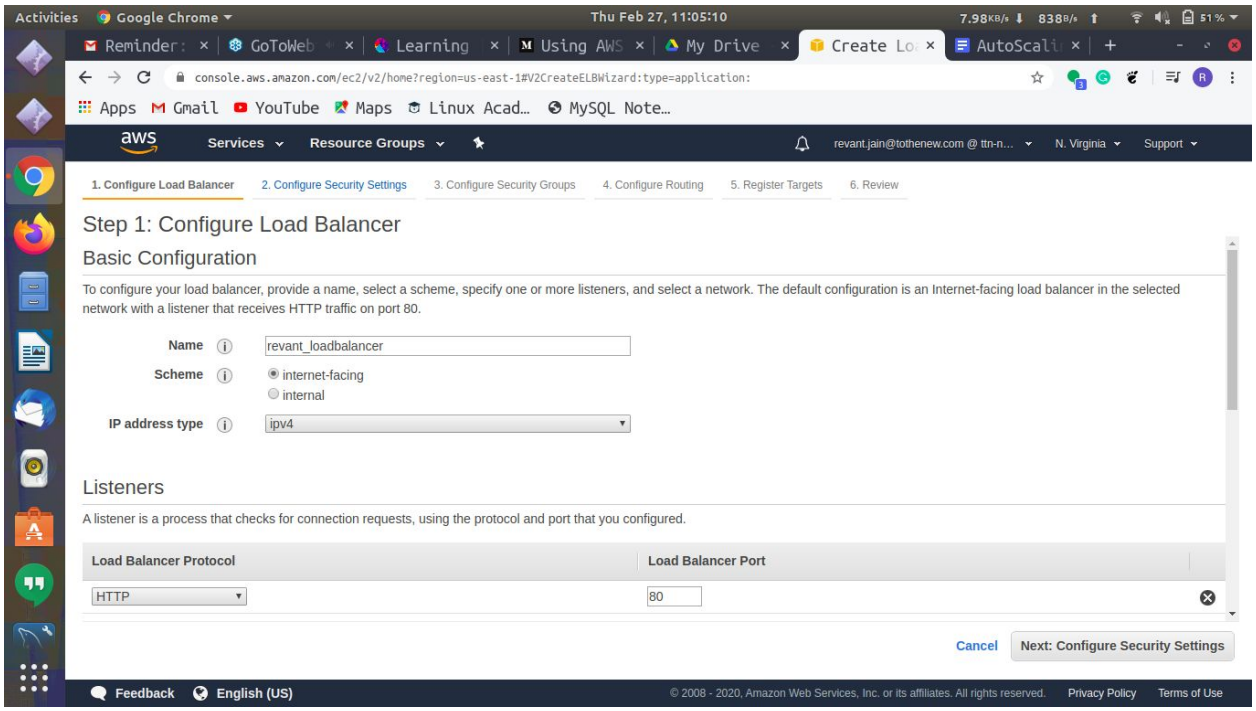
Activities
Google Chrome
Thu Feb 27, 11:05:10
Reminder:
GoToWeb
Learning
Using AWS
My Drive
Create Lo
AutoScali
console.aws.amazon.com/ec2/v2/home?region=us-east-1#V2CreateELBWizard:type=application:
Apps
Gmail
YouTube
Maps
Linux Acad...
MySQL Note...
aws
Services
Resource Groups
revant.jain@tothenew.com @ ttn-n...
N. Virginia
Support
1. Configure Load Balancer
2. Configure Security Settings
3. Configure Security Groups
4. Configure Routing
5. Register Targets
6. Review
Step 1: Configure Load Balancer
Basic Configuration
To configure your load balancer, provide a name, select a scheme, specify one or more listeners, and select a network. The default configuration is an Internet-facing load balancer in the selected network with a listener that receives HTTP traffic on port 80.
Name
revant_loadbalancer
Scheme
internet-facing
internal
IP address type
ipv4
Listeners
A listener is a process that checks for connection requests, using the protocol and port that you configured.
Load Balancer Protocol
Load Balancer Port
HTTP
80
Cancel
Next: Configure Security Settings
Feedback
English (US)
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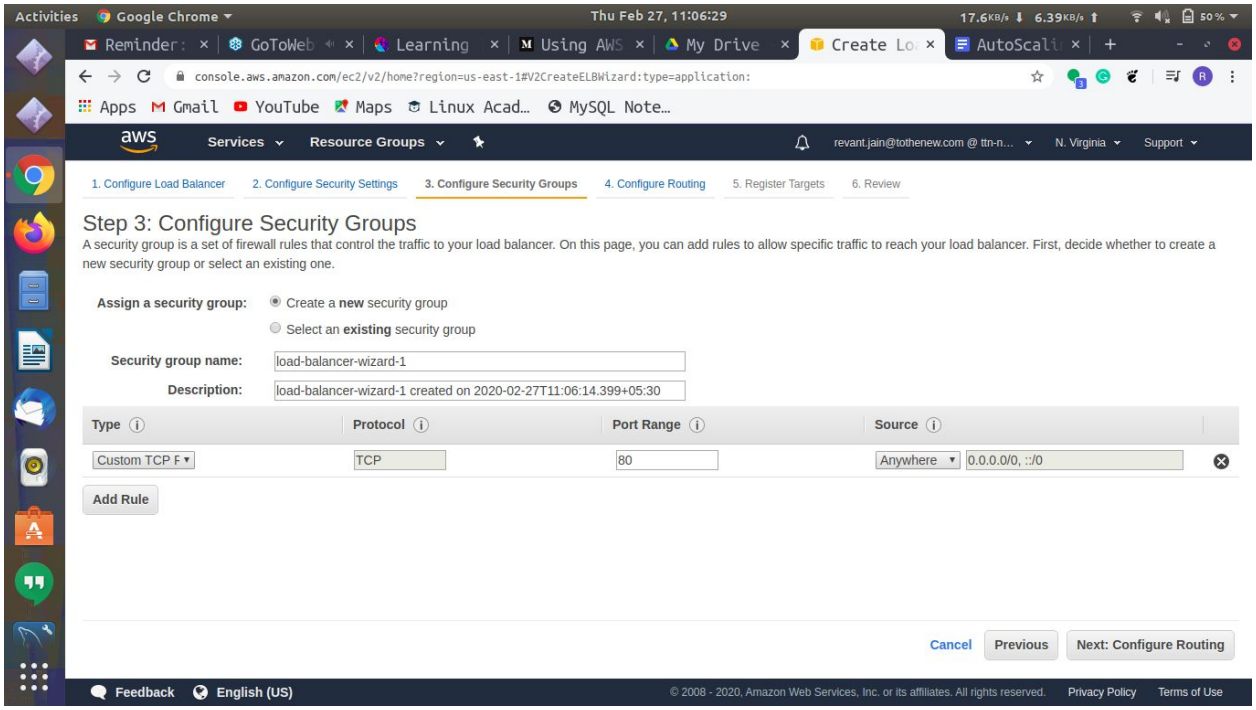
Activities
Google Chrome
Thu Feb 27, 11:06:29
Reminder:
GoToWeb
Learning
Using AWS
My Drive
Create Lo
AutoScali
console.aws.amazon.com/ec2/v2/home?region=us-east-1#V2CreateELBWizard:type=application:
Apps
Gmail
YouTube
Maps
Linux Acad...
MySQL Note...
aws
Services
Resource Groups
revant.jain@tothenew.com @ ttn-n...
N. Virginia
Support
1. Configure Load Balancer
2. Configure Security Settings
3. Configure Security Groups
4. Configure Routing
5. Register Targets
6. Review
Step 3: Configure Security Groups
A security group is a set of firewall rules that control the traffic to your load balancer. On this page, you can add rules to allow specific traffic to reach your load balancer. First, decide whether to create a new security group or select an existing one.
Assign a security group:
Create a new security group
Select an existing security group
Security group name:
load-balancer-wizard-1
Description:
load-balancer-wizard-1 created on 2020-02-27T11:06:14.399+05:30
Type
Protocol
Port Range
Source
Custom TCP F
TCP
80
Anywhere
0.0.0.0/0, ::/0
Add Rule
Cancel
Previous
Next: Configure Routing
Feedback
English (US)
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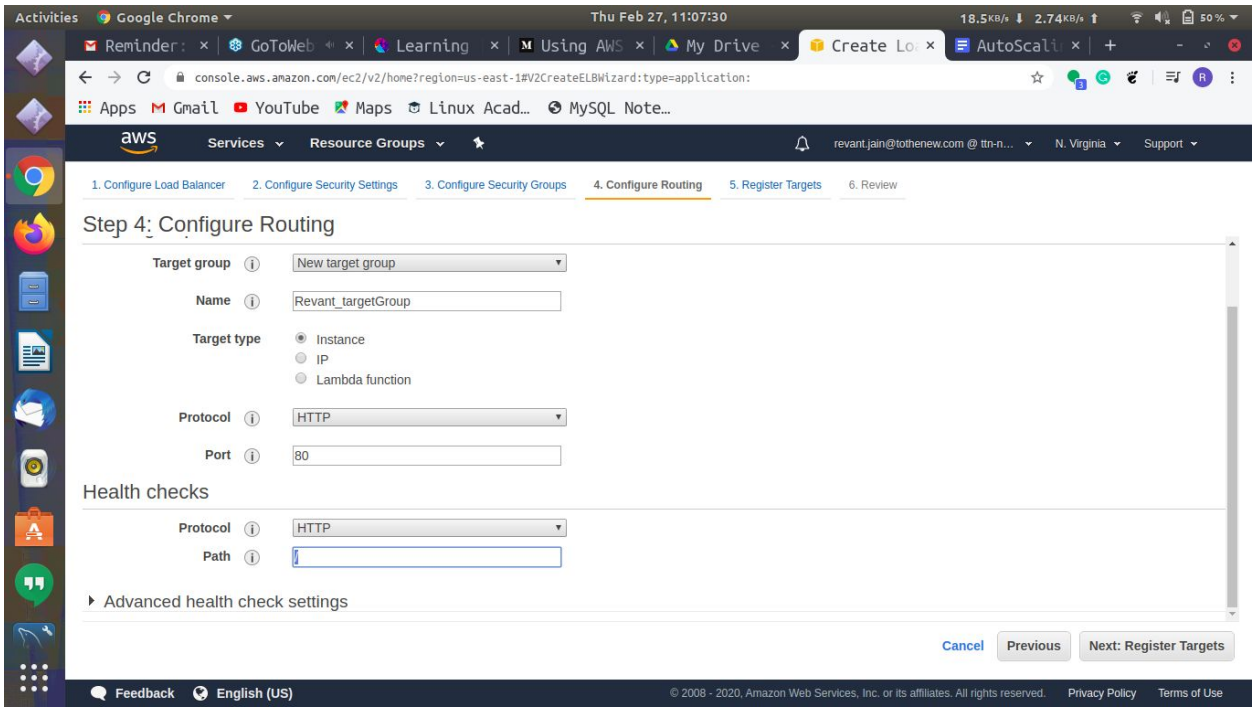
Activities
Google Chrome
Thu Feb 27, 11:07:30
console.aws.amazon.com/ec2/v2/home?region=us-east-1#V2CreateELBWizard:type=application:
Apps
Gmail
YouTube
Maps
Linux Acad...
MySQL Note...
aws
Services
Resource Groups
revant.jain@tothenew.com @ ttn-n...
N. Virginia
Support
1. Configure Load Balancer
2. Configure Security Settings
3. Configure Security Groups
4. Configure Routing
5. Register Targets
6. Review
Step 4: Configure Routing
Target group
New target group
Name
Revant_targetGroup
Target type
Instance
IP
Lambda function
Protocol
HTTP
Port
80
Health checks
Protocol
HTTP
Path
/
Advanced health check settings
Cancel
Previous
Next: Register Targets
Feedback
English (US)
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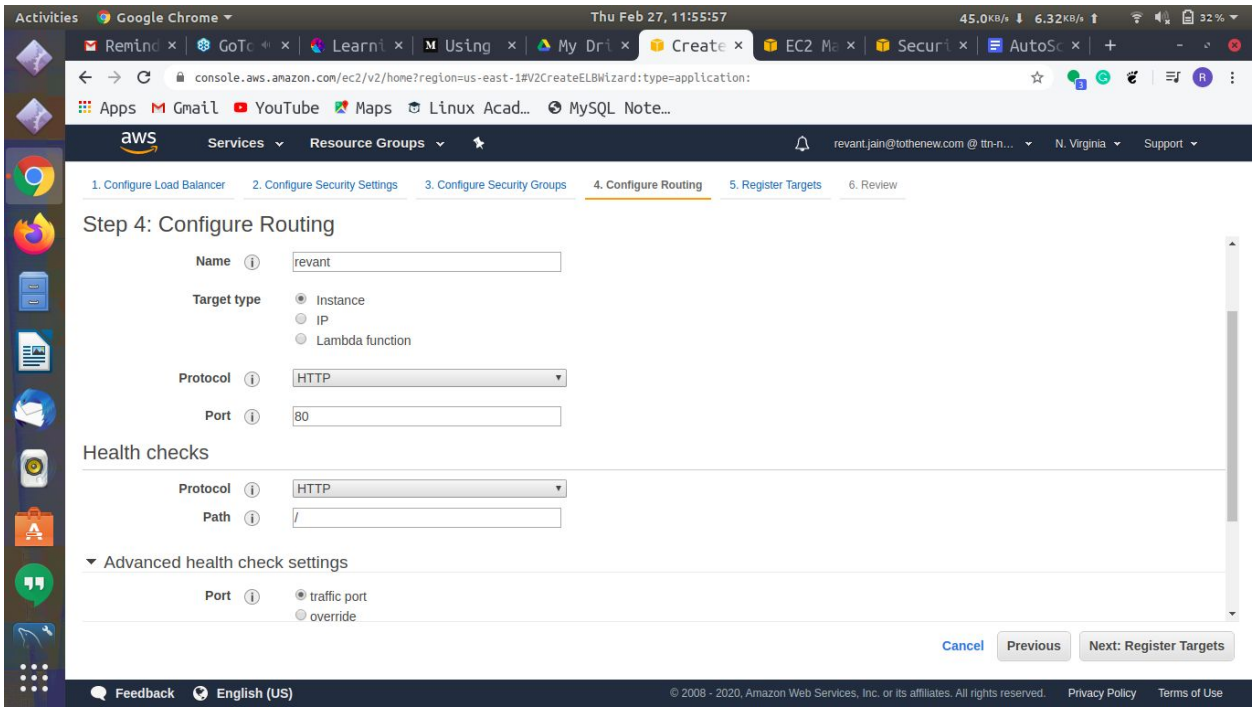
Activities
Google Chrome
Thu Feb 27, 11:55:57
console.aws.amazon.com/ec2/v2/home?region=us-east-1#V2CreateELBWizard:type=application:
Apps
Gmail
YouTube
Maps
Linux Acad...
MySQL Note...
aws
Services
Resource Groups
revant.jain@tothenew.com @ ttn-n...
N. Virginia
Support
1. Configure Load Balancer
2. Configure Security Settings
3. Configure Security Groups
4. Configure Routing
5. Register Targets
6. Review
Step 4: Configure Routing
Name
revant
Target type
Instance
IP
Lambda function
Protocol
HTTP
Port
80
Health checks
Protocol
HTTP
Path
/
Advanced health check settings
Port
traffic port
override
Cancel
Previous
Next: Register Targets
Feedback
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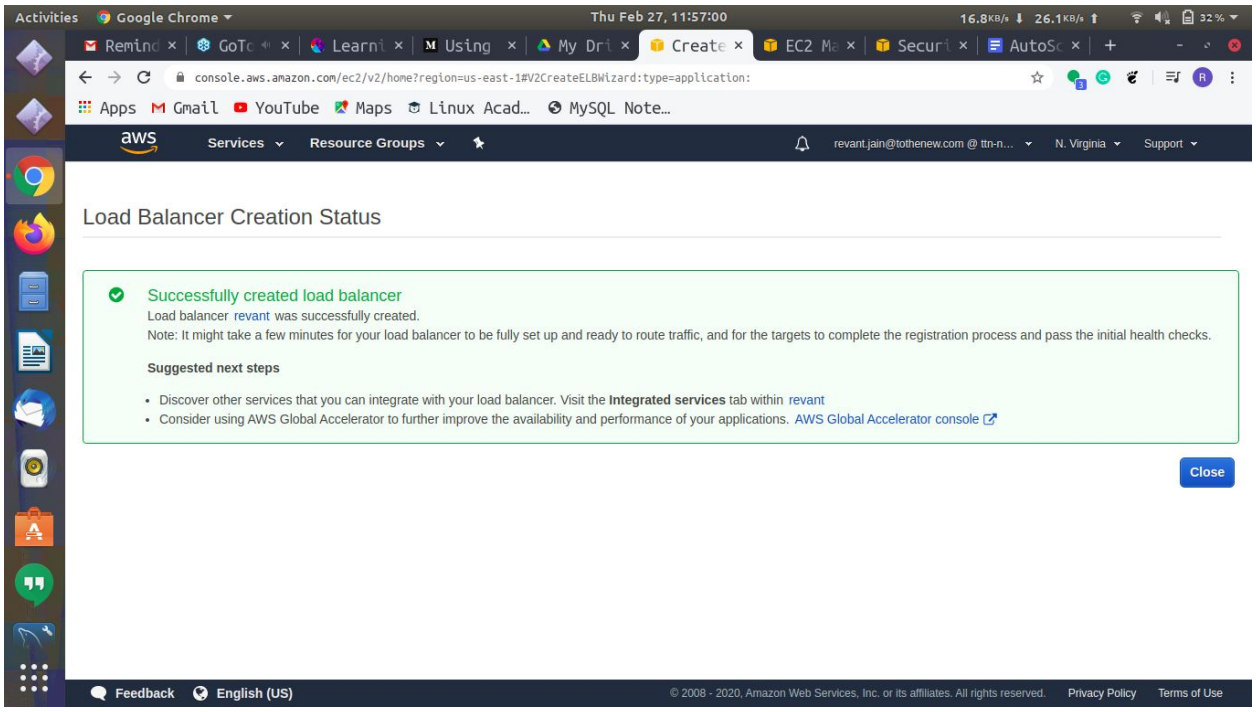
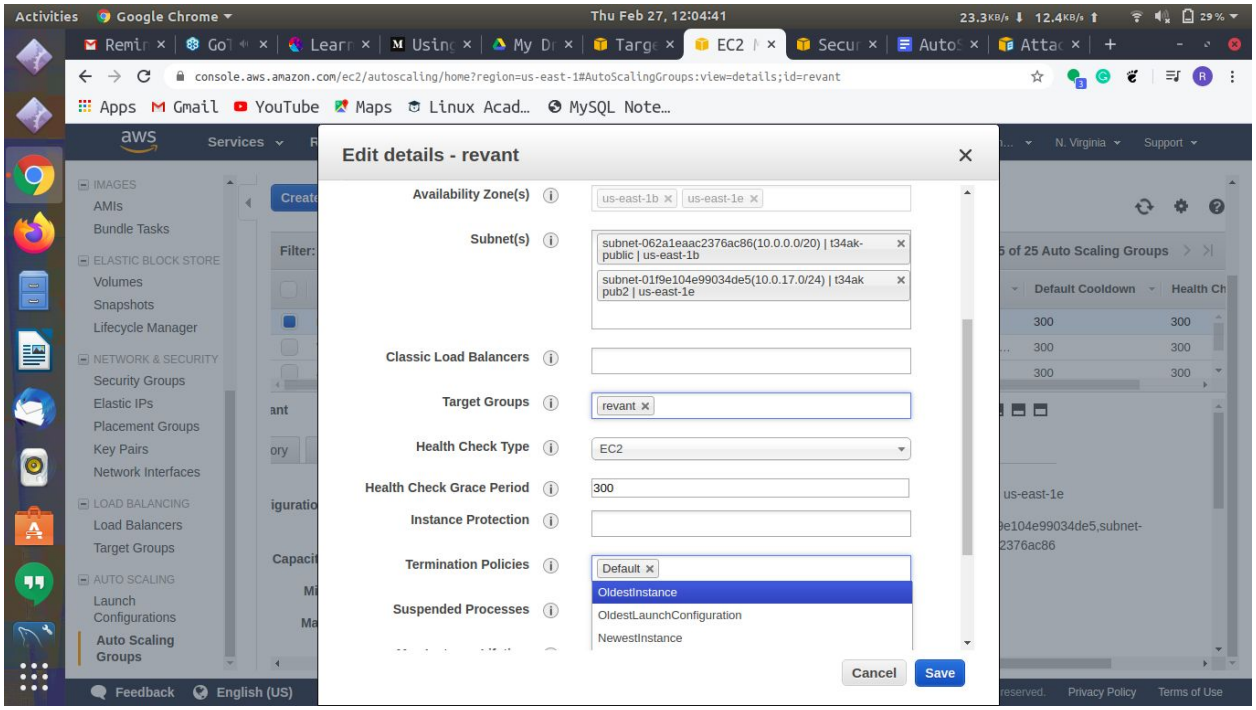
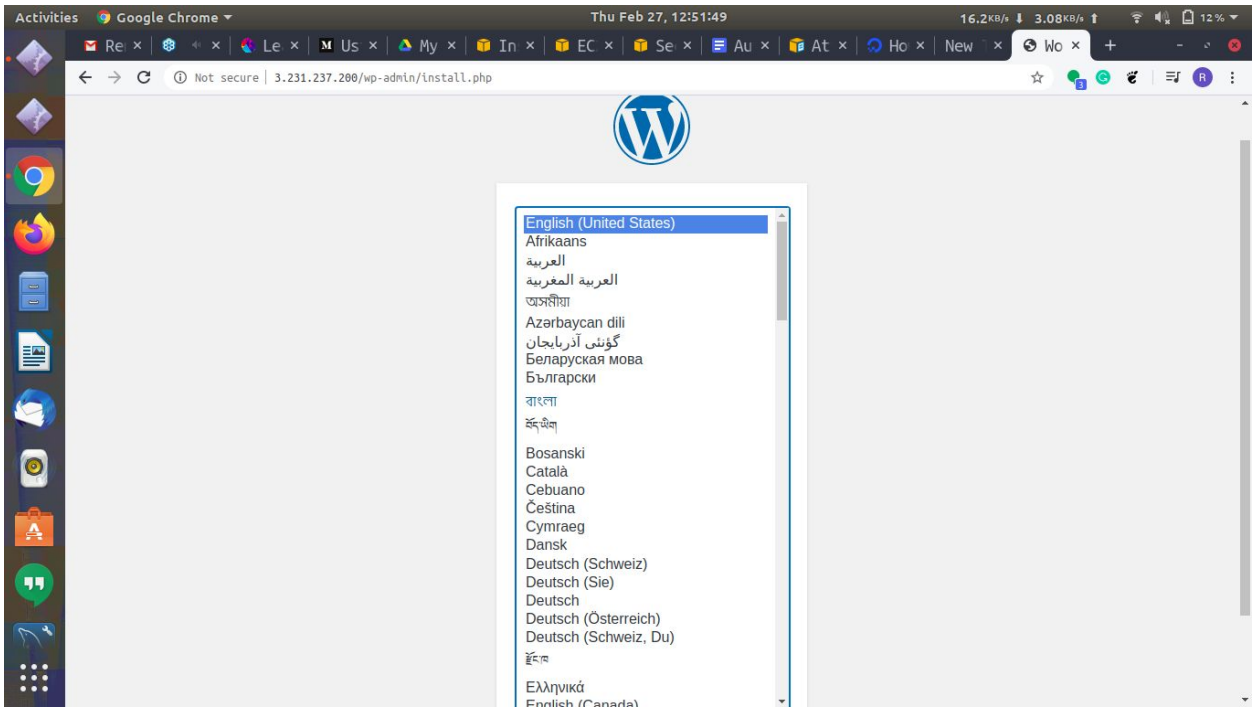
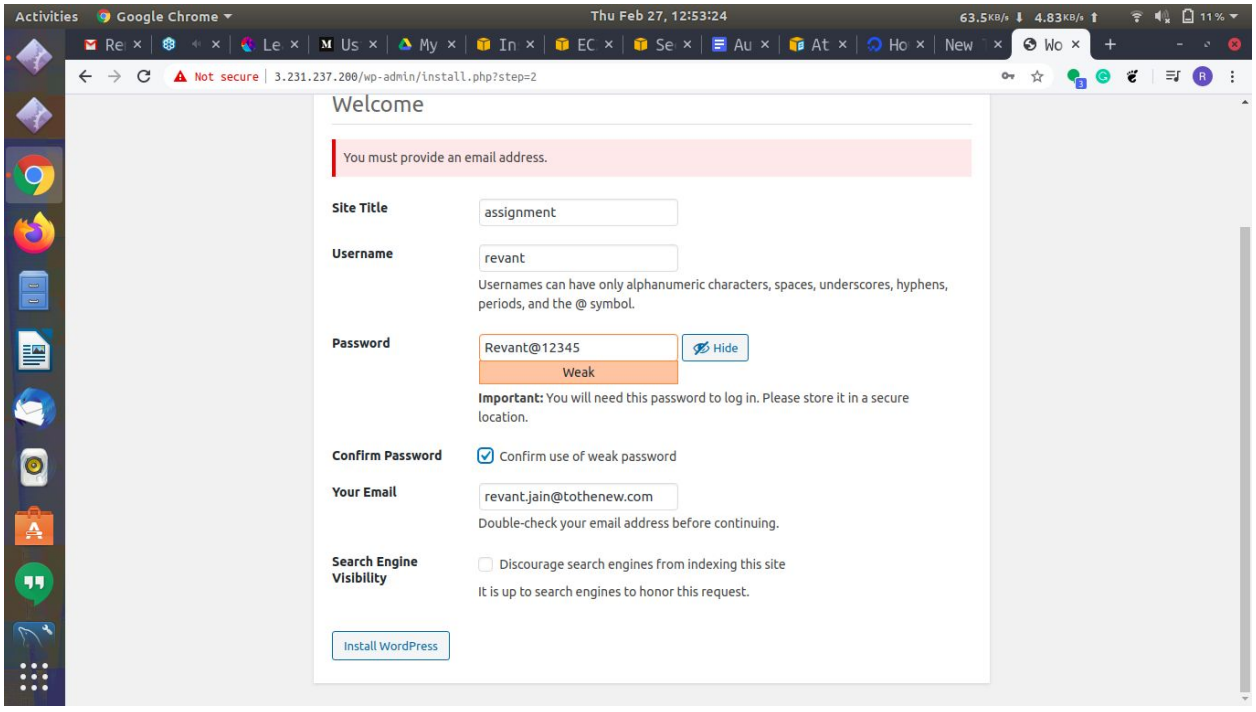


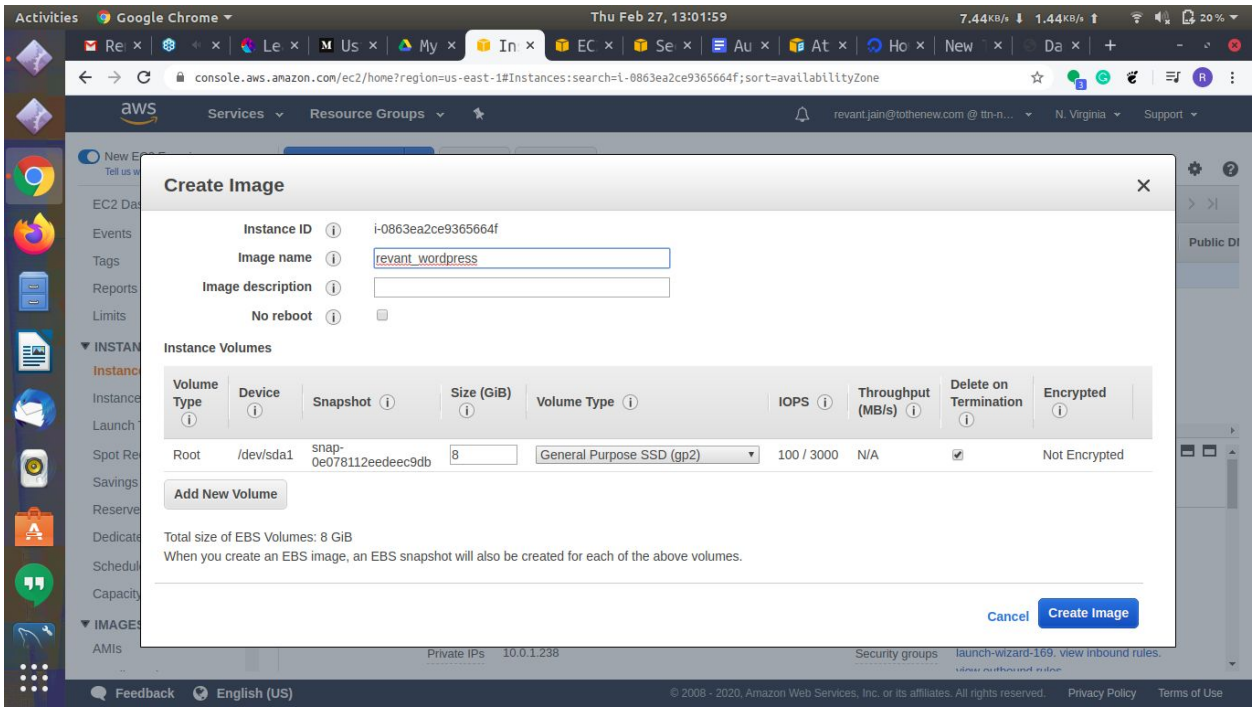


Setup LEMP server on this EC2 instance

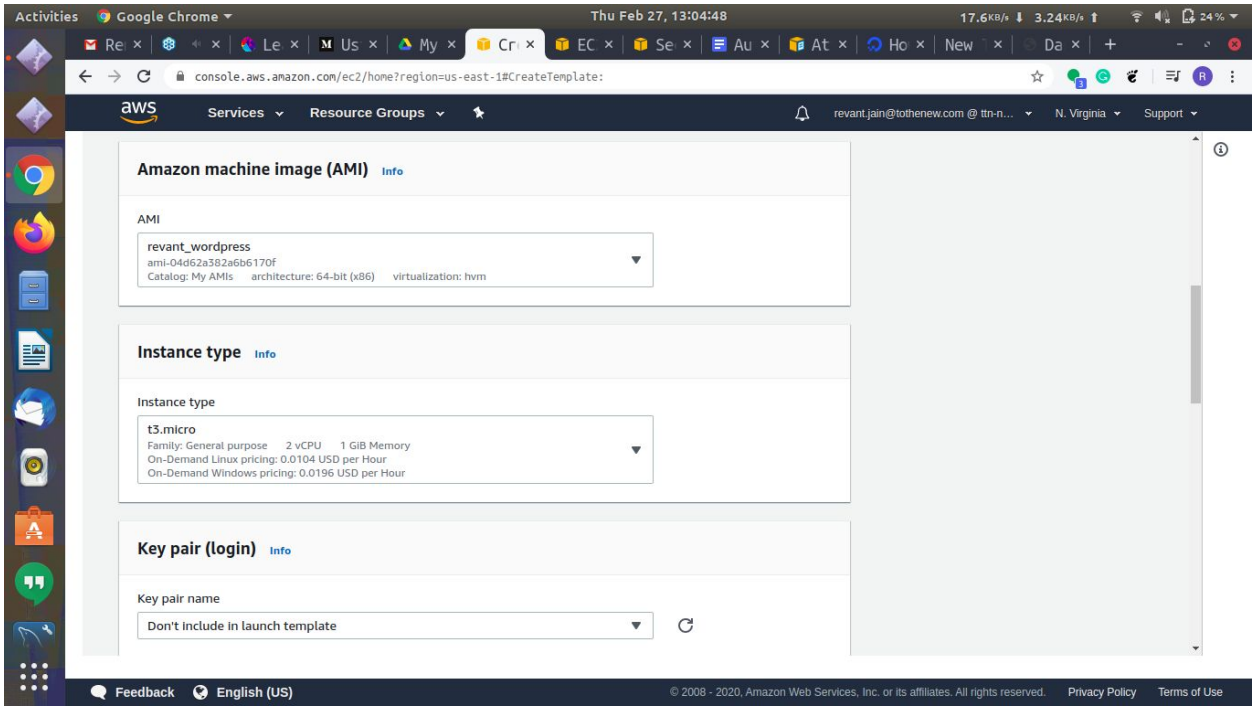


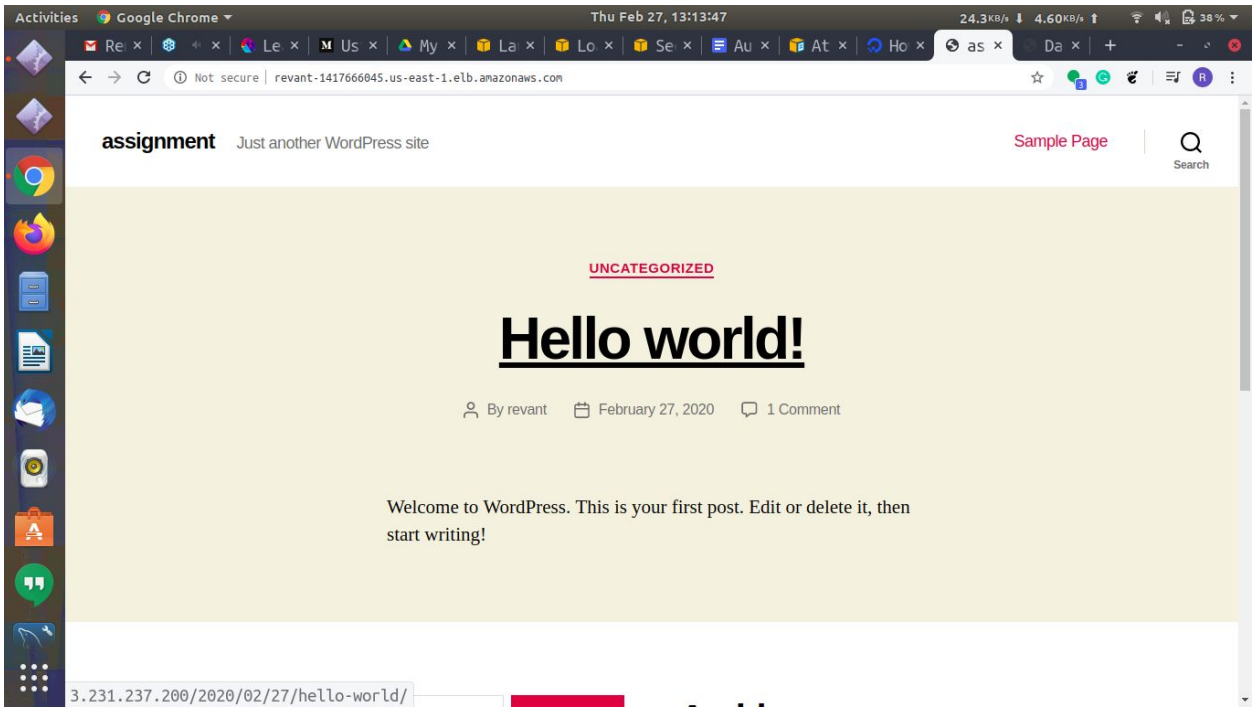


Create AMI of this instance and this will be used in launch configuration.

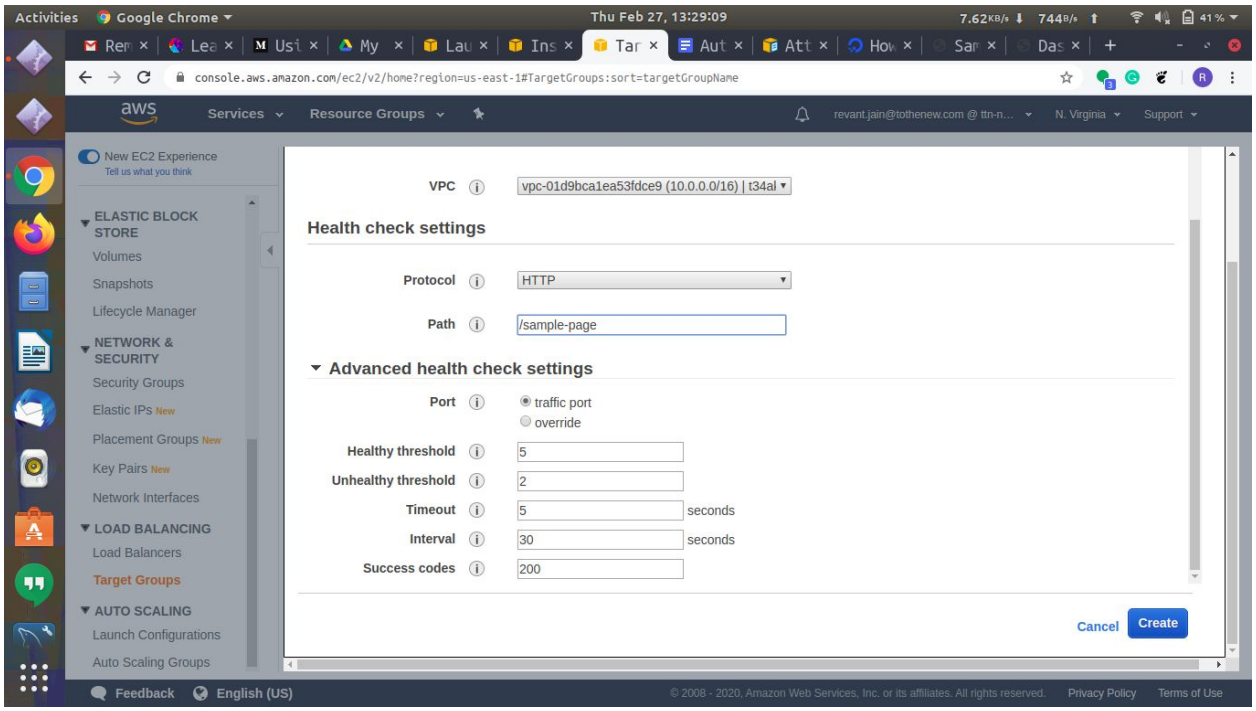


Creating launch template with this AMI

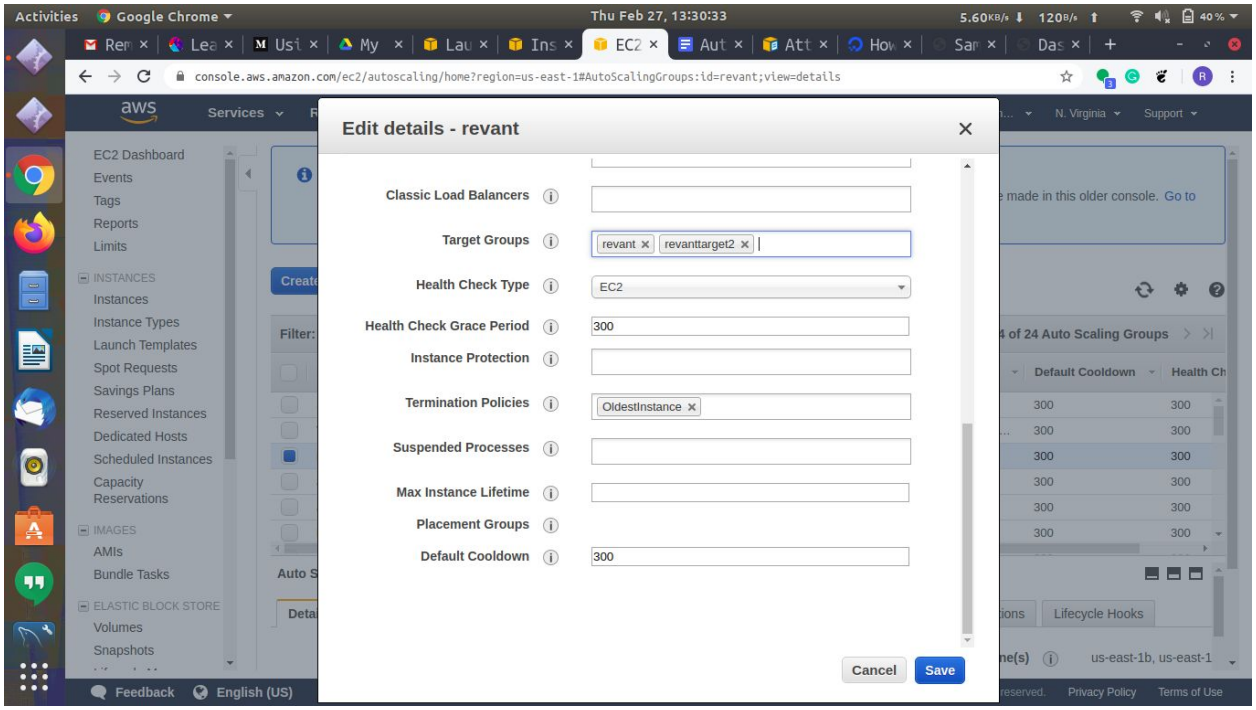


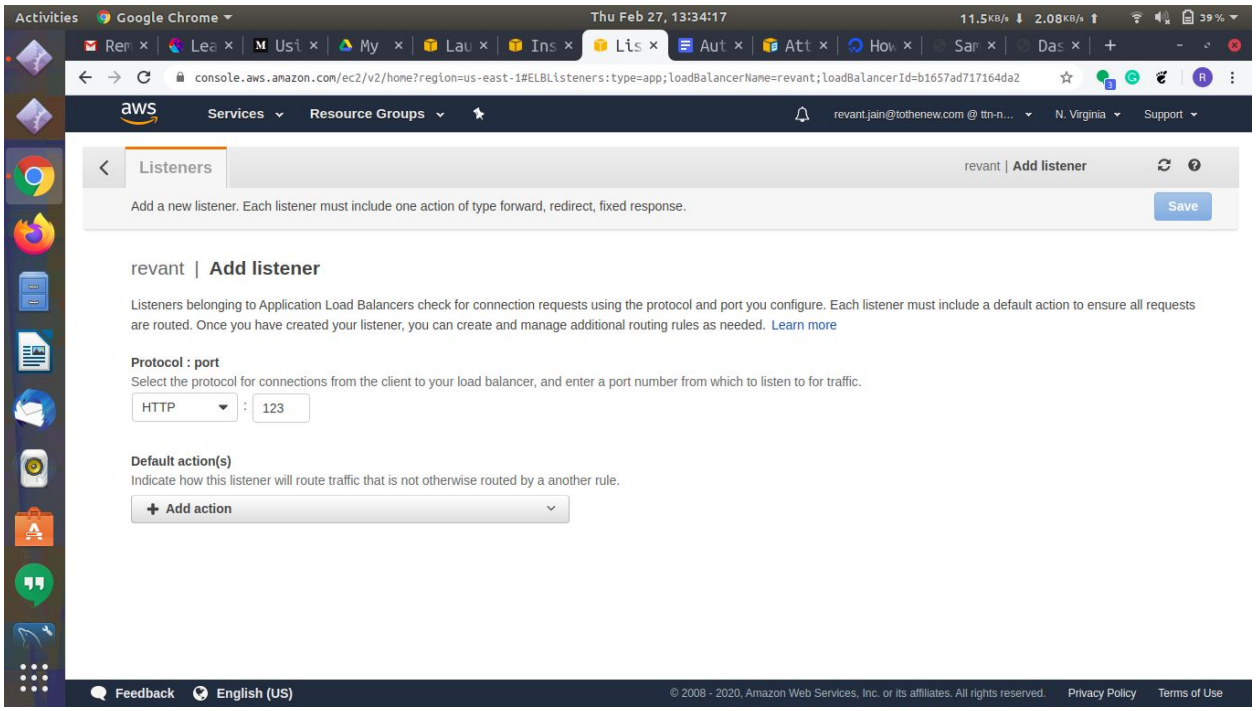


7.Create another Wordpress website and use the ALB created above to send traffic to this website based on the hostname



And another target group was looking for path for /




Activities
Google Chrome
Thu Feb 27, 13:34:17
console.aws.amazon.com/ec2/v2/home?region=us-east-1#ELBListeners:type=app;loadBalancerName=revant;loadBalancerId=b1657ad717164da2
aws
Services
Resource Groups
revant.jain@tothenew.com @ ttn-n...
N. Virginia
Support
Listeners
revant | Add listener
Add a new listener. Each listener must include one action of type forward, redirect, fixed response.
Save
revant | Add listener
Listeners belonging to Application Load Balancers check for connection requests using the protocol and port you configure. Each listener must include a default action to ensure all requests are routed. Once you have created your listener, you can create and manage additional routing rules as needed. Learn more
Protocol : port
Select the protocol for connections from the client to your load balancer, and enter a port number from which to listen to for traffic.
HTTP
123
Default action(s)
Indicate how this listener will route traffic that is not otherwise routed by a another rule.
Add action
Feedback
English (US)
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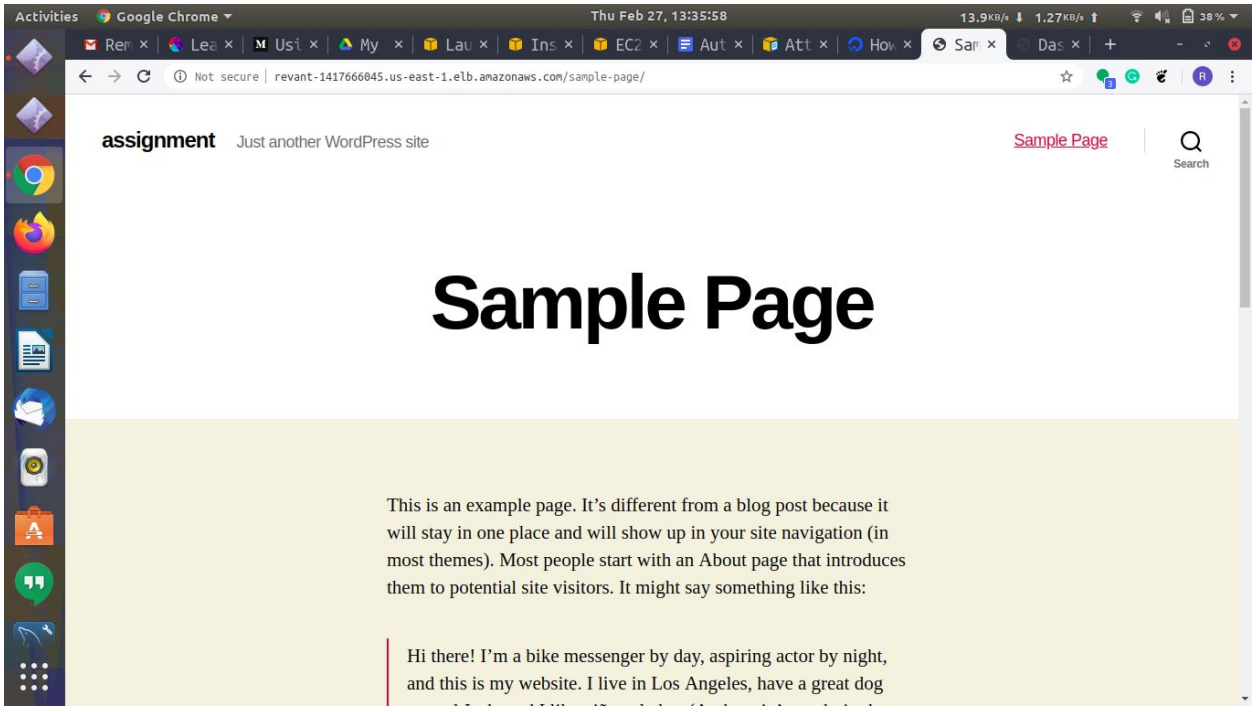
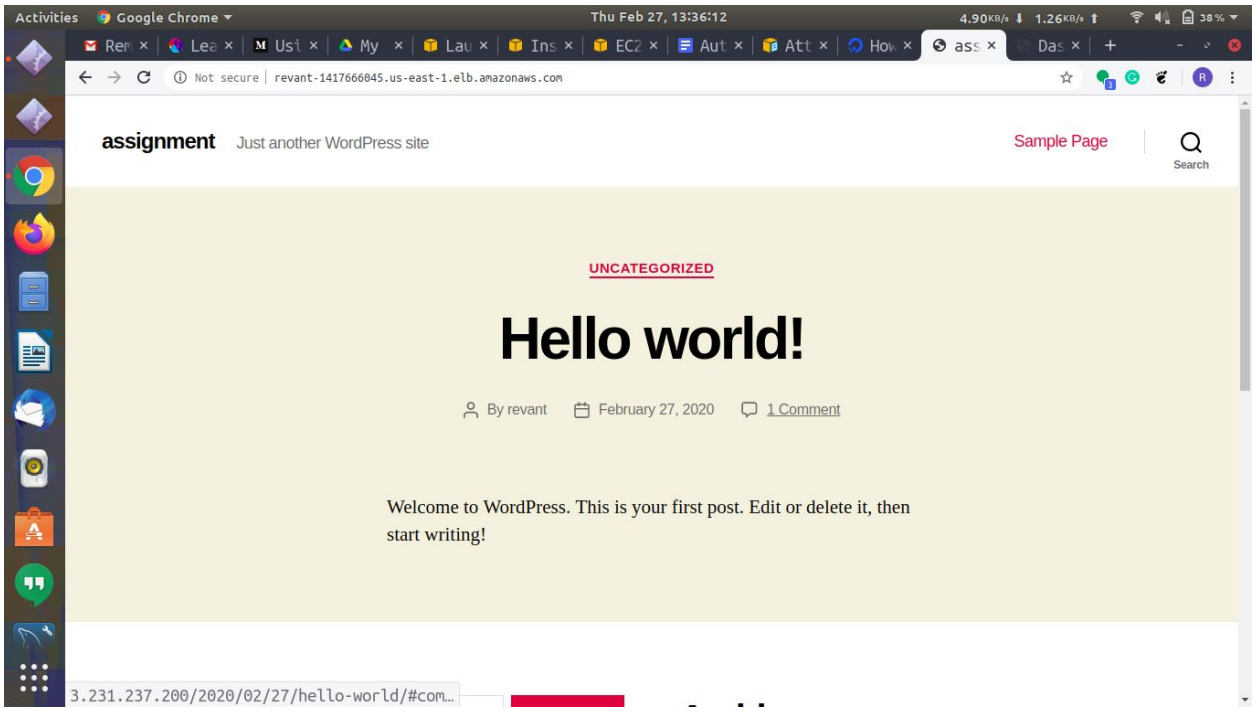
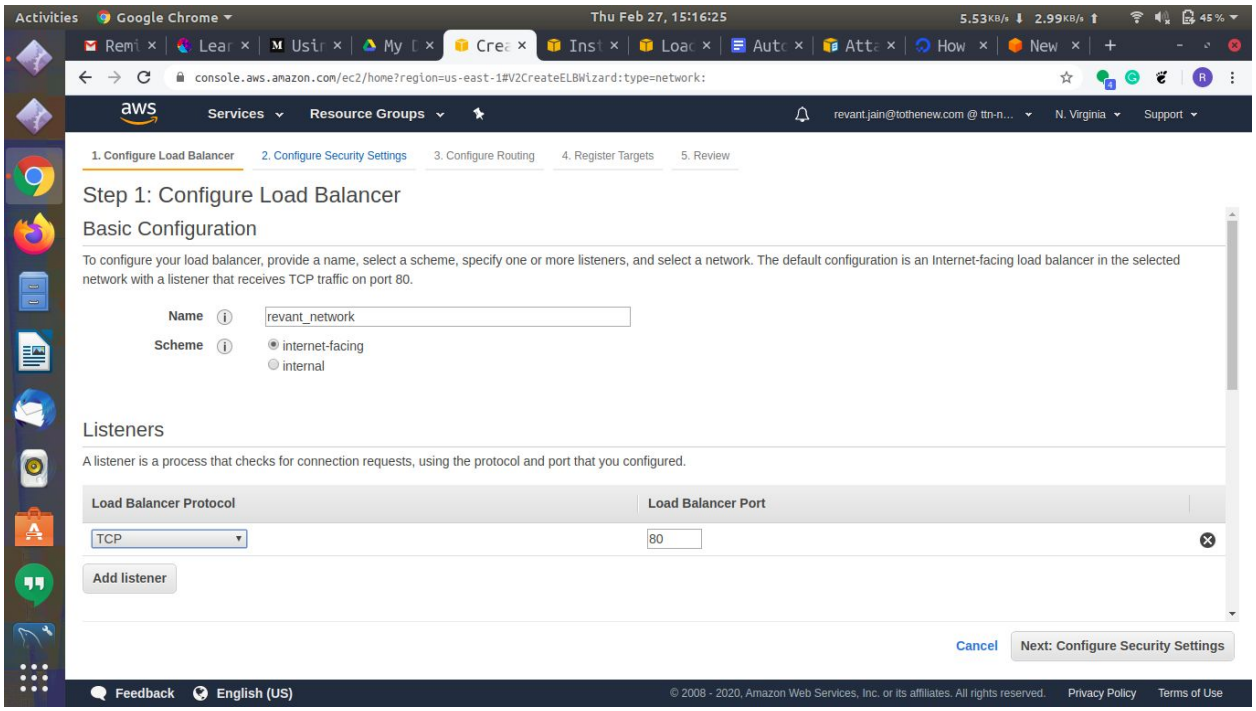
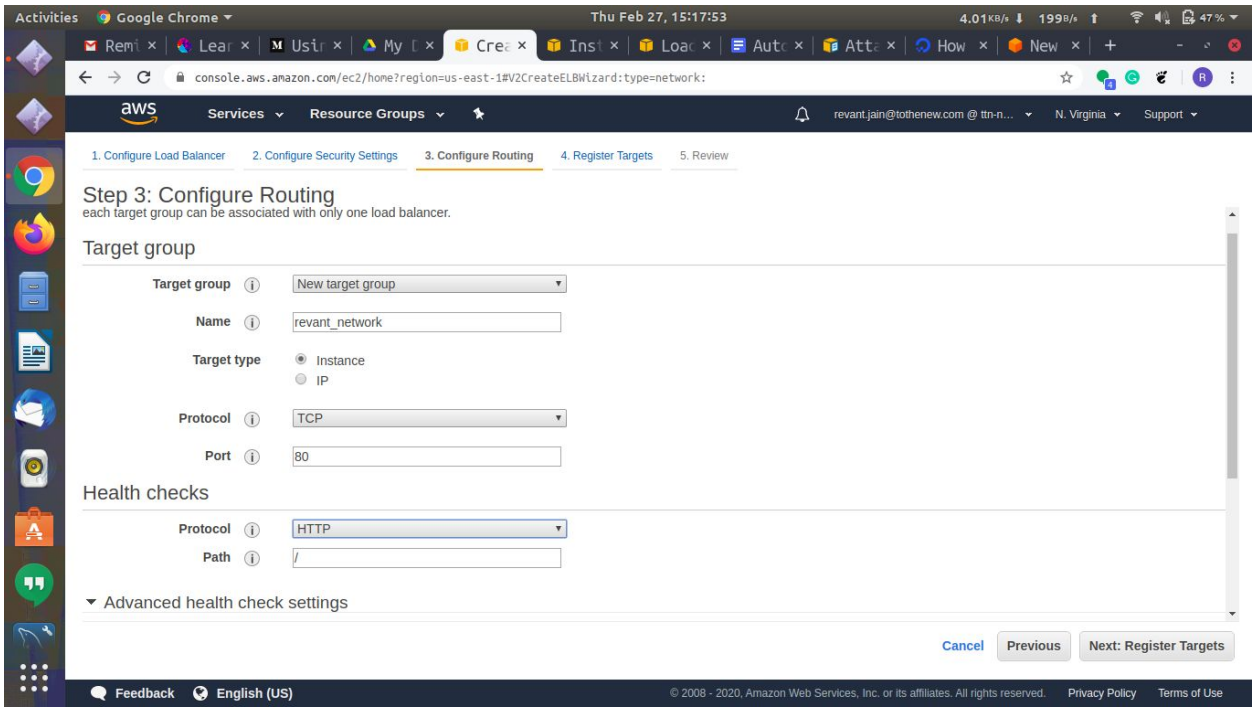
Privacy Policy
Terms of Use


Activities
Google Chrome
Thu Feb 27, 13:35:58
Not secure
revant-1417666045.us-east-1.elb.amazonaws.com/sample-page/
assignment
Just another WordPress site
Sample Page
Search
Sample Page
This is an example page. It's different from a blog post because it will stay in one place and will show up in your site navigation (in most themes). Most people start with an About page that introduces them to potential site visitors. It might say something like this:
Hi there! I'm a bike messenger by day, aspiring actor by night, and this is my website. I live in Los Angeles, have a great dog



8.Use NLB that replaces the ALB in the above setup.




Activities
Google Chrome
Thu Feb 27, 15:17:53
console.aws.amazon.com/ec2/home?region=us-east-1#V2CreateELBWizard:type=network:
Services
Resource Groups
revant.jain@tothenew.com @ ttn-n...
N. Virginia
Support
1. Configure Load Balancer
2. Configure Security Settings
3. Configure Routing
4. Register Targets
5. Review
Step 3: Configure Routing
each target group can be associated with only one load balancer.
Target group
Target group
New target group
Name
revant_network
Target type
Instance
IP
Protocol
TCP
Port
80
Health checks
Protocol
HTTP
Path
/
Advanced health check settings
Cancel
Previous
Next: Register Targets
Feedback
English (US)
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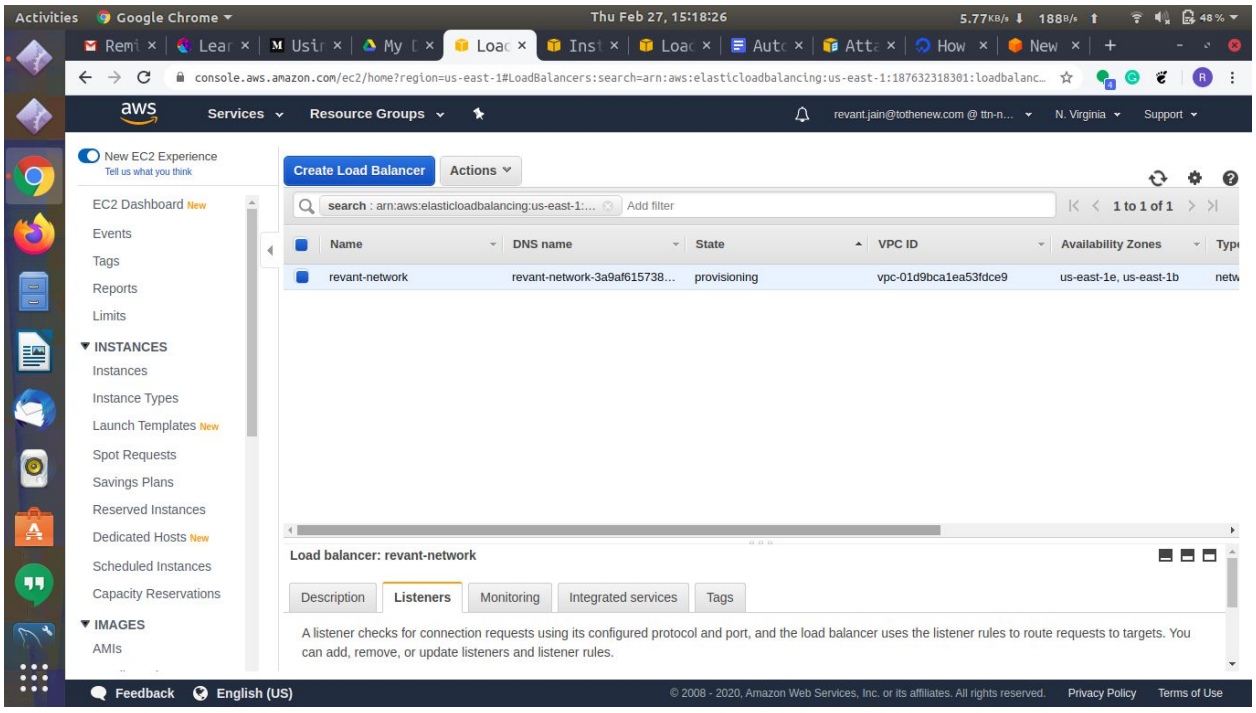
Terms of Use


Activities
Google Chrome
Thu Feb 27, 15:18:26
console.aws.amazon.com/ec2/home?region=us-east-1#LoadBalancers:search=arn:aws:elasticloadbalancing:us-east-1:187632318301:loadbalanc...
Services
Resource Groups
revant.jain@tothenew.com @ ttn-n...
N. Virginia
Support
New EC2 Experience
Tell us what you think
EC2 Dashboard New
Events
Tags
Reports
Limits
INSTANCES
Instances
Instance Types
Launch Templates New
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts New
Scheduled Instances
Capacity Reservations
IMAGES
AMIs
Create Load Balancer
Actions
search : arn:aws:elasticloadbalancing:us-east-1:...
Add filter
1 to 1 of 1
Name
DNS name
State
VPC ID
Availability Zones
revant-network
revant-network-3a9af615738...
provisioning
vpc-01d9bca1ea53fdce9
us-east-1e, us-east-1b
Load balancer: revant-network
Description
Listeners
Monitoring
Integrated services
Tags
A listener checks for connection requests using its configured protocol and port, and the load balancer uses the listener rules to route requests to targets. You can add, remove, or update listeners and listener rules.
Feedback
English (US)
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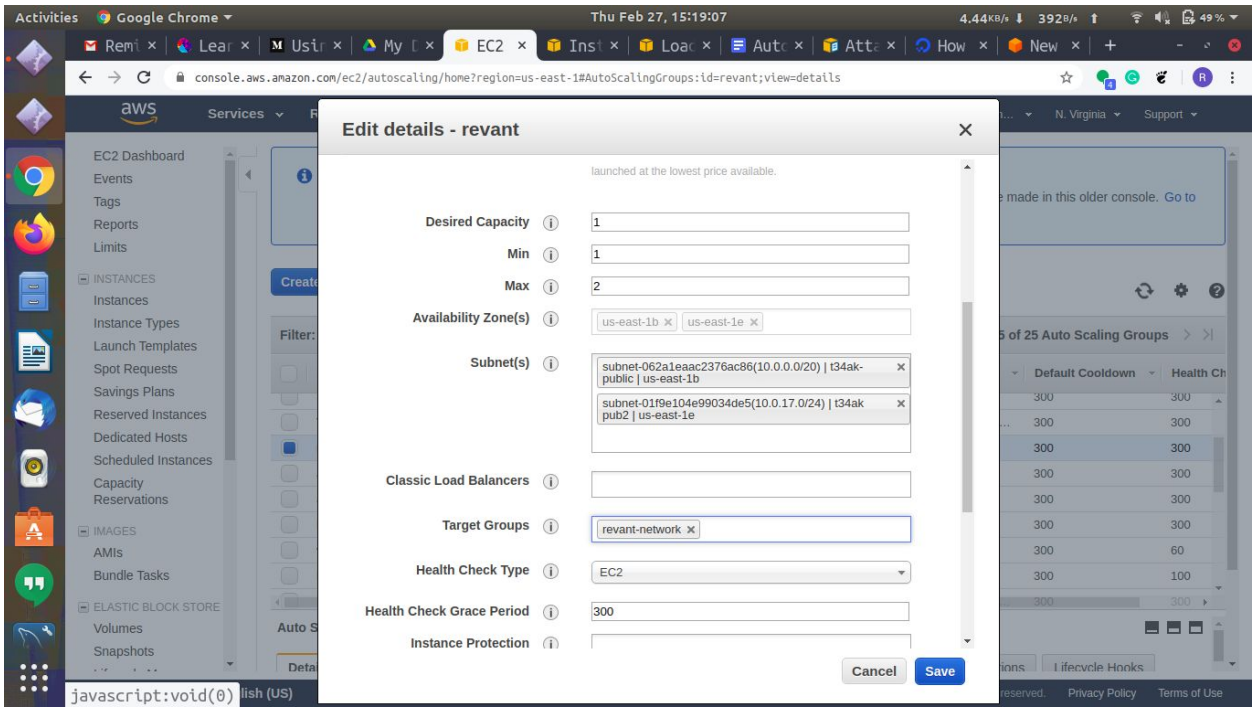
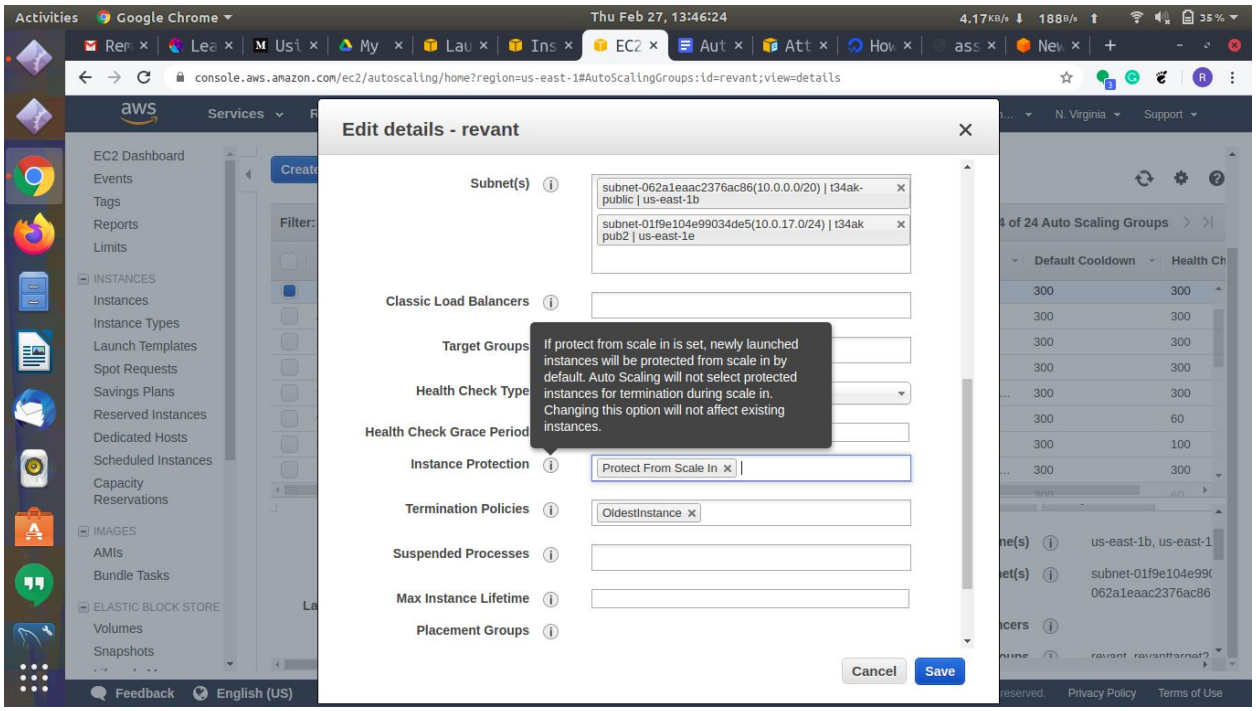
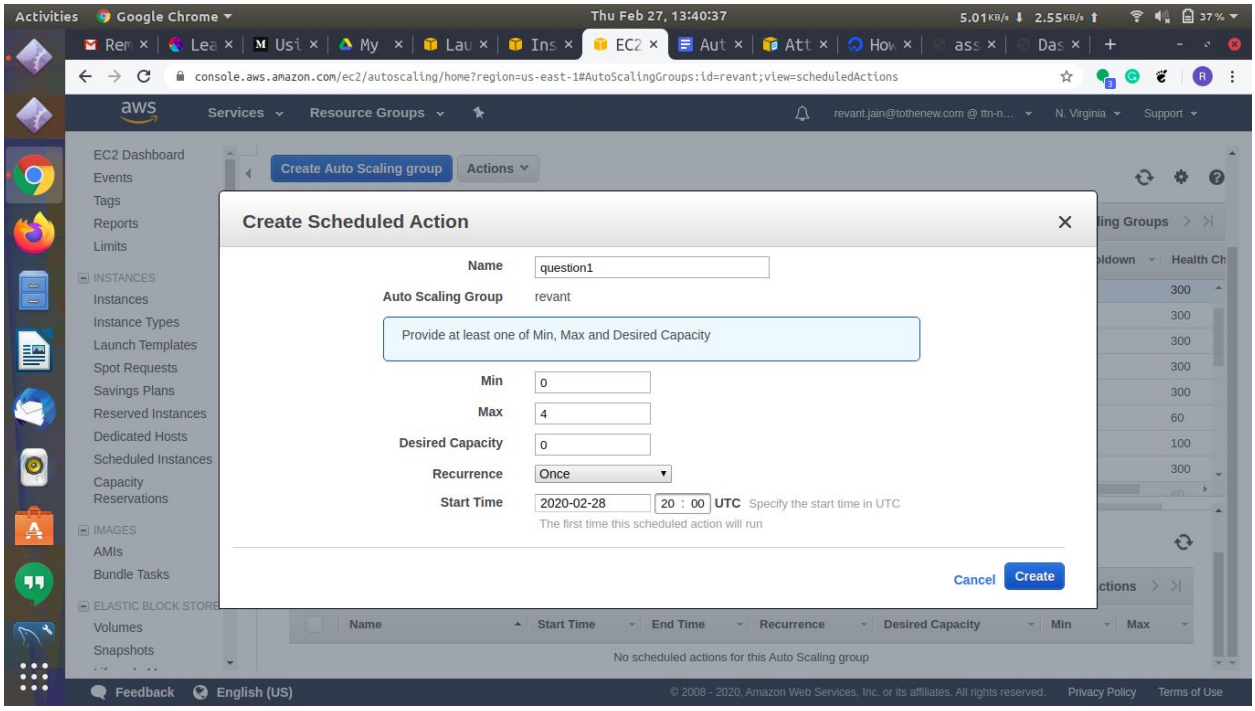


9.Put scale-in protection on an instance in the ASG.



10. **Put Schedules in ASG to:**

- **Remove all instances of the ASG at 8 PM**



- **Launch a minimum of 2 instances at 10 AM**