

Autoscaling - Launch Configurations & Auto Scaling Groups

Instructions

Steps:

1. Creating launch configuration
2. Creating Auto Scaling with load balancer
3. Apply load using jmeter and verify new instances are launched based on Autoscaling (jmeter script attached)

Pre-requests

1. Launch a new ec2 instance and install and run nginx server alone
2. Create an image based on the above instance where you have nginx running

Steps to create Launch configuration

1. Navigate to Auto scaling services -> Launch configurations -> create launch configurations
2. Provide the Name, choose the AMI that you have created in the pre-requests
3. Choose Instance type as t2.micro
4. Additional configuration, EBS volume as default settings, also enable public assign a public ip option
5. You can create or select existing security group
6. Choose from existing key pair
7. Create launch configuration

Create a Load Balancer for Auto scaling groups

1. Navigate to Load Balancers -> Target groups click create Target group
2. Target Type as Instance, provide Target group name, Protocol http : 80 (default)
3. Select your VPC
4. In the Advanced health check settings you can give your custom values in the traffic port. (you can leave as default if you don't wish to change it)
5. Add tag and click Next
6. In the Registered target, do not select and Instance
7. Click 'Create Target group' and it will be created successfully
8. Create a load balancer by selecting Application Load Balancer
9. Provide the load balancer name, select Internet-facing, and IPv4 address type
10. In the network mapping select your VPC
11. In the subnet mapping select the availability zones and select public subnets that you have created from the dropdown
12. Select the security group from existing that you have created for previous Load Balancer assignment
13. In Listeners and Routing select the target group that you have created above
14. Provide the Tags and create the load balancer

Steps to Create Auto Scaling group

1. Navigate to Auto Scaling group -> Create an Auto scaling group
2. Provide Auto scaling group name

3. In the Launch template option click switch to launch configuration

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autoscaling-grp1

Must be unique to this account in the current Region and no more than 255 characters.

Launch template [Info](#)

Info For accounts created after May 31, 2023, the EC2 console only supports creating Auto Scaling groups with launch templates. Creating Auto Scaling groups with launch configurations is not recommended but still available via the CLI and API until December 31, 2023.

Launch template
Choose a launch template that contains the instance-level settings, such as the Amazon Machine Image (AMI), instance type, key pair, and security groups.

autoscaling-temp1

[Create a launch template](#)

4. Select the Launch configuration that you have created and click Next

5. In the Network, choose your vpc, choose the different availability zones of public subnet

6. Click Next

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For most applications, you can use multiple Availability Zones and let EC2 Auto Scaling balance your instances across the zones. The default VPC and default subnets are suitable for getting started quickly.

VPC
Choose the VPC that defines the virtual network for your Auto Scaling group.

vpc-0358873cfff60846f

[Create a VPC](#)

Availability Zones and subnets
Define which Availability Zones and subnets your Auto Scaling group can use in the chosen VPC.

Select Availability Zones and subnets

ap-south-1a | subnet-0434e172595c3cefc (public subnet)

ap-south-1b | subnet-0df08dbebdd368656 (public subnet 2)

[Create a subnet](#)

7. Now select attach to existing Load Balancer

8. Select the target group that you have created for Autoscaling

9. Leave Health checks and Additional settings as default

10. Click Next

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The screenshot shows the 'Attach to an existing load balancer' step in the AWS Management Console. At the top, there are three radio button options: 'No load balancer', 'Attach to an existing load balancer' (which is selected), and 'Attach to a new load balancer'. Below these, the 'Attach to an existing load balancer' section is active, showing two more radio button options: 'Choose from your load balancer target groups' (selected) and 'Choose from Classic Load Balancers'. A dropdown menu for 'Existing load balancer target groups' is open, showing 'albtargtargetgroup | HTTP' with a subtext 'Application Load Balancer: applicationloadbalancer1'. The top navigation bar shows the user is in the Mumbai region and logged in as gujjapranaykumar @ 6281-3291-6033.

11. In the Configure group size set as below 2,1,2

12. In the Scaling policies , select Target scaling policy and provide the options as below

13. Click Next

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The screenshot shows two steps in the AWS Management Console: 'Group size' and 'Scaling'. In the 'Group size' step, the 'Desired capacity type' is set to 'Units (number of instances)' and the 'Desired capacity' is set to '2'. In the 'Scaling' step, the 'Scaling limits' are set with 'Min desired capacity' at '1' and 'Max desired capacity' at '2'. Below this, the 'Choose whether to use a target tracking policy' section shows 'Target tracking scaling policy' selected. The 'Scaling policy name' is 'Target Tracking Policy', the 'Metric type' is 'Application Load Balancer request count per target', the 'Target group' is 'albtargtargetgroup', and the 'Target value' is '50'. The top navigation bar is consistent with the previous screenshot.

14. In Add notification click on create a topic,provide your email address

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ate Auto Scaling group

Add notifications - optional [Info](#)

Send notifications to SNS topics whenever Amazon EC2 Auto Scaling launches or terminates the EC2 instances in your Auto Scaling group.

▼ Notification 1 Remove

SNS Topic
Choose an SNS topic to use to send notifications

autoscaling (pranaygujja555@gmail.com) ▼

Create a topic

Event types
Notify subscribers whenever instances

- ☒ Launch
- ☒ Terminate
- ☒ Fail to launch
- ☒ Fail to terminate

15. Provide the Tags for new instances

16. Verify all the configurations and click on 'create auto scaling groups'

17. Auto Scaling group will be created as below

18. Once Auto scaling group created you can see the instance will be launched automatically as per the minimum capacity value. You can check the target details in your target group

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autoscaling (pranaygujja555@gmail.com)

Launch, Terminate, Fail to launch, Fail to terminate

Activity history (2)

Filter activity history

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Status	Description	Cause	Start time
<div><div>✔</div><div>Successful</div></div>	Launching a new EC2 instance: i-0d12f8b8bb53ed4ec	At 2024-01-08T16:18:17Z a user request created an AutoScalingGroup changing the desired capacity from 0 to 2. At 2024-01-08T16:18:30Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 2.	2024 January 08 09:48:32 +05:30
<div><div>✔</div><div>Successful</div></div>	Launching a new EC2 instance: i-0e4192679bc3a4349	At 2024-01-08T16:18:17Z a user request created an AutoScalingGroup changing the desired capacity from 0 to 2. At 2024-01-08T16:18:30Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 2.	2024 January 08 09:48:32 +05:30

☆ autoscaling activat. 2

Auto Scaling: launch for group "autoscaling-grp1" - Service: AWS Auto Scaling Time: 20...

9:49 PM

☆ autoscaling activat.

Auto Scaling: test notification for group "autoscaling-grp1" - Service: AWS Auto Scaling ...

9:48 PM

19. Also you can see the instances list, where you can see Auto scaled instance will be up and running

Test the Auto scaling by applying Loads using jmeter(install in windows)

1.Download and install Apache jmeter 5.5 from this url

https://jmeter.apache.org/download_jmeter.cgi

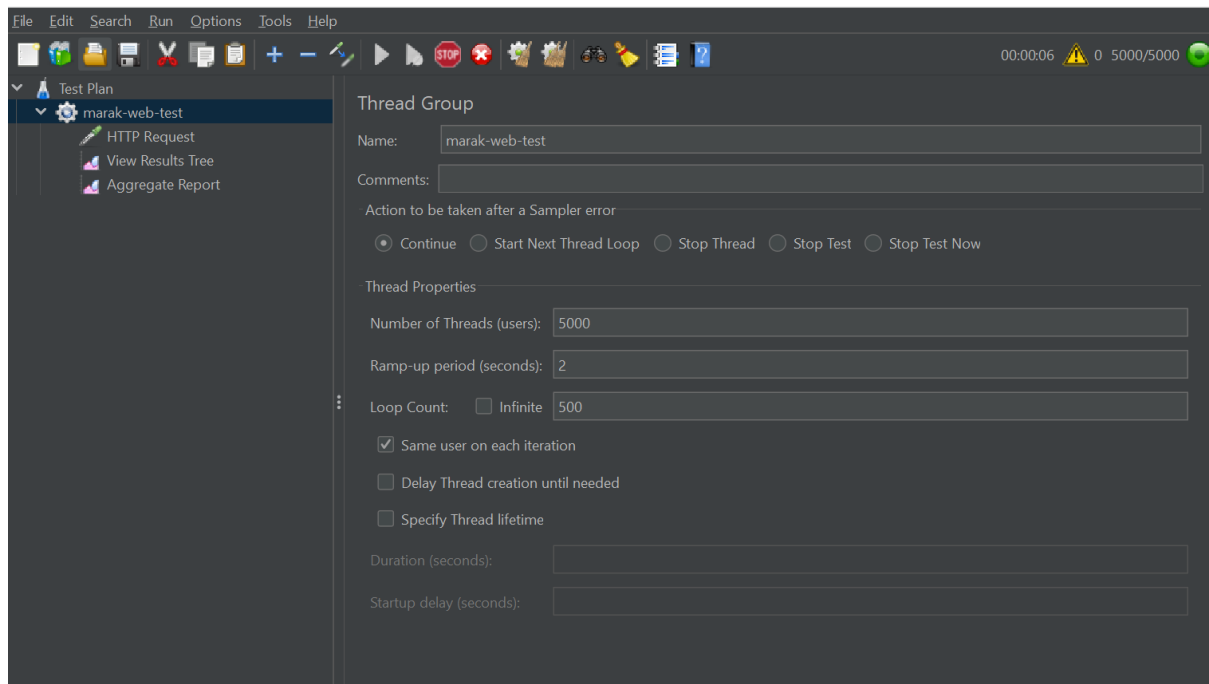
2.Run jmeter batch file inside bin folder to open the console

3.Open web-test.jmx in the below link your _Load_Balancer_url update your url and save changes

<https://drive.google.com/drive/folders/1HlpPpbsMu75aCLpnQogfPhb4XBB84aUW>

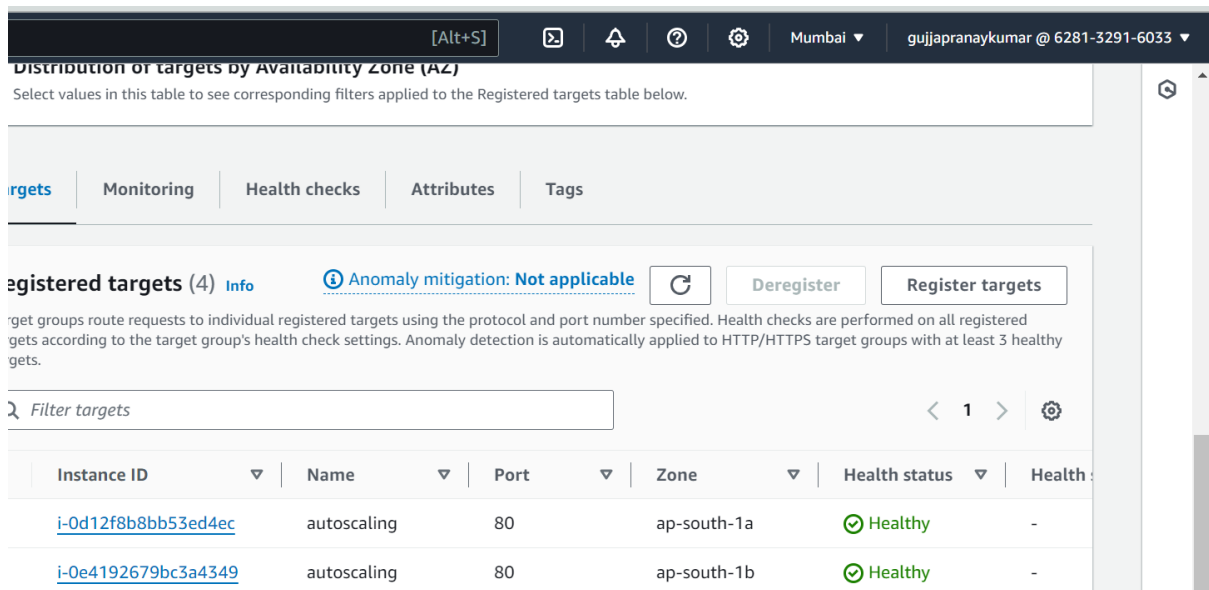
4.In the jmeter console open the web-test.jmx file and click play button and it starts to push the load to your Load Balancer

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5.Check the Target group Registered targets after 5 minutes you will see a new instance launched as per Auto scaling configuration

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6.Once after the Load run gets completed in the jmeter the 2nd instance will drain automatically after some 15 minutes of time and the instance will get terminated eventually as seen in the picture below

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[Alt+S]

Mumbai

gujjapranaykumar @ 6281-3291-6033

Distribution of targets by Availability Zone (AZ)

Select values in this table to see corresponding filters applied to the Registered targets table below.

Targets

Monitoring

Health checks

Attributes

Tags

Registered targets (4) Info

Anomaly mitigation: Not applicable

Deregister

Register targets

Target groups route requests to individual registered targets using the protocol and port number specified. Health checks are performed on all registered targets according to the target group's health check settings. Anomaly detection is automatically applied to HTTP/HTTPS target groups with at least 3 healthy targets.

Filter targets

< 1 >

<input type="checkbox"/>	Instance ID	Name	Port	Zone	Health status	Health s
<input checked="" type="checkbox"/>	i-0d12f8b8bb53ed4ec	autoscaling	80	ap-south-1a	Draining	Target c
<input type="checkbox"/>	i-0e4192679bc3a4349	autoscaling	80	ap-south-1b	Healthy	-

7.Once Auto scaled instance gets drained it will get terminated automatically you can verify it in the Instance list

END