

Managing Cloud & Containerisation

EXP 1-10 (REVISION) MAY22

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CLASS : II IT - B

➤ EXP 1 :

Console Home

Recently visited: IAM, EC2, Elastic Container Service, Billing and Cost Management, CloudFront, S3, Cloud9.

Welcome to AWS: Getting started with AWS. Learn the fundamentals and find valuable information to get the most out of AWS.

AWS Health: Open issues: 0 (Past 7 days). Scheduled changes: 0 (Upcoming and past 7 days).

Cost and usage: Current month costs: \$3.50. Forecasted month end costs: Data unavailable.

EC2 Dashboard

Resources: Instances (running): 4, Auto Scaling Groups: 0, Dedicated Hosts: 0, Elastic IPs: 0, Instances: 5, Key pairs: 5, Load balancers: 4, Placement groups: 0, Security groups: 41, Snapshots: 2, Volumes: 5.

Launch instance: Launch instance, Migrate a server.

Service health: AWS Health Dashboard, Region: Asia Pacific (Mumbai), Status: This service is operating normally.

Zones: Zone name: ap-south-1a, Zone ID: aps1-az1; Zone name: ap-south-1b, Zone ID: aps1-az3.

Offer usage (monthly): Linux EC2 Instances: 17%, Windows EC2 Instances: 0%, EBS:SnapshotUsage: 17%, EBS:SnapshotChange: 0%, Storage space on EBS: 14%.

Launch an instance

Summary: Number of instances: 1, Software Image (AMI): Amazon Linux 2023 AMI 2023.4.2...read more, Virtual server type (instance type): t2.micro, Firewall (security group): New security group, Storage (volumes): 1 volume(s) - 8 GB.

Name and tags: Name: 119_kesav_9087.

Application and OS Images (Amazon Machine Image): Search bar: Search our full catalog including 1000s of application and OS images, Recent AMIs: Amazon Linux, macOS, Ubuntu, Windows, Red Hat, SUSE, SUSI.

The screenshot shows the AWS Lambda console interface. A new function named "HelloWorld" is being created. The "Code" tab is active, displaying the Lambda@Edge code. The "Handler" dropdown is set to "index.handler". The "Runtime" dropdown is set to "Node.js 16.x". The "Memory" dropdown is set to "128 MB". The "Timeout" dropdown is set to "3 seconds". The "Tracing" dropdown is set to "AWS X-Ray". The "Environment variables" section contains a variable "NAME" with the value "HelloWorld". The "Logs" section shows a log entry: "2024-01-15T12:00:00Z - INFO Hello, world! (version 1)".

The screenshot shows the AWS Lambda console interface. A new function named "HelloWorld" is being created. The "Code" tab is active, displaying the Lambda@Edge code. The "Handler" dropdown is set to "index.handler". The "Runtime" dropdown is set to "Node.js 16.x". The "Memory" dropdown is set to "128 MB". The "Timeout" dropdown is set to "3 seconds". The "Tracing" dropdown is set to "AWS X-Ray". The "Environment variables" section contains a variable "NAME" with the value "HelloWorld". The "Logs" section shows a log entry: "2024-01-15T12:00:00Z - INFO Hello, world! (version 1)".

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➤ EXP 2 :

The screenshot shows the initial step of launching an instance. It includes fields for 'Name and tags' (Name: 119_kesav_9087), 'Application and OS Images (Amazon Machine Image)' (Quick Start tab selected, showing options like Amazon Linux, macOS, Ubuntu, Windows, Red Hat, SUSE, and others), and a summary section with 'Number of instances' set to 1, 'Software Image (AMI)' as Microsoft Windows Server 2022, 'Virtual server type (instance type)' as t2.micro, and 'Storage (volumes)' as 1 volume(s) - 30 GiB. A prominent orange 'Launch instance' button is at the bottom right.

This screenshot shows the 'Instance type' and 'Key pair (login)' sections. The instance type is set to t2.micro. The key pair is named 119_kesav_9087_windows. Other sections shown include 'Network settings' (auto-assign public IP enabled) and a summary section identical to the first one.

This screenshot shows the 'Configure security group' and 'Configure storage' sections. In the security group section, a new security group named 'launch-wizard-32' is being created with rules for RDP, HTTPS, and HTTP traffic. In the storage section, a root volume of 30 GiB is selected. The summary section remains consistent with previous steps.

The screenshot shows the AWS EC2 Instances page. On the left, there's a navigation sidebar with links like EC2 Dashboard, EC2 Global View, Events, Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity, Reservations, Images, AMIs, AMI Catalog, Elastic Block Store, Volumes, Snapshots, Lifecycle Manager, Network & Security, Security Groups, Elastic IPs, and Placement Groups. The main area displays a table titled "Instances (4) Info" with columns: Name, Instance ID, Instance state, Instance type, Status check, Alarm status, Availability Zone, Public IPv4 DNS, and Public IPv4. There are four instances listed:

| Name | Instance ID | Instance state | Instance type | Status check | Alarm status | Availability Zone | Public IPv4 DNS | Public IPv4 |
|-----------------|---------------------|----------------|---------------|-------------------|--------------|-------------------|--------------------------|---------------|
| 120_kirthi_9... | i-0d5709e0decf5d649 | Running | t2.micro | 2/2 checks passed | View alarms | ap-south-1b | ec2-65-2-74-133.ap.so... | 65.2.24.133 |
| 120_kirthi_9... | i-06cae6ba6b3ea781e | Running | t2.micro | 2/2 checks passed | View alarms | ap-south-1b | ec2-3-7-248-122.ap.s... | 3.7.248.122 |
| 119_kesav_9087 | i-0c993beecf0185b4e | Running | t2.micro | Initializing | View alarms | ap-south-1b | ec2-3-108-220-38.ap.s... | 3.108.220.38 |
| aws-cloud9-1... | i-0ff0a23536bfe882f | Running | t2.micro | 2/2 checks passed | View alarms | ap-south-1a | ec2-13-232-202-48.ap... | 13.232.202.48 |

At the bottom, there are buttons for "Connect", "Launch instances", and "Actions". The URL in the address bar is <https://ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#instances>.

The screenshot shows the "Instance details" page for instance **i-0c993beecf0185b4e (119_kesav_9087)**. The left sidebar is identical to the previous screenshot. The main content area is titled "Instance summary for i-0c993beecf0185b4e (119_kesav_9087)". It provides detailed information about the instance, including:

- Public IP4 address: 3.108.220.38 [open address]
- Private IP4 addresses: 172.31.11.54
- Public IPv4 DNS: ec2-3-108-220-38.ap-south-1.compute.amazonaws.com [open address]
- Instance state: Running
- Hostname type: IP name: ip-172-31-11-54.ap-south-1.compute.internal
- Answer private resource DNS name: IPv4 (A)
- Auto-assigned IP address: 3.108.220.38 [Public IP]
- IAM Role: -
- Subnet ID: subnet-0a0adb5871d068d35
- VPC ID: vpc-0dc933263ac33355
- IMDSv2 Required
- Platform: windows
- AMI ID: ami-0f346136f3b572267
- AMI name: Windows_Server-2022-English-Full-Base-2024.05.15
- Monitoring: disabled
- Termination protection: Disabled

Below this, there are tabs for "Details", "Status and alarms", "Monitoring", "Security", "Networking", "Storage", and "Tags". The URL in the address bar is <https://ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#instanceDetails?instanceId=i-0c993beecf0185b4e>.

The screenshot shows the "Connect to instance" page for instance **i-0c993beecf0185b4e (119_kesav_9087)**. The left sidebar is identical. The main content area is titled "Connect to instance". It provides options for connecting:

- Session Manager**: A link to the Session Manager.
- RDP client**: A link to download the RDP shortcut file.
- EC2 serial console**: A link to the serial console.
- Connection Type**:
 - Connect using RDP client**: A note that you must have an RDP client installed and running on your computer.
 - Connect using Fleet Manager**: A note that the Fleet Manager Agent must be installed and running on the instance. It includes a link to "Working with SSM Agent".

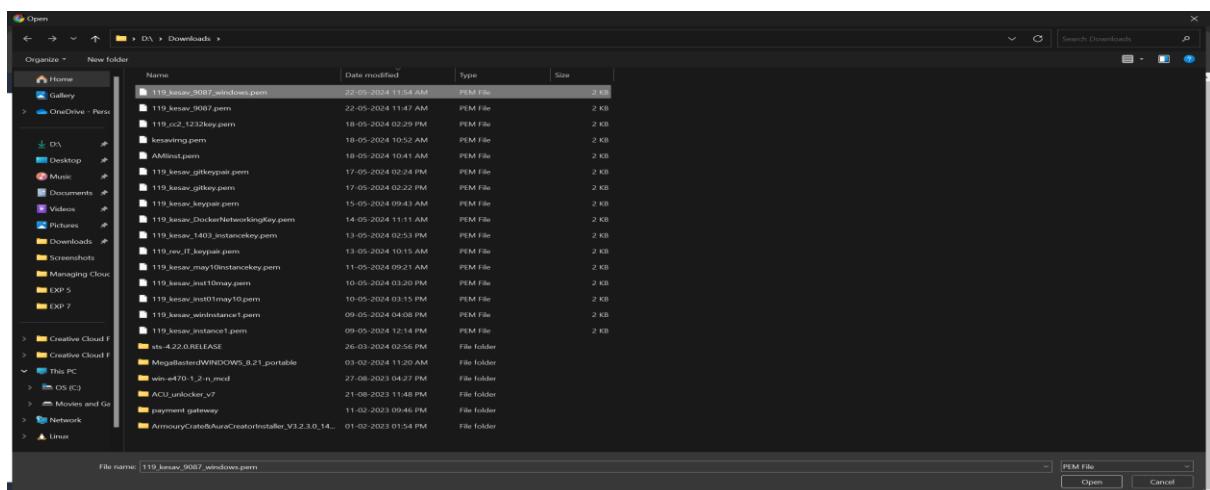
Below these options, it says "You can connect to your Windows instance using a remote desktop client of your choice, and by downloading and running the RDP shortcut file below:" and shows a "Download remote desktop file" button. It also asks for a "Username" (Administrator) and "Password". A note at the bottom says "If you've joined your instance to a directory, you can use your directory credentials to connect to your instance". The URL in the address bar is <https://ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#connectToInstance?instanceId=i-0c993beecf0185b4e>.

Screenshot of the AWS CloudShell interface showing the 'Get Windows password' step for an EC2 instance. The terminal window displays the command:

```
aws ec2 get-windows-password --instance-id i-0c993beecf0185b4e --key-pair-name 119_kesav_9087_windows
```

The output shows the private key content being uploaded:

```
-----BEGIN RSA PRIVATE KEY-----
MIIEpaIBAAKCAQEAsh0+1nw0ET3QWjQRZrAQS/FXOvIuo9zJkZBkMnvxjV+7Jg
+WIU2tp4p8Nlotp0HnEwC21cTxDyv1YtPiyTBApdwWkkMunR26nTJKdLb
+P#83VUkC/xShgLo/y77737Gfdlk7le93XU7ak8LdmvYSN461RjaOpmtvUSctTw
HEU9vJByxveUcRDRDUBBY7dMLQ3EPYQYWSL6Mr+1zFC+kQfmo4ok3leinYqH
8D5TbcK2CO2Fc+pxvJqf52dg79GeLg7BoXvntF9BUwq/dfl3u+o2ctL1
WMumpv5dQJuh/RBVAB/L2zq+dCeSnzBqu2j2QIDAOABAoBaHH+qODSflu/oUeJ
3/J2+a+nbeoUqTBRVYh/ZJrbuLT4VS+tnpj93AOw0BzEFl0uiInuEBLyY1
-----END RSA PRIVATE KEY-----
```



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```

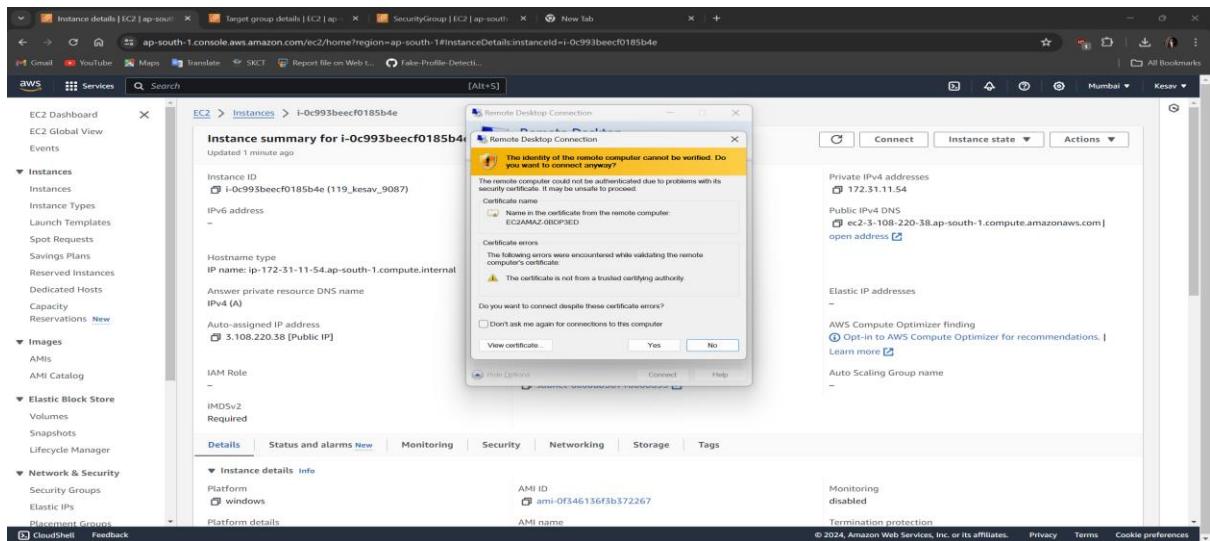
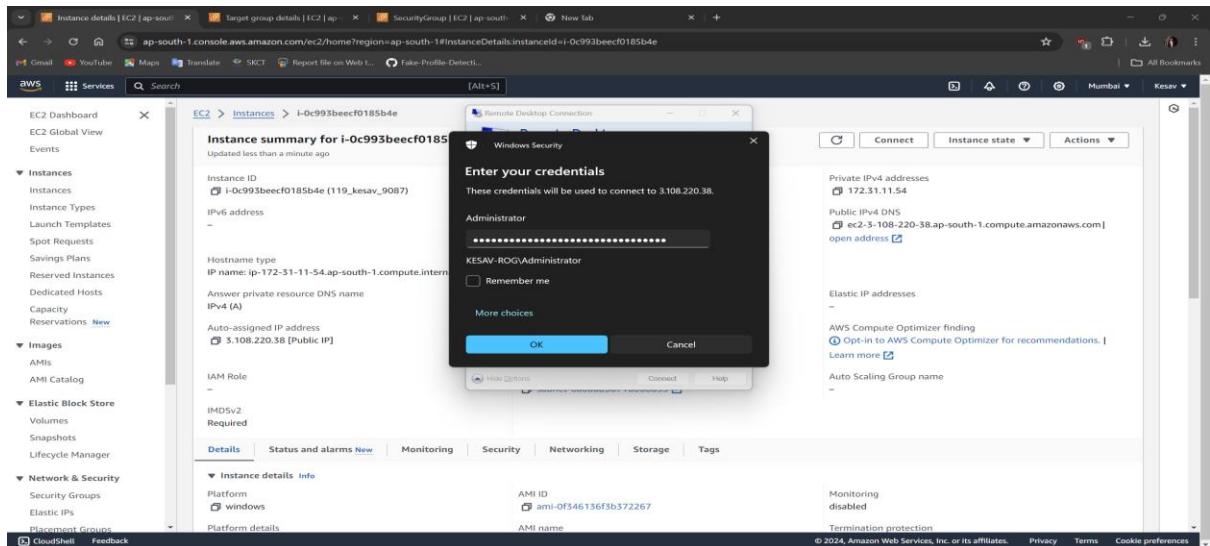
The output shows the private key content being uploaded:

```
-----BEGIN RSA PRIVATE KEY-----
MIIEpaIBAAKCAQEAsh0+1nw0ET3QWjQRZrAQS/FXOvIuo9zJkZBkMnvxjV+7Jg
+WIU2tp4p8Nlotp0HnEwC21cTxDyv1YtPiyTBApdwWkkMunR26nTJKdLb
+P#83VUkC/xShgLo/y77737Gfdlk7le93XU7ak8LdmvYSN461RjaOpmtvUSctTw
HEU9vJByxveUcRDRDUBBY7dMLQ3EPYQYWSL6Mr+1zFC+kQfmo4ok3leinYqH
8D5TbcK2CO2Fc+pxvJqf52dg79GeLg7BoXvntF9BUwq/dfl3u+o2ctL1
WMumpv5dQJuh/RBVAB/L2zq+dCeSnzBqu2j2QIDAOABAoBaHH+qODSflu/oUeJ
3/J2+a+nbeoUqTBRVYh/ZJrbuLT4VS+tnpj93AOw0BzEFl0uiInuEBLyY1
-----END RSA PRIVATE KEY-----
```

The screenshot shows the AWS EC2 Connect to Instance page. At the top, there are three tabs: 'Connect to instance | EC2 | ap-south-1' (active), 'Target group details | EC2 | ap-south-1', and 'SecurityGroup | EC2 | ap-south-1'. Below the tabs, the URL is ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#ConnectToInstanceinstanceId=i-0c993beecf0185b4e. The main content area is titled 'Connect to instance' with a 'Info' link. It says 'Connect to your instance i-0c993beecf0185b4e (119_kesav_9087) using any of these options'. There are two tabs: 'Session Manager' (selected) and 'RDP client'. Under 'Session Manager', the instance ID is listed as 'i-0c993beecf0185b4e (119_kesav_9087)'. Under 'RDP client', the option 'Connect using RDP client' is selected, with a note: 'Download a file to use with your RDP client and retrieve your password.' To the right, there is a note about connecting using Fleet Manager: 'To connect to the instance using Fleet Manager Remote Desktop, the SSM Agent must be installed and running on the instance. For more information, see Working with SSM Agent.' Below these sections, it says 'You can connect to your Windows instance using a remote desktop client of your choice, and by downloading and running the RDP shortcut file below.' A 'Download remote desktop file' button is shown. Further down, there are fields for 'Public DNS' (ec2-3-108-220-38.ap-south-1.compute.amazonaws.com) and 'Username' (Administrator). A note at the bottom says 'If you've joined your instance to a directory, you can use your directory credentials to connect to your instance'. The bottom of the page includes standard AWS footer links: 'cloudShell', 'Feedback', '© 2024, Amazon Web Services, Inc. or its affiliates.', 'Privacy', 'Terms', and 'Cookie preferences'.

The screenshot shows the AWS EC2 Instances summary page for the instance i-0c993beecf0185b4e (119_kesav_9087). The left sidebar shows navigation links for EC2 Dashboard, EC2 Global View, Events, Instances, Images, Elastic Block Store, Network & Security, and other services. The main content area is titled 'Instance summary for i-0c993beecf0185b4e (119_kesav_9087) | Info'. It displays various instance details: Instance ID (i-0c993beecf0185b4e (119_kesav_9087)), Public IP (3.108.220.38), Instance state (Running), Hostname type (IP name: ip-172-31-11-54.ap-south-1.compute.internal), Private IP (ip-172-31-11-54.ap-south-1.compute.internal), VPC ID (vpc-0dc93265ac33355), and Subnet ID (subnet-0aadb3871d06bd33). It also shows Auto-assigned IP address (3.108.220.38), IAM Role (None), and IMDSv2 status (Required). The 'Details' tab is selected. On the right, there are sections for 'Private IPv4 addresses' (172.31.11.54), 'Public IPv4 DNS' (ec2-3-108-220-38.ap-south-1.compute.amazonaws.com), 'Elastic IP addresses' (None), 'AWS Compute Optimizer finding' (None), and 'Auto Scaling Group name' (None). The bottom of the page includes standard AWS footer links: 'cloudShell', 'Feedback', '© 2024, Amazon Web Services, Inc. or its affiliates.', 'Privacy', 'Terms', and 'Cookie preferences'.

The screenshot shows the 'Remote Desktop Connection' dialog box over the EC2 Instances summary page. The dialog box has tabs for General, Display, Local Resources, Experience, and Advanced. In the General tab, the 'Computer' field is set to '3.108.220.38' and the 'User name' is 'Administrator'. There is a checkbox 'Allow me to save credentials'. The 'Connection settings' section allows saving the connection to an RDP file. The background shows the same EC2 Instances summary page as the previous screenshot, with the instance details and AWS footer visible.



➤ EXP 3 :

The screenshot shows the AWS S3 homepage. On the left, there's a sidebar with options like Buckets, Access Grants, Access Points, Object Lambda Access Points, Multi-Region Access Points, Batch Operations, IAM Access Analyzer for S3, Block Public Access settings for this account, Storage Lens, Dashboards, Storage Lens groups, AWS Organizations settings, Feature spotlight, and AWS Marketplace for S3. The main content area features the heading "Amazon S3" and the sub-headline "Store and retrieve any amount of data from anywhere". Below this is a brief description of Amazon S3 and a video thumbnail titled "Introduction to Amazon S3" with the URL "aws.amazon.com/S3". To the right, there's a "Create a bucket" button, a "Pricing" section with a note about no minimum fees, and a "Resources" section with a "User guide" link. At the bottom, there's a footer with links to CloudShell, Feedback, and copyright information.

This screenshot shows the "Create bucket" configuration page. It starts with a "General configuration" section where the AWS Region is set to "Asia Pacific (Mumbai) ap-south-1" and the Bucket name is "119kesav9087bucket". There's a note that bucket names must be unique. Below this is a "Copy settings from existing bucket - optional" section with a "Choose bucket" dropdown set to "Bucket owner enforced". The next section is "Object Ownership" with two options: "ACLs disabled (recommended)" (selected) and "ACLs enabled". The "ACLs disabled" option notes that objects belong to the account owner and can be accessed by others if granted permissions. The "ACLs enabled" option notes that objects can be owned by other AWS accounts and can be accessed by them if granted permissions. At the bottom, there's a "CloudShell" and "Feedback" link.

This screenshot shows the continuation of the "Create bucket" configuration. It includes sections for "Block public access", "Bucket Versioning", and "Tags - optional". The "Block public access" section has several checkboxes: "Block all public access" (checked), "Block public access to buckets and objects granted through new access control lists (ACLs)", "Block public access to buckets and objects granted through any access control lists (ACLs)", "Block public access to buckets and objects granted through new public bucket or access point policies", and "Block public and cross-account access to buckets and objects through any public bucket or access point policies". The "Bucket Versioning" section has a radio button for "Enable" (selected). The "Tags - optional" section allows users to add tags for tracking storage costs and organizing buckets. The footer contains links for CloudShell, Feedback, and copyright information.

S3 buckets | S3 | ap-south-1 | Target group details | EC2 | ap-south-1 | SecurityGroup | EC2 | ap-south-1 | New tab

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aws Services Search [Alt+S]

Successfully created bucket "119kesav9087bucket". To upload files and folders, or to configure additional bucket settings, choose View details.

Amazon S3 > Buckets

▶ Account snapshot - updated every 24 hours All AWS Regions Storage lens provides visibility into storage usage and activity trends. Learn more

View Storage Lens dashboard

General purpose buckets | Directory buckets

General purpose buckets (4) Info All AWS Regions Buckets are containers for data stored in S3.

Find buckets by name

| Name | AWS Region | IAM Access Analyzer | Creation date |
|--------------------|----------------------------------|------------------------------|------------------------------------|
| 119kesav9087bucket | Asia Pacific (Mumbai) ap-south-1 | View analyzer for ap-south-1 | May 22, 2024, 12:17:54 (UTC+05:30) |
| 120bug | Asia Pacific (Mumbai) ap-south-1 | View analyzer for ap-south-1 | May 20, 2024, 11:04:57 (UTC+05:30) |
| 120kiruthi | Asia Pacific (Mumbai) ap-south-1 | View analyzer for ap-south-1 | May 20, 2024, 10:44:33 (UTC+05:30) |
| 120kiruthi4455 | Asia Pacific (Mumbai) ap-south-1 | View analyzer for ap-south-1 | May 20, 2024, 14:23:12 (UTC+05:30) |

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Edit static website hosting - S3 | Target group details | EC2 | ap-south-1 | SecurityGroup | EC2 | ap-south-1 | New tab

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aws Services Search [Alt+S]

Amazon S3 > Buckets > 119kesav9087bucket > Edit static website hosting

Edit static website hosting Info Info

Static website hosting Use this bucket to host a website or redirect requests. Learn more

Disable Enable

Hosting type Host a static website Use the bucket endpoint as the web address. Learn more Redirect requests for an object Redirect requests to another bucket or domain. Learn more

For your customers to access content at the website endpoint, you must make all your content publicly readable. To do so, you can edit the S3 Block Public Access settings for the bucket. For more information, see Using Amazon S3 Block Public Access.

Index document Specify the home or default page of the website. index.html

Error document - optional This is returned when an error occurs. error.html

Redirection rules - optional Redirection rules, written in JSON, automatically redirect webpage requests for specific content. Learn more

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Upload objects - S3 bucket 119kesav9087bucket | Target group details | EC2 | ap-south-1 | SecurityGroup | EC2 | ap-south-1 | New tab

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aws Services Search [Alt+S]

Upload succeeded View details below.

Upload: status Close

The information below will no longer be available after you navigate away from this page.

Summary

| Destination | Succeeded | Failed |
|-------------------------|---------------------------|-------------------|
| s3://119kesav9087bucket | 1 file, 296.0 B (100.00%) | 0 files, 0 B (0%) |

Files and folders (1 Total, 296.0 B)

| Name | Folder | Type | Size | Status | Error |
|------------|--------|-----------|---------|-----------|-------|
| index.html | - | text/html | 296.0 B | Succeeded | - |

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Screenshot of the AWS Policy Generator interface showing Step 1: Select Policy Type. The selected type is "S3 Bucket Policy". Step 2: Add Statement(s) shows an example statement for "Amazon S3" with "Action(s) Selected" set to "s3:GetObject". Step 3: Generate Policy shows the generated JSON policy document.

```

{
    "Id": "Policy1716360848814",
    "Version": "2012-10-17",
    "Statement": [
        {
            "Effect": "Allow",
            "Action": "s3:GetObject",
            "Resource": "arn:aws:s3:::119kesav9087bucket/*",
            "Principal": "*"
        }
    ]
}

```

Screenshot of the AWS Policy Generator interface showing the generated JSON policy document. A modal window displays the policy details, including the ID, version, and statement structure. The statement allows reading objects from the specified bucket.

Screenshot of the AWS Management Console showing the "Edit bucket policy" page for the bucket "119kesav9087bucket". The policy is displayed in JSON format, matching the one generated by the AWS Policy Generator. The right side of the screen shows the "Edit statement" interface, which includes a "Select a statement" dropdown and a "Add new statement" button.

```

{
    "Id": "Policy1716360848814",
    "Version": "2012-10-17",
    "Statement": [
        {
            "Effect": "Allow",
            "Action": "s3:GetObject",
            "Resource": "arn:aws:s3:::119kesav9087bucket/*",
            "Principal": "*"
        }
    ]
}

```

The screenshot shows the AWS S3 Bucket Properties page for the bucket '119kesav9087bucket'. The 'Block public access' section is displayed, showing that 'Block all public access' is turned off. A JSON policy document is shown below:

```
{
    "Version": "2012-10-17",
    "Id": "Policy1716360848814",
    "Statement": [
        {
            "Sid": "Stmt1716360846141",
            "Effect": "Allow",
            "Principal": "*",
            "Action": "s3:GetObject",
            "Resource": "arn:aws:s3:::119kesav9087bucket/*"
        }
    ]
}
```

The screenshot shows the AWS S3 Bucket Properties page for the bucket '119kesav9087bucket'. The 'Object Lock' section is displayed, showing that 'Object Lock' is disabled. The 'Requester pays' section is also shown, indicating that requester pays is disabled.

The screenshot shows the AWS S3 Bucket Properties page for the bucket '119kesav9087bucket'. The 'Static website hosting' section is displayed, showing that static website hosting is enabled with the hosting type 'Bucket endpoint copied'. The website endpoint is listed as <http://119kesav9087bucket.s3-website.ap-south-1.amazonaws.com>.

CODING CONTEST 1

➤ EXP 4 :

IAM Dashboard

Security recommendations:

- Root user has MFA
- Root user has no active access keys

IAM resources:

| User groups | Users | Roles | Policies | Identity providers |
|-------------|-------|-------|----------|--------------------|
| 0 | 2 | 9 | 0 | 0 |

What's new:

- IAM Access Analyzer now simplifies inspecting unused access to guide you toward least privilege. 6 months ago
- IAM Access Analyzer introduces custom policy checks powered by automated reasoning. 6 months ago
- Announcing AWS IAM Identity Center APIs for visibility into workforce access to AWS. 6 months ago

AWS Account:

- Account ID: 381491820607
- Account Alias: Create
- Sign-in URL for IAM users in this account: https://381491820607.signin.aws.amazon.com/console

Quick Links:

- My security credentials: Manage your access keys, multi-factor authentication (MFA) and other credentials.

Tools:

- Policy simulator: The simulator evaluates the policies that you choose and provides recommendations for how to improve them.

Create user group

Name the group:

User group name: 119_kesav_9087_usergroup

Add users to the group - Optional (2/3)

Search results:

| User name | Groups | Last activity | Creation time |
|----------------------|--------|---------------|---------------|
| 119_kesav_9087_user1 | 0 | None | 1 minute ago |
| 119_kesav_9087_user2 | 0 | None | Now |
| Kiruthika | 0 | 2 hours ago | 6 days ago |

Attach permissions policies - Optional (2/926)

You can attach up to 10 policies to this user group. All the users in this group will have permissions that are defined in the selected policies.

119_kesav_9087_usergroup

Summary:

User group name: 119_kesav_9087_usergroup

Creation time: May 22, 2024, 12:34 (UTC+05:30)

ARN: arn:aws:iam::381491820607:group/119_kesav_9087_use rgroup

Users (2):

| User name | Groups | Last activity | Creation time |
|----------------------|--------|---------------|---------------|
| 119_kesav_9087_user1 | 1 | None | 2 minutes ago |
| 119_kesav_9087_user2 | 1 | None | 1 minute ago |

User groups | IAM | Global

us-east-1.console.aws.amazon.com/iam/home?region=ap-south-1#/groups

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AWS Services Search [Alt+S]

Identity and Access Management (IAM)

Search IAM

Dashboard

Access management

- User groups
- Users
- Roles
- Policies
- Identity providers
- Account settings

Access reports

- Access Analyzer
 - External access
 - Unused access
 - Analyzer settings
- Credential report
- Organization activity
- Service control policies

Related consoles

cloudShell Feedback

IAM > User groups

User groups (1) **Info**

A user group is a collection of IAM users. Use groups to specify permissions for a collection of users.

Search

| Group name | Users | Permissions | Creation time |
|--|-------|-------------|---------------|
| 119_kesav_9087_usergroup | 2 | Defined | Now |

Create group

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The screenshot shows the AWS IAM User Groups page. On the left, there's a navigation sidebar with 'Identity and Access Management (IAM)' selected. Under 'Access management', 'User groups' is also selected. The main content area shows a table with one row for a user group. The table has columns for 'Group name', 'Users', 'Permissions', and 'Creation time'. The 'Group name' column contains a link to '119_kesav_9087_usergroup'. The 'Users' column shows '2'. The 'Permissions' column shows 'Defined'. The 'Creation time' column shows 'Now'. At the top right of the main content area, there are 'Delete' and 'Create group' buttons. The bottom right of the page includes copyright information and links for 'Privacy', 'Terms', and 'Cookie preferences'.

➤ EXP 5 :

The screenshot shows the 'Launch an instance' wizard on the AWS EC2 console. The first step, 'Name and tags', has a single tag named '119_kesav_9087_exp5'. The second step, 'Application and OS Images (Amazon Machine Image)', shows a search bar and a grid of AMI icons including Amazon Linux, macOS, Ubuntu, Windows, Red Hat, and SUSE. The third step, 'Summary', shows one instance being launched with the following details:

- Software Image (AMI):** Amazon Linux 2023 AMI 2023.4.2...read more
- Virtual server type (instance type):** t2.micro
- Firewall (security group):** New security group
- Storage (volumes):** 1 volume(s) - 8 GiB

The 'Launch instance' button is highlighted.

The screenshot shows the 'Network settings' section of the launch wizard. It includes fields for a key pair ('119_kesav_9087_exp5') and a security group ('Create security group'). Under 'Create security group', three rules are defined:

- Allow SSH traffic from Anywhere (0.0.0.0/0)
- Allow HTTPS traffic from the internet
- Allow HTTP traffic from the internet

The 'Launch instance' button is highlighted.

The screenshot shows the 'Instances (1/3)' page. It lists three instances:

| Name | Instance ID | Instance state | Instance type | Status check | Alarm status | Availability Zone |
|------------------|---------------------|----------------|---------------|-------------------|---------------|-------------------|
| 120_kinuthi_9... | i-0d5709ed0ecd5d649 | Running | t2.micro | 2/2 checks passed | View alarms + | ap-south-1b |
| 120_kinuthi_9... | i-06cae6ab63ea781e | Running | t2.micro | 2/2 checks passed | View alarms + | ap-south-1b |
| 119_kesav_90... | i-0b9d8b997d6d2cad7 | Running | t2.micro | 0/2 checks passed | View alarms + | ap-south-1b |

A context menu is open over the third instance, showing options like 'Connect', 'View details', 'Manage instance state', 'Instance settings', 'Networking', 'Security', 'Image and templates', and 'Monitor and troubleshoot'.

Create Image | EC2 | ap-south-1

[EC2](#) > [Instances](#) > [i-0b9d8b997d6d2cad7](#) > Create image

Create image

An image (also referred to as an AMI) defines the programs and settings that are applied when you launch an EC2 instance. You can create an image from the configuration of an existing instance.

| | | | | | | | | |
|---|---|---------------------------|------|--------------------------|------|------------|--|--------------------------|
| Instance ID | i-0b9d8b997d6d2cad7 (119_kesav_9087_exp5) | | | | | | | |
| Image name | 119_kesav_9087_img | | | | | | | |
| Image description - optional | myimg | | | | | | | |
| No reboot | <input type="checkbox"/> | | | | | | | |
| Enable | <input checked="" type="checkbox"/> | | | | | | | |
| Instance volumes | | | | | | | | |
| Storage type | Device | Snapshot | Size | Volume type | IOPS | Throughput | Delete on termination | Encrypted |
| EBS | /dev/... | Create new snapshot fr... | 8 | EBS General Purpose S... | 3000 | | <input checked="" type="checkbox"/> Enable | <input type="checkbox"/> |
| <small>During the image creation process, Amazon EC2 creates a snapshot of each of the above volumes.</small> | | | | | | | | |

[CloudShell](#) [Feedback](#)

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Images | EC2 | ap-south-1

[EC2](#) > [Images](#) > AMIs

Amazon Machine Images (AMIs) (1) Info

| Name | AMI name | AMI ID | Source | Owner | Visibility | Status |
|--------------------|-----------------------|---------------------------------|--------------|---------|------------|--------|
| 119_kesav_9087_img | ami-0aac95e7bbde38c1a | 381491820607/119_kesav_9087_img | 381491820607 | Private | Pending | |

[Actions](#) [Launch instance from AMI](#)

[CloudShell](#) [Feedback](#)

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Create volume | EC2 | ap-south-1

[EC2](#) > [Volumes](#) > Create volume

Create volume

Create an Amazon EBS volume to attach to any EC2 instance in the same Availability Zone.

| | |
|---|---------------------------|
| Volume settings | |
| Volume type | General Purpose SSD (gp3) |
| <small>General Purpose SSD gp3 is now the default selection. gp3 provides up to 20% lower cost per GB than gp2.</small> | |
| Size (GiB) | 1 |
| <small>Min: 1 GiB, Max: 16384 GiB. The value must be an integer.</small> | |
| IOPS | 3000 |
| <small>Min: 3000 IOPS, Max: 16000 IOPS. The value must be an integer.</small> | |
| Throughput (MiB/s) | 125 |
| <small>Min: 125 MiB, Max: 1000 MiB. Baseline: 125 MiB/s.</small> | |
| Availability Zone | ap-south-1a |

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Screenshot of the AWS EC2 Volumes page showing a list of volumes. A context menu is open over the selected volume (vol-0b101cd1a93ed7ab7) with the 'Create snapshot' option highlighted.

| Name | Volume ID | Type | Size | IOPS | Throughput | Snapshot | Created |
|-------------------------------------|-----------------------|------|-------|------|------------|-----------------|------------------|
| - | vol-05c1a5d20901f4b7 | gp3 | 8 GiB | 3000 | 125 | snap-0367a3f... | 2024/05/22 10:11 |
| - | vol-041e461c1208970c4 | gp3 | 8 GiB | 3000 | 125 | snap-0367a3f... | 2024/05/22 10:31 |
| - | vol-05ebbbef6255a2c2 | gp3 | 8 GiB | 3000 | 125 | snap-0367a3f... | 2024/05/22 10:31 |
| - | vol-059ee56d15620d7a8 | gp3 | 8 GiB | 3000 | 125 | snap-0367a3f... | 2024/05/22 12:39 |
| <input checked="" type="checkbox"/> | vol-0b101cd1a93ed7ab7 | gp3 | 1 GiB | 3000 | 125 | - | 2024/05/22 12:43 |

Screenshot of the 'Create snapshot' dialog for the selected volume (vol-0b101cd1a93ed7ab7). The 'Description' field contains 'mysnap'.

Details

- Volume ID: vol-0b101cd1a93ed7ab7
- Description: mysnap
- Encryption: Not encrypted

Tags

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

No tags associated with the resource.

Create snapshot

Screenshot of the AWS EC2 Snapshots page showing a list of snapshots. A context menu is open over the selected snapshot (snap-0d1962b1eba534172) with the 'Create snapshot' option highlighted.

| Name | Snapshot ID | Volume size | Description | Storage tier | Snapshot status | Started | Progress |
|-------------------------------------|------------------------|-------------|----------------------------|--------------|-----------------|---------------------------|---------------|
| - | snap-0Teectf1ea2745f70 | 8 GiB | Created by CreateImage(... | Standard | Completed | 2024/05/18 10:49 GMT+5:30 | Available (1) |
| - | snap-08ef5da050562ff97 | 8 GiB | Created by CreateImage(... | Standard | Completed | 2024/05/22 12:43 GMT+5:30 | Available (1) |
| - | snap-0465664e7f8e47965 | 8 GiB | Created by CreateImage(... | Standard | Completed | 2024/05/18 10:49 GMT+5:30 | Available (1) |
| <input checked="" type="checkbox"/> | snap-0d1962b1eba534172 | 1 GiB | mysnap | Standard | Completed | 2024/05/22 12:44 GMT+5:30 | Available (1) |

Snapshot ID: snap-0d1962b1eba534172

Details

- Snapshot ID: snap-0d1962b1eba534172
- Owner: 381491820607
- Encryption: Not encrypted
- Fast snapshot restore: -

Snapshot settings

- Volume size: 1 GiB
- Volume ID: vol-0b101cd1a93ed7ab7
- KMS key ID: -
- Description: mysnap

Storage tier

Tags

Progress: Available (100%)

Snapshot status: Completed

Started: Wed May 22 2024 12:44:59 GMT+0530 (India Standard Time)

Product codes: -

KMS key alias: -

KMS key ARN: -

➤ EXP 6 :

Instance summary for i-0b9d8b997d6d2cad7 (119_kesav_9087_exp6) Info

Updated less than a minute ago

Instance ID: i-0b9d8b997d6d2cad7 (119_kesav_9087_exp6)

Public IPv4 address: 43.204.140.66 | open address

IPv6 address: -

Instance state: Running

Hostname type: IP name: ip-172-31-1-152.ap-south-1.compute.internal

Private IP DNS name (IPv4 only): ip-172-31-1-152.ap-south-1.compute.internal

Answer private resource DNS name: IPv4 (A)

Auto-assigned IP address: 43.204.140.66 [Public IP]

VPC ID: vpc-0dc9593263ac33355

IAM Role: -

Subnet ID: subnet-0a0adb3871d068d33

IMDSv2 Required: -

Elastic IP addresses: 172.31.1.152

Public IPv4 DNS: ec2-43-204-140-66.ap-south-1.compute.amazonaws.com | open address

Elastic IP address(es): -

AWS Compute Optimizer finding: Opt-in to AWS Compute Optimizer for recommendations. | Learn more

Auto Scaling Group name: -

Details | Status and alarms | Monitoring | Security | Networking | Storage | Tags

Instance details: Info

Platform: Amazon Linux (Inferred)

AMI ID: ami-0cc9838aa7ab1dce7

AMI name: -

Monitoring: disabled

Termination protection: -

Connect to instance Info

Connect to your instance i-0b9d8b997d6d2cad7 (119_kesav_9087_exp6) using any of these options

EC2 Instance Connect Session Manager SSH client EC2 serial console

Port 22 (SSH) is open to all IP addresses: Port 22 (SSH) is currently open to all IP addresses, indicated by 0.0.0.0/0 in the inbound rule in your security group. For increased security, consider restricting access to only the EC2 Instance Connect service IP addresses for your Region: 13.253.177.0/29. [Learn more](#)

Connection Type:

- Connect using EC2 Instance Connect:** Connect using the EC2 Instance Connect browser-based client, with a public IPv4 address.
- Connect using EC2 Instance Connect Endpoint:** Connect using the EC2 Instance Connect browser-based client, with a private IPv4 address and a VPC endpoint.

Public IP address: 43.204.140.66

Username: Enter the username defined in the AMI used to launch the instance. If you didn't define a custom username, use the default username, ec2-user.

ec2-user

Note: In most cases, the default username, ec2-user, is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI username.

```

Amazon Linux 2023
https://aws.amazon.com/linux/amazon-linux-2023

[ec2-user@ip-172-31-1-152 ~]$ curl -sSL https://download.docker.com/linux/amazon/docker-20.10.13-3.el8.x86_64.rpm > docker.rpm
[ec2-user@ip-172-31-1-152 ~]$ rpm -ivh docker.rpm
[ec2-user@ip-172-31-1-152 ~]$ yum install docker -y
Last metadata expiration check: 01:09:37 ago on Wed May 22 07:09:52 2024.
Dependencies resolved.
Preparing...                          ################################# [100%]
Package          Architecture Version      Repository  Size
Installing:
[docker]           x86_64    20.10.13-3.el8.x86_64  amazonlinux  44 M
Installing dependencies:
[coreutils]        x86_64    8.31-1.amzn2023.0.1   amazonlinux  35 K
[iptables]         x86_64    1.8.8-3.amzn2023.0.2  amazonlinux  401 K
[iptables-nft]    x86_64    1.8.8-3.amzn2023.0.2  amazonlinux  183 K
[libnftnl]         x86_64    3.0.0-1.amzn2023.0.1  amazonlinux  97 K
[libnftnl-libs]   x86_64    1.0.8-2.amzn2023.0.2  amazonlinux  58 K
[libnftnl-devel]  x86_64    1.0.1-19.amzn2023.0.2  amazonlinux  30 K
[libnftnl-devel]  x86_64    1.0.1-19.amzn2023.0.2  amazonlinux  30 K
[pigz]             x86_64    2.5-1.amzn2023.0.3  amazonlinux  83 K
[runc]             x86_64    1.1.1-1.amzn2023.0.1  amazonlinux  3.0 K

Transaction Summary
Install 10 Packages

Total download size: 83 M

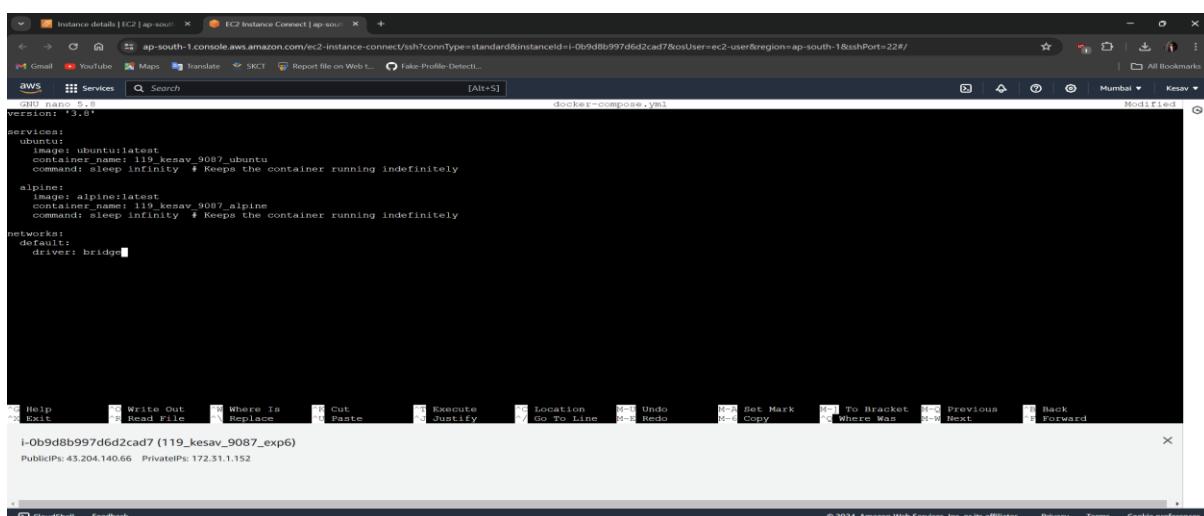
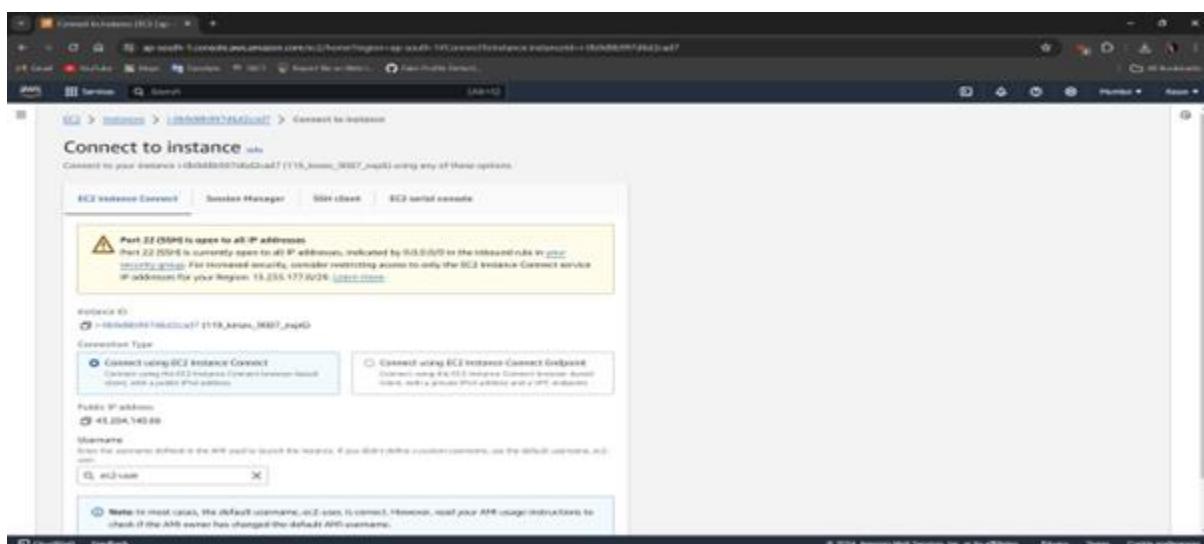
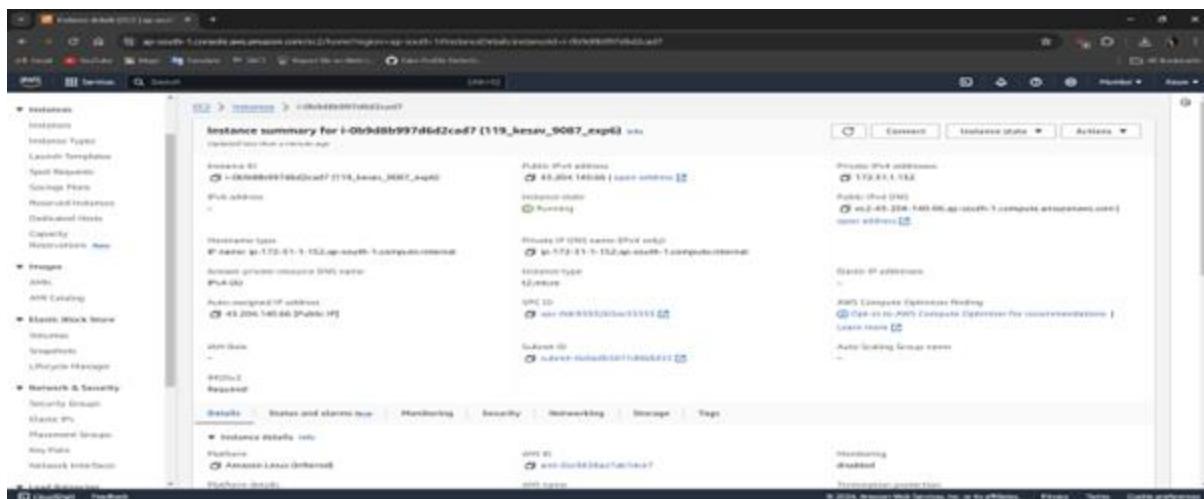
[ec2-user@ip-172-31-1-152 ~]$ i-0b9d8b997d6d2cad7 (119_kesav_9087_exp6)
[ec2-user@ip-172-31-1-152 ~]$ PublicIPs: 43.204.140.66 PrivateIPs: 172.31.1.152

```

```
Instance details | EC2 | ap-south-1 | EC2 Instance Connect | ap-south-1 | +  
https://ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-0b9d8b997d6d2cad7&osUser=ec2-user&region=ap-south-1&sshPort=22#/  
Gmail YouTube Maps Translate SKCT Report file on Web... Take Profile Detect...  
aws Services Search [Alt+S] Mumbai Keşav  
Installed:  
containerd-1.7.11-1.amzn2023.0.1.x86_64 docker-25.0.3-1.amzn2023.0.1.x86_64 iptables-libc-1.8.8-3.amzn2023.0.2.x86_64 iptables-nft-1.8.8-3.amzn2023.0.2.x86_64  
libibcgroup-1.0.1-1.amzn2023.0.1.x86_64 libnetfilter_conntrack-1.0.6-2.amzn2023.0.2.x86_64 libnbnfnetlink-1.0.1-19.amzn2023.0.2.x86_64 libnbnfnetlink-1.2.2-2.amzn2023.0.2.x86_64  
pigz-2.8-1.amzn2023.0.3.x86_64 runc-1.11.1-1.amzn2023.0.1.x86_64  
  
Complete!  
[root@ip-172-31-1-152 ec2-user]# systemctl start docker  
[root@ip-172-31-1-152 ec2-user]# docker --version  
Docker version 25.0.3, build 4debf41  
[root@ip-172-31-1-152 ec2-user]# docker volume create 119_kesav_9087_volume  
[root@ip-172-31-1-152 ec2-user]# docker volume create 119_kesav_9087_volume  
119_kesav_9087_volume  
[root@ip-172-31-1-152 ec2-user]# docker run -d --name 119_kesav_9087_nginx -v 119_kesav_9087_volume:/usr/share/nginx/html -p 80:80 nginx  
Unbuilt and image 'nginx:latest' locally  
Pulling nginx:latest (nginx:latest)...
09e376eb9b190: Pull complete
allfc495bffd: Pull complete
933cc4705777: Pull complete
933cc4705777: Create complete
971bb74fd12: Pull complete
45337c90cd57: Pull complete
de1bd62c0a7: Pull complete
Status: Downloaded newer image for nginx:latest  
b559b792f1aaad7a2e62eb937ddcc46a0661596175cd82ae0f0786  
[root@ip-172-31-1-152 ec2-user]# ^C  
[root@ip-172-31-1-152 ec2-user]# docker inspect 119_kesav_9087_nginx  
[]  
{"id": "b559b792f1aaad7a2e62eb937ddcc46a0661596175cd82ae0f0786",  
 "status": "2024-05-22T07:23:27.693602398Z",  
 "path": "/docker-entrypoint-init.d",  
 "args": []}  
  
i-0b9d8b997d6d2cad7 (119_kesav_9087_exp6)  
PublicIPs: 43.204.140.66 PrivateIPs: 172.31.1.152
```

```
Instance details | EC2 | ap-south-1 | EC2 Instance Connect | ap-south-1 | +  
ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-0b9d8b997d6d2cad7&osUser=ec2-user&region=ap-south-1&sshPort=22/  
Gmail YouTube Maps Translate SKCT Report file on Web... Fake Profile Detect...  
AWS Services Search [Alt+S] Mumbai Kesav  
labed6fb9d5aaaf6db19b842f (254cd048090d02bc/diff",  
    "MergedDir": "/var/lib/docker/overlay2/e9351d6992b9b5bd62db1aa40a6791bed6dbead4d69461b1b859f41lee4ee851/merged",  
    "UpperDir": "/var/lib/docker/overlay2/e9351d6992b9b5bd62db1aa40a6791bed6dbead4d69461b1b859f41lee4ee851/diff",  
    "WorkDir": "/var/lib/docker/overlay2/e9351d6992b9b5bd62db1aa40a6791bed6dbead4d69461b1b859f41lee4ee851/work"  
,  
},  
    "Name": "overlay2"  
,  
  },  
  "Mounts": [  
    {  
      "Type": "volume",  
      "Name": "l19_kesav_9087_volume",  
      "Source": "/var/lib/docker/volumes/l19_kesav_9087_volume/_data",  
      "Destination": "/usr/share/nginx/html",  
      "Driver": "local",  
      "Mode": "z",  
      "RW": true,  
      "Propagation": ""  
    },  
  ],  
  "Config": {  
    "Hostname": "b559b792flas",  
    "Domainname": "",  
    "User": "",  
    "AttachStdin": false,  
    "AttachStdout": false,  
    "AttachStderr": false,  
    "ExposedPorts": {  
      "80/tcp": {}  
    },  
    "Tty": false,  
    "OpenStdin": false,  
    "StdinOnce": false,  
    "Env": [  
      "PATH=/usr/local/bin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin",  
      "NGINX VERSION=1.25.5"  
    ]  
  }  
}  
  
i-0b9d8b997d6d2cad7 (l19_kesav_9087_exp6)  
Public IPs: 43.204.140.66 Private IPs: 172.31.1.152
```

➤ EXP 7 :



```
Instance details | EC2 | ap-south-1 | EC2 Instance Connect | ap-south-1 | https://ap-south-1.console.aws.amazon.com/ec2-instance/connect/ssh?connType=standard&instanceId=i-0b9d8b997d6d2cad7&osUser=ec2-user&region=ap-south-1&sshPort=22#/
Gmail YouTube Maps Translate SKCT Report file on Web... Fake Profile Detect...
aws Services Search [Alt+S] Mumbai Kesav

[root@ip-172-31-1-152 ec2-user]# sudo curl -L "https://github.com/docker/compose/releases/download/v2.4.7/docker-compose-$(uname -s)-$(uname -m)" -o /usr/local/bin/docker-compose
% Total % Received % Xferd Average Speed Time: Current
Dload Upload Total Spent Left Speed
0 0 0 0 0 0 0 --:--:--:--:--:-- 0
0 100 58.6M 100 58.6M 0 0 27.8M 0 0:00:02 0:00:02 79.7M
[root@ip-172-31-1-152 ec2-user]# chmod +x /usr/local/bin/docker-compose
[root@ip-172-31-1-152 ec2-user]# sudo chmod +x /usr/local/bin/docker-compose
[root@ip-172-31-1-152 ec2-user]# ^[[200-docker-compose --version--c
[root@ip-172-31-1-152 ec2-user]# docker-compose --version
Docker Compose version v2.4.7
[root@ip-172-31-1-152 ec2-user]# which comp?
[root@ip-172-31-1-152 ec2-user]# cd exp7/
[root@ip-172-31-1-152 exp7]# nano docker-compose.yml
[root@ip-172-31-1-152 exp7]# docker-compose up -d
[*] Running 4/4
✓ alpine 1 layers [ ] 0B/0B Pulled
✓ 49e3b4cccb4a Pull complete
✓ alpine 1 layers [ ] 0B/0B Pulled
✓ 4abcfc2066143 Pull complete
[*] Running 2/3
 1) Container 119_kesav_9087_default Created
✓ Container 119_kesav_9087_alpine Started
✓ Container 119_kesav_9087_ubuntu Started
[root@ip-172-31-1-152 exp7]# docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
5c4f070888d alpine:latest "sleep infinity" 11 seconds ago Up 10 seconds 119_kesav_9087_alpine
05fb4ec07e2f ubuntu:latest "sleep infinity" 11 seconds ago Up 10 seconds 119_kesav_9087_ubuntu
[root@ip-172-31-1-152 exp7]# █
```

➤ EXP 8 :

The screenshot shows the AWS Cloud9 homepage. At the top right, there is a prominent orange "Create environment" button. Below it, there's a "Getting started" section with links to "Before you start", "Create an environment", "Working with environments", "Working with the IDE", and "Working with AWS Lambda". On the left, there's a "How it works" section and a "Benefits and features" section. The bottom of the page includes standard AWS navigation links like "CloudShell" and "Feedback".

This screenshot shows the first step of the "Create environment" wizard, titled "Details". It asks for a "Name" (input: "119_kesav_9087_cloud9ide") and an optional "Description" (input: "TDD exp"). It also asks to choose an "Environment type": "New EC2 instance" (selected) or "Existing compute". The "New EC2 instance" section shows three instance type options: "t2.micro (1 GiB RAM + 1 vCPU)" (selected), "t3.small (2 GiB RAM + 2 vCPU)", and "m5.large (8 GiB RAM + 2 vCPU)". The bottom of the screen shows the standard AWS navigation bar.

This screenshot shows the second step of the "Create environment" wizard, titled "New EC2 instance". It lists the three instance types again: "t2.micro (1 GiB RAM + 1 vCPU)" (selected), "t3.small (2 GiB RAM + 2 vCPU)", and "m5.large (8 GiB RAM + 2 vCPU)". The bottom of the screen shows the standard AWS navigation bar.

AWS Cloud9 IDE interface showing a Java project named "119_kesav_9087". The project structure includes src and test directories containing Calculator.java, CalculatorTest.java, and hamcrest-core-1.3.jar. A README.md file is also present.

The code editor displays two files:

```
Calculator.java
CalculatorTest.java
```

The terminal window shows the execution of Maven commands and the download of the hamcrest-core-1.3.jar dependency from the Maven repository.

```
bash -tp-172-31-33-253 x Immediate x
ec2-user:~/environment $ cd src
ec2-user:~/environment/src $ touch calculator.java
ec2-user:~/environment/src $ cd ..
ec2-user:~/environment $ cd test
ec2-user:~/environment/test $ touch CalculatorTest.java
ec2-user:~/environment/test $ cd ..
ec2-user:~/environment $ cd ..
ec2-user:~/environment $ wget https://repo1.maven.org/maven2/junit/junit/4.13.2/junit-4.13.2.jar
--2024-05-22 07:46:10 -- https://repo1.maven.org/maven2/junit/junit/4.13.2/junit-4.13.2.jar
Resolving https://repo1.maven.org/maven2/junit/junit/4.13.2/junit-4.13.2.jar...
Connecting to repo1.maven.org (repo1.maven.org)[195.22.168.209]:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 46494 (46K) [application/java-archive]
Saving to: 'junit-4.13.2.jar'

junit-4.13.2.jar 100%[=====] 375.57K 58400B/s in 0.7s

2024-05-22 07:46:41 (504 KB/s) - 'junit-4.13.2.jar' saved [384581/384581]

ec2-user:~/environment $ wget https://repo1.maven.org/maven2/org/hamcrest/hamcrest-core/1.3/hamcrest-core-1.3.jar
--2024-05-22 07:46:51 -- https://repo1.maven.org/maven2/org/hamcrest/hamcrest-core/1.3/hamcrest-core-1.3.jar
Resolving https://repo1.maven.org/maven2/org/hamcrest/hamcrest-core/1.3/hamcrest-core-1.3.jar...
Connecting to repo1.maven.org (repo1.maven.org)[195.22.168.209]:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 45024 (44K) [application/java-archive]
Saving to: 'hamcrest-core-1.3.jar'

hamcrest-core-1.3.jar 100%[=====] 43.97K 20300B/s in 0.2s

2024-05-22 07:46:52 (203 KB/s) - 'hamcrest-core-1.3.jar' saved [45024/45024]
```

AWS Cloud9 IDE interface showing the same Java project structure and code editor as the first screenshot. The code editor now contains the modified Java code for the Calculator class, which includes a checkUser method to verify if the user's name is "Kesav".

```
Calculator.java
CalculatorTest.java
```

AWS Cloud9 IDE interface showing the modified Java project structure and code editor. The terminal window displays the execution of the JUnit tests, showing a success message with 6 tests run.

```
bash -tp-172-31-33-253 x Immediate x
JUNIT version 4.13.2
-----
Time: 0.027
OK (6 tests)

ec2-user:~/environment $
```

➤ EXP 9 :

Instances (4) Info

| Name | Instance ID | Instance state | Instance type | Status check | Alarm status | Availability Zone | Public IPv4 DNS | Price |
|--------------------|---------------------|----------------|---------------|-------------------|--------------|-------------------|-----------------------------|-------|
| 120_kinuth_9087 | i-0d5709ed0ecd5d649 | Running | t2.micro | 2/2 checks passed | View alarms | ap-south-1b | ec2-65-2-74-133.ap... 65 | 65 |
| 120_kinuth_9087 | i-06cae6ba6b3ea781e | Running | t2.micro | 2/2 checks passed | View alarms | ap-south-1b | ec2-5-7-248-122.ap... 3.0 | 3.0 |
| 119_keav_9087_ALB1 | i-007e7438c4dc2dab | Running | t2.micro | 2/2 checks passed | View alarms | ap-south-1a | ec2-13-233-233-219.ap... 13 | 13 |
| 119_keav_9087_ALB2 | i-09774e8b6d14cd2fc | Running | t2.micro | 2/2 checks passed | View alarms | ap-south-1a | ec2-3-110-190-6.ap... 3.0 | 3.0 |

Create Application Load Balancer

The Application Load Balancer distributes incoming HTTP and HTTPS traffic across multiple targets such as Amazon EC2 instances, microservices, and containers, based on request attributes. When the load balancer receives a connection request, it evaluates the listener rules in priority order to determine which rule to apply, and if applicable, it selects a target from the target group for the rule action.

How Application Load Balancers work

Basic configuration

Load balancer name
Name must be unique within your AWS account and can't be changed after the load balancer is created.
119_keav_9087_exp9ALB

A maximum of 32 alphanumeric characters including hyphens are allowed, but the name must not begin or end with a hyphen.

Scheme
Scheme can't be changed after the load balancer is created.

- Internet-facing**
An internet-facing load balancer routes requests from clients over the internet to targets. Requires a public subnet. [Learn more](#)
- Internal**
An internal load balancer routes requests from clients to targets using private IP addresses. Compatible with the IPv4 and Dualstack IP address types.

IP address type [Info](#)
Select the type of IP addresses that your subnets use. Public IPv4 addresses have an additional cost.

- IPv4**
Includes only IPv4 addresses.
- Dualstack**
Includes IPv4 and IPv6 addresses.

Select at least two Availability Zones and one subnet per zone. The load balancer routes traffic to targets in these Availability Zones only. Availability Zones that are not supported by the load balancer or the VPC are not available for selection.

ap-south-1a (aps1-az1)
Subnet
subnet-0172a662782775d23

ap-south-1b (aps1-az3)
Subnet
subnet-0adadb3871d068d53

ap-south-1c (aps1-az2)
Subnet
subnet-0bf15c5b66f6338b0

Security groups [Info](#)
A security group is a set of firewall rules that control the traffic to your load balancer. Select an existing security group, or you can create a new security group.

Security groups
Select up to 5 security groups
default

The screenshot shows the 'Create security group' page in the AWS EC2 console. In the 'Basic details' section, the security group name is '119_kesav_9087_ALBsecurity' and the description is 'ALBSecurityGroup'. The VPC is set to 'vpc-0dc9395263ac33355'. Under 'Inbound rules', there is one rule for 'HTTP' on port '80' from 'Anywhere...' to '0.0.0.0/0'. The page includes standard AWS navigation and footer links.

The screenshot shows the 'Security Groups' page in the AWS EC2 console. A success message states 'Security group (sg-0e0847ede2539960a | 119_kesav_9087_ALBsecurity) was created successfully'. The security group 'sg-0e0847ede2539960a - 119_kesav_9087_ALBsecurity' is listed with details: Security group name '119_kesav_9087_ALBsecurity', Security group ID 'sg-0e0847ede2539960a', Description 'ALBSecurityGroup', VPC ID 'vpc-0dc9395263ac33355', Owner '381491820607', Inbound rules count '1 Permission entry', and Outbound rules count '1 Permission entry'. The 'Inbound rules' tab is selected, showing a single rule for 'HTTP' on port '80' from 'Anywhere...' to '0.0.0.0/0'. The page includes standard AWS navigation and footer links.

The screenshot shows the 'Create ALB Wizard' page in the AWS Application Load Balancer console. In the 'Security groups' section, it says 'A security group is a set of firewall rules that control the traffic to your load balancer. Select an existing security group, or you can create a new security group.' A dropdown menu shows the previously created security group '119_kesav_9087_ALBsecurity'. In the 'Listeners and routing' section, a listener 'HTTP:80' is defined with 'Protocol' as 'HTTP', 'Port' as '80', and 'Default action' as 'Forward to' 'Select a target group'. The 'Create target group' button is visible. The page includes standard AWS navigation and footer links.

Screenshot of the AWS CloudFront console showing the "Create application load balancer" wizard, Step 1: Create target group. The "Specify group details" step is selected. Under "Basic configuration", the "Instances" target type is chosen. A note states: "Your load balancer routes requests to the targets in a target group and performs health checks on the targets." Below the note, the "Instances" section is expanded, listing its benefits:

- Supports load balancing to instances within a specific VPC.
- Facilitates the use of Amazon EC2 Auto Scaling to manage and scale your EC2 capacity.

The other target types listed are IP addresses, Lambda function, and Application Load Balancer, each with their own bullet points.

Screenshot of the AWS CloudFront console showing the "Create application load balancer" wizard, Step 1: Create target group. The "Specify group details" step is selected. The "Target group name" field contains "119-kesav-9087-ALBTarget". The "Protocol : Port" section shows "HTTP" selected with port "80". The "IP address type" section shows "IPv4" selected. The "VPC" section shows "vpc-0dc9393263ac33355" selected. The "Protocol version" section shows "HTTP1" selected. The bottom of the screen includes standard AWS navigation links: CloudShell, Feedback, Privacy, Terms, and Cookie preferences.

Screenshot of the AWS CloudFront console showing the "Create application load balancer" wizard, Step 2: Create target group. The "Review targets" step is selected. It shows two targets registered: "i-06cae6ba6b5ea781e" and "i-09774e8b6d14cd2fc", both named "119_kesav_9087_ALB1" and "119_kesav_9087_ALB2" respectively, with state "Running". The "Ports for the selected instances" section shows "80" and "1-65535". The "Targets (2)" table lists the same information. At the bottom, there are "Cancel", "Previous", "Create target group", and "Cookie preferences" buttons.

Screenshot of the AWS EC2 Target Groups page showing the creation of a new target group named "119-kesav-9087-ALBTarget".

Details:

- Protocol: HTTP
- Port: 80
- Protocol version: HTTP1
- VPC: vpc-0dc9393263ac33355

Targets:

- Total targets: 2
- Healthy: 0
- Unhealthy: 0
- Unused: 2
- Initial: 0
- Draining: 0
- Anomalous: 0

Registered targets (2):

| Target | Health | Attributes |
|--------------------------|-----------|------------|
| 119-kesav-9087-ALBTarget | Healthy | |
| 119-kesav-9087-ALBTarget | Unhealthy | |

Actions: Anomaly mitigation: Not applicable, Deregister, Register targets.

Screenshot of the AWS EC2 Listeners and routing page for the "119-kesav-9087-ALBTarget" target group.

Listener HTTP:80:

- Protocol: HTTP
- Port: 80
- Default action: Forward to 119-kesav-9087-ALBTarget (Target type: Instance, IPv4)

Listener tags - optional: You can add up to 50 more tags.

Load balancer tags - optional: Consider adding tags to your load balancer. Tags enable you to categorize your AWS resources so you can more easily manage them.

Optimize with service integrations - optional: Optimize your load balancing architecture by integrating AWS services with this load balancer at launch. You can also add these and other services after your load balancer is created by reviewing the load balancer's "Integrations" tab.

Screenshot of the AWS EC2 Load balancers page showing the creation of a new load balancer named "119-kesav-9087-exp9ALB".

Details:

- Load balancer type: Application
- Status: Provisioning
- VPC: vpc-0dc9393263ac33355
- IP address type: IPv4
- Scheme: Internet-facing
- Hosted zone: ZP97RAFLXTNZK
- Availability Zones:
 - subnet-0bf15c5b66f6338b0 (ap-south-1a)
 - subnet-0172a662782775d25 (ap-south-1a)
 - subnet-0a0db3871d068d53 (ap-south-1b)
- Date created: May 22, 2024, 13:40 (UTC+05:30)

Load balancer ARN: arn:aws:elasticloadbalancing:ap-south-1:381491820607:loadbalancer/app/119-kesav-9087-exp9ALB/3435c3322506b21c

DNS name info: 119-kesav-9087-exp9ALB-1454277659.ap-south-1.elb.amazonaws.com (A Record)

Listeners and rules (1):

| Listener | Protocol | Port | Action |
|----------|----------|------|-------------------------------------|
| HTTP:80 | HTTP | 80 | Forward to 119-kesav-9087-ALBTarget |

Actions: Manage rules, Manage listener, Add listener.

The screenshot shows the AWS EC2 Target group details page. The target type is 'Instance' with 'Protocol : Port' set to 'HTTP: 80'. The IP address type is 'IPv4' and the load balancer is '119-kesav-9087-exp9ALB'. There are 2 total targets, both marked as 'Healthy'. The distribution of targets by Availability Zone (AZ) shows 2 in 'ap-south-1a' and 0 in 'ap-south-1b'. Below this, a table lists 'Registered targets' with two entries: '1-007e7438c4dca2da8' and '1-09774e8b6d14cd2fc', both marked as 'Healthy'.

The screenshot shows the 'Create Auto Scaling group' wizard at Step 1: 'Choose launch template'. The 'Name' field is filled with '119-kesav-9087-exp9ASG'. A note states: '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.' The 'Launch template' dropdown is set to 'Select a launch template'.

The screenshot shows the 'Create launch template' wizard at Step 1: 'Create launch template'. The 'Launch template name - required' field is 'KesavExp9'. The 'Template version description' field is 'KesavTemplateExp9'. Under 'Auto Scaling guidance', there is a checked checkbox: 'Provide guidance to help me set up a template that I can use with EC2 Auto Scaling'. The 'Create launch template' button is highlighted in orange.

Provide guidance to help me set up a template that I can use with EC2 Auto Scaling

Template tags

Source template

Launch template contents

Specify the details of your launch template below. Leaving a field blank will result in the field not being included in the launch template.

Application and OS Images (Amazon Machine Image) - required

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below.

Search our full catalog including 1000s of application and OS images

Recent AMIs

- Amazon Linux
- macOS
- Ubuntu
- Windows
- Red Hat
- SUSE

Browse more AMIs

Including AMIs from AWS Marketplace and the Community

Amazon Machine Image (AMI)

Amazon Linux 2023 AMI
ami-0cc983baa7ab1dce7 (64-bit (x86), usf-preferred) / ami-0fedb522fe5474ab1 (64-bit (Arm), usf)
Virtualization type: ENA-enabled: true Root device type: etc

Free tier eligible

Create launch template

Key pair name

Don't include in launch template

Create new key pair

Network settings

Subnet

Don't include in launch template

Create new subnet

Firewall (security groups)

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

Select existing security group

Create security group

Security groups info

Select security groups

launch-wizard-1 sg-0fdaa8563fcc1dc38

VPC: vpc-0d49393265ac33355

Compare security group rules

Advanced network configuration

Storage (volumes)

EBS Volumes

Hide details

Create launch template

For V2 requests, you must include a session token in all instance metadata requests. Applications or agents that use V1 for instance metadata access will break.

Metadata response hop limit

2

Allow tags in metadata

Don't include in launch template

User data - optional

Upload a file with your user data or enter it in the field.

Choose file

#!/bin/bash
yum update -y
yum install httpd -y
echo "<h1>This is from \$(hostname -f)</h1>" > /var/www/html/index.html
systemctl enable httpd
systemctl start httpd

User data has already been base64 encoded

Create launch template

Screenshot of the AWS EC2 Launch template creation process, Step 4: Create launch template.

Success
Successfully created KesavExp9It-0572f9c65e2aeeec8f.

Next Steps

- Launch an instance**
With On-Demand Instances, you pay for compute capacity by the second (for Linux, with a minimum of 60 seconds) or by the hour (for all other operating systems) with no long-term commitments or upfront payments. Launch an On-Demand Instance from your launch template.
- Create an Auto Scaling group from your template**
Amazon EC2 Auto Scaling helps you maintain application availability and allows you to scale your Amazon EC2 capacity up or down automatically according to conditions you define. You can use Auto Scaling to help ensure that you are running your desired number of Amazon EC2 instances during demand spikes to maintain performance and decrease capacity during lulls to reduce costs.
- Create Auto Scaling group**
- Create Spot Fleet**
A Spot Instance is an unused EC2 instance that is available for less than the On-Demand price. Because Spot Instances enable you to request unused EC2 instances at steep discounts, you can lower your Amazon EC2 costs significantly. The hourly price for a Spot Instance (of each instance type in each Availability Zone) is set by Amazon EC2, and adjusted gradually based on the long-term supply of and demand for Spot Instances. Spot instances are well-suited for data-analysis, batch jobs, background processing, and optional tasks.

View launch templates

Screenshot of the AWS EC2 Auto Scaling group creation process, Step 5: Configure group size and scaling.

Launch template 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.

KesavExp9

Description: KesavTemplateExp9

AMI ID: ami-0cc9838aa7ab1dce?

Key pair name: -

Launch template: KesavExp9 It-0572f9c65e2aeeec8f

Security groups: -

Instance type: Request Spot Instances No

Security group IDs: sg-0f7a48563fcc1dc38

Additional details

Screenshot of the AWS EC2 Auto Scaling group creation process, Step 7: Review.

Allocation strategy

Choose the allocation strategy to apply to your On-Demand instances when they are launched.

- Prioritized: Request On-Demand instances based on the priority order of instance types that you set above. This strategy can't be used with attribute-based instance type selection.
- Lowest price: Request On-Demand instances from the lowest priced pools within an Availability Zone.

Network info

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-0dc9393263ac33355
172.31.0.0/16 Default

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-0172a662782775d23
172.31.32.0/20 Default

ap-south-1b | subnet-0a0adb3871d068d53
172.31.0.0/20 Default

Create a subnet

Cancel **Skip to review** **Previous** **Next**

The screenshot shows the AWS Auto Scaling group creation wizard at Step 6: Attach to an existing load balancer. The user has selected "Choose from your load balancer target groups" and chosen "119-kesav-9087-ALBTarget | HTTP". Under VPC Lattice integration options, "No VPC Lattice service" is selected. The "Health checks" section is visible at the bottom.

The screenshot shows the AWS Auto Scaling group creation wizard at Step 7: Review. It displays the configuration details: "VPC Lattice will not manage your Auto Scaling group's network access and connectivity with other services." and "Incoming requests associated with specified VPC Lattice target groups will be routed to your Auto Scaling group." The "Health checks" section includes EC2 health checks (Always enabled) and additional health check types (Turn on VPC Lattice health checks). The "Additional settings" section shows a health check grace period of 300 seconds.

The screenshot shows the AWS Auto Scaling groups page. It lists one Auto Scaling group: "119kesav9087exp9ASG" (119Kesav9087Launch | Version Default). The group has 1 instance, a status of "In Service", and is configured with a desired capacity of 1. The "Actions" dropdown menu is open, showing options like "Create Auto Scaling group", "Launch configurations", "Launch templates", and "Actions".

119kesav9087exp9ASG

Instances (1)

| Instance ID | Lifecycle | Instance type | Weighted capacity | Launch templ... | Availability Zone | Health status | Protected from |
|--------------------|-----------|---------------|-------------------|--------------------|-------------------|---------------|----------------|
| i-0d5cbe949dc5a5ab | InService | c6a.large | - | 119Kesav9087Launch | ap-south-1b | Healthy | |

Lifecycle hooks (0) info

| Name | Lifecycle transition | Default result | Heartbeat timeout (seconds) | Notification target ARN | Role ARN |
|--|----------------------|----------------|-----------------------------|-------------------------|----------|
| No lifecycle hooks are currently configured. | | | | | |

Create lifecycle hook

Warm pool

119kesav9087exp9ASG

Group details

| | | | |
|---|-----------------------|--|--|
| Auto Scaling group name 119kesav9087exp9ASG | Desired capacity 2 | Desired capacity type Units (number of instances) | Amazon Resource Name (ARN) arn:aws:autoscaling:ap-south-1:381491820607:autoScalingGroup:2f9d6b00-d1b2-4c75-a216-85145ea5e95b:autoScalingGroupName/119kesav9087exp9ASG |
| Date created Wed May 22 2024 14:00:31 GMT+0530 (India Standard Time) | Minimum capacity 1 | Status Updating capacity | |
| | Maximum capacity 2 | | |

Launch template

| | | | |
|---------------------------------------|--------------------------------|---|--|
| Launch template 119Kesav9087Launch | AMI ID ami-0cc983aa7ab1dce7 | Instance type t2.micro | Owner arn:aws:iam::381491820607:root |
| Version Default | Security groups | Security group IDs sg-0fda48563fc1dc38 | Create time Wed May 22 2024 13:56:15 GMT+0530 (India Standard Time) |
| Description | Storage (volumes) | Key pair name | Request Spot Instances |

119-kesav-9087-exp9ALB

Details

| | | | |
|---|--|---|---|
| Load balancer type Application | Status Active | VPC vpc-0dc9393263ac33355 | IP address type IPv4 |
| Scheme Internet-facing | Hosted zone ZP97RAFLXTNZK | Availability zones subnet-0bf15c5b66f6338b0 ap-south-1c (aps1-a2z1) subnet-0172a66278275f25 ap-south-1a (aps1-a2z1) subnet-0a0a9b3871d068d35 ap-south-1b (aps1-b2z1) | Date created May 22, 2024, 13:40 (UTC+05:30) |
| Load balancer ARN arn:aws:elasticloadbalancing:ap-south-1:381491820607:loadbalancer/app/119-kesav-9087-exp9ALB/3435c322506b21c | DNS name copied 119-kesav-9087-exp9ALB-1454277659.ap-south-1.elb.amazonaws.com (A Record) | | |

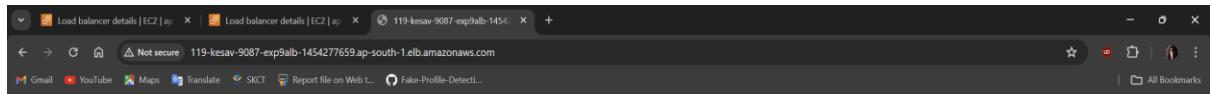
Listeners and rules (1) info

A listener checks for connection requests on its configured protocol and port. Traffic received by the listener is routed according to the default action and any additional rules.

| Filter listeners | Manage rules | Manage listener | Add listener |
|------------------|--------------|-----------------|--------------|
| | | | |



This is from ip-172-31-41-135.ap-south-1.compute.internal



This is from ip-172-31-2-97.ap-south-1.compute.internal

➤ EXP 10 :

Launch an instance

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

Name and tags

Name: 119_kesav_NLB

Application and OS Images (Amazon Machine Image)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below.

Search: Search our full catalog including 1000s of application and OS images

Recent OS Images: Amazon Linux, macOS, Ubuntu, Windows, Red Hat, SUSE Linux Enterprise Server, Browse more AMIs

Summary

Number of instances: 1

Software Image (AMI): Amazon Linux 2023 AMI 2023.4.2...read more
ami-0c9638aa7ab1dee7

Virtual server type (instance type): t2.micro

Firewall (security group): New security group

Storage (volumes): 1 volume(s) - 8 GiB

Launch instance

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Additional costs apply for AMIs with pre-installed software

Key pair (login)

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - required: Proceed without a key pair (Not recommended)

Network settings

Network: vpc-0dc93263ac33355

Subnet: No preference (Default subnet in any availability zone)

Auto-assign public IP: Enabled

Firewall (security groups): Create security group

We'll create a new security group called "launch-wizard-29" with the following rules:

Summary

Number of instances: 1

Software Image (AMI): Amazon Linux 2023 AMI 2023.4.2...read more
ami-0c9638aa7ab1dee7

Virtual server type (instance type): t2.micro

Firewall (security group): New security group

Storage (volumes): 1 volume(s) - 8 GiB

Launch instance

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Metadata response hop limit

2

Allow tags in metadata

Select

User data - optional

Upload a file with your user data or enter it in the field.

Choose file

```
#!/bin/bash
yum update -y
yum install httpd -y
echo "<h1>This is from $(hostname -f)</h1>" > /var/www/html/index.html
systemctl enable httpd
systemctl start httpd
```

User data has already been base64 encoded

Summary

Number of instances: 2

When launching more than 1 instance, consider EC2 Auto Scaling

Software Image (AMI): Amazon Linux 2023 AMI 2023.4.2...read more
ami-0c9638aa7ab1dee7

Virtual server type (instance type): t2.micro

Firewall (security group): New security group

Storage (volumes): 1 volume(s) - 8 GiB

Launch instance

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Screenshot of the AWS EC2 Instances page showing three running t2.micro instances:

| Name | Instance ID | Instance state | Instance type | Status check | Alarm status | Availability Zone | Public IPv4 DNS | Public IPv4 |
|----------------|---------------------|----------------|---------------|-------------------|---------------|-------------------|-------------------------|---------------|
| 119_kesav_NLB1 | i-0f9aa4936eaa8881f | Running | t2.micro | - | View alarms + | ap-south-1b | ec2-35-154-10-10.ap... | 35.154.10.17 |
| 119_kesav_NLB2 | i-00f77bdacc306db7 | Running | t2.micro | - | View alarms + | ap-south-1b | ec2-13-235-154-12.ap... | 13.235.154.12 |
| 120_kiruthi | i-0caf401600a4f9beb | Running | t2.micro | 2/2 checks passed | View alarms + | ap-south-1b | ec2-13-235-71-126.ap... | 13.235.71.126 |

Screenshot of the AWS EC2 Load Balancers page comparing Application, Network, and Gateway Load Balancers:

- Application Load Balancer**: Handles HTTP and HTTPS traffic, operating at the request level.
- Network Load Balancer**: Handles TCP, UDP, and TLS traffic, supporting VPCs and offloading SSL/TLS.
- Gateway Load Balancer**: Handles traffic for third-party virtual appliances, supporting GENEVE and static IP addresses.

Screenshot of the AWS EC2 Create Network Load Balancer wizard:

The Network Load Balancer distributes incoming TCP and UDP traffic across multiple targets such as Amazon EC2 instances, microservices, and containers. When the load balancer receives a connection request, it selects a target based on the protocol and port that are specified in the listener configuration, and the routing rule specified as the default action.

Network Load Balancer now supports UDP for Dualstack
Set your IP address as dualstack and enable prefix for IPv6 source NAT. Then configure UDP-based listeners to route to IPv6 targets.

How Network Load Balancers work

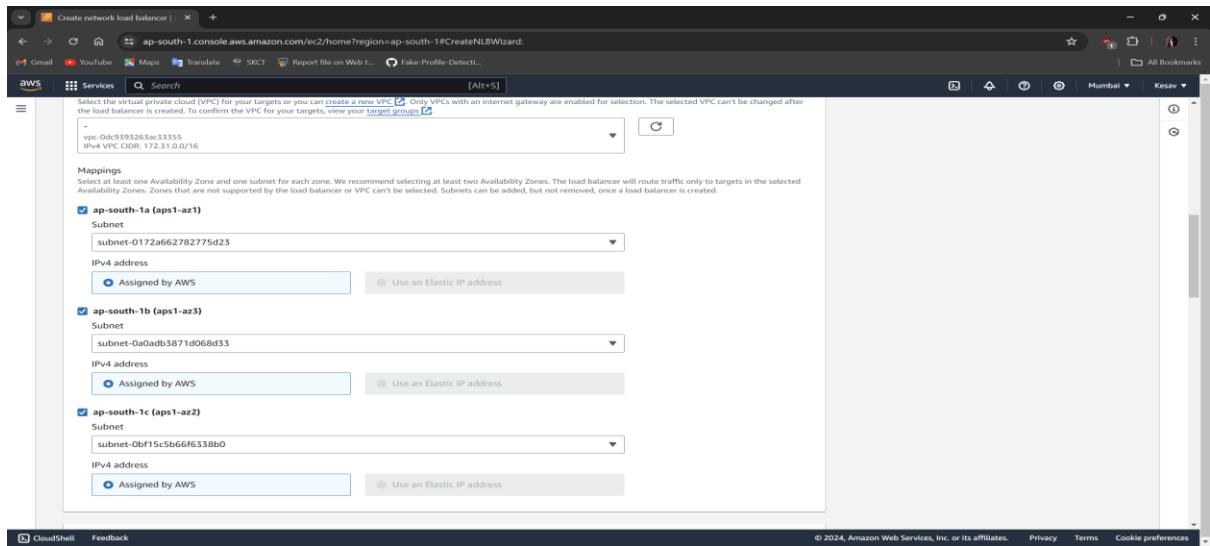
Basic configuration

Load balancer name
Name must be unique within your AWS account and can't be changed after the load balancer is created.
119_kesav_NLB_rev

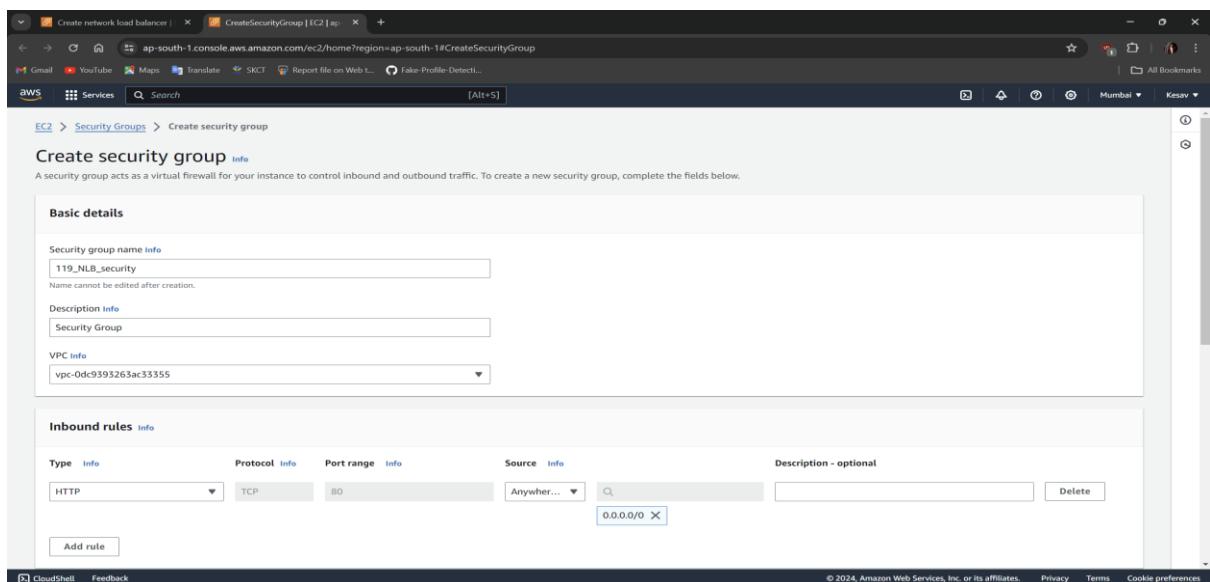
Scheme
Scheme can't be changed after the load balancer is created.
 Internet-facing
An internet-facing load balancer routes requests from clients over the internet to targets. Requires a public subnet. [Learn more](#)
 Internal
An internal load balancer routes requests from clients to targets using private IP addresses.

IP address type
Select the type of IP addresses that your subnets use.
 IPv4

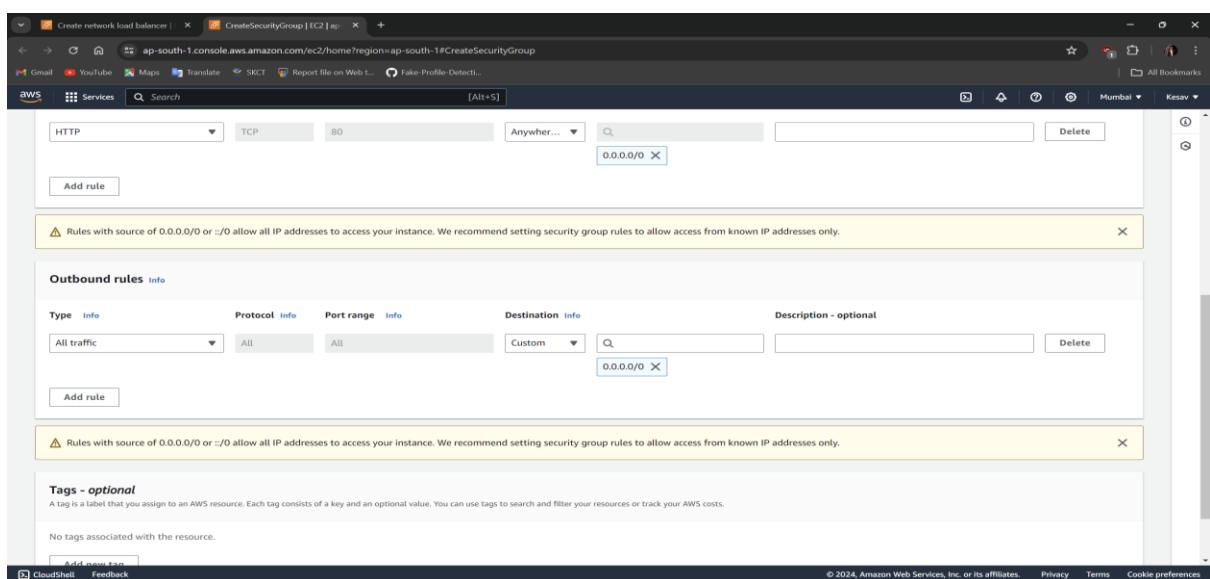
Screenshot of the AWS Cloud Console showing the 'Create network load balancer' wizard. The 'Mappings' section is displayed, listing three Availability Zones (ap-south-1a, ap-south-1b, ap-south-1c) with their respective subnets and IPv4 addresses. Each entry has an 'Assigned by AWS' option selected.



Screenshot of the AWS Cloud Console showing the 'Create security group' wizard. The 'Basic details' section is filled with a security group name (119_NLB_security), a description (Security Group), and a VPC (vpc-0dc9393263ac33355). The 'Inbound rules' section shows a single rule allowing HTTP traffic on port 80 from anywhere. A warning message at the bottom of the page advises against using 0.0.0.0/0 or ::/0 as it allows all IP addresses to access the instance.



Screenshot of the AWS Cloud Console showing the 'Create security group' wizard. The 'Outbound rules' section is displayed, showing a rule for all traffic. A warning message at the bottom of the page advises against using 0.0.0.0/0 or ::/0 as it allows all IP addresses to access the instance. The 'Tags - optional' section indicates no tags are associated with the resource.



Create network load balancer | SecurityGroup | EC2 | ap-south-1 | +

ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#SecurityGroup:group=sg-01196eba3628636d7

Gmail YouTube Maps Translate SKT Report file on Web... Fake-Profile-Detect... All Bookmarks Mumbai Kesav

aws Services Search [Alt+S]

EC2 Dashboard EC2 Global View Events Instances Instances Instance Types Launch Templates Spot Requests Savings Plans Reserved Instances Dedicated Hosts Capacity Reservations New Images AMIs AMI Catalog Elastic Block Store Volumes Snapshots Lifecycle Manager Network & Security Security Groups Placement Groups CloudShell Feedback

Security group (sg-01196eba3628636d7 | 119_NLB_security) was created successfully

Details

EC2 > Security Groups > sg-01196eba3628636d7 - 119_NLB_security

sg-01196eba3628636d7 - 119_NLB_security

Actions

Details

| | | | |
|---------------------|----------------------|----------------------|-----------------------|
| Security group name | Security group ID | Description | VPC ID |
| 119_NLB_security | sg-01196eba3628636d7 | Security Group | vpc-0dc9393263ac33355 |
| Owner | Inbound rules count | Outbound rules count | |
| 38149182067 | 1 Permission entry | 1 Permission entry | |

Inbound rules Outbound rules Tags

Inbound rules (1)

| Name | Security group... | IP version | Type | Protocol | Port range | Source |
|------|-----------------------|------------|------|----------|------------|-----------|
| - | sgr-0dbf25f73d0e90254 | IPv4 | HTTP | TCP | 80 | 0.0.0.0/0 |

Manage tags Edit inbound rules

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Create network load balancer | SecurityGroup | EC2 | ap-south-1 | +

ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#CreateNLBWizard:

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Assigned by AWS

Use an Elastic IP address

ap-south-1c (aps1-az2)

Subnet

subnet-0bf15c5b66f6538b0

IPv4 address

Assigned by AWS

Use an Elastic IP address

Security groups Info

A security group is a set of firewall rules that control the traffic to your load balancer. Select an existing security group, or you can create a new security group.

Security groups - recommended

Security groups support on Network Load Balancers can only be enabled at creation by including at least one security group. You can change security groups after creation. The security groups for your load balancer must allow it to communicate with registered targets on both the listener port and the health check port. For PrivateLink Network Load Balancers, security group rules are enforced on PrivateLink traffic; however, you can turn off inbound rule evaluation after creation within the load balancer's Security tab or using the API.

Select up to 5 security groups

119_NLB_security

sg-01196eba3628636d7 - VPC vpc-0dc9393263ac33355

Listeners and routing Info

A listener is a process that checks for connection requests using the port and protocol you configure. The rules that you define for a listener determine how the load balancer routes requests to its registered targets.

Listener TCP:80

Remove

CloudShell Feedback

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Create network load balancer | Step 1: Create target group | EC2 | ap-south-1 | +

ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#CreateTargetGroup:protocol=TCP,vpc=vpc-0dc9393263ac33355

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EC2 > Target groups > Create target group

Step 1 Specify group details

Your load balancer routes requests to the targets in a target group and performs health checks on the targets.

Basic configuration

Settings in this section can't be changed after the target group is created.

Choose a target type

Instances

- Supports load balancing to instances within a specific VPC.
- Facilitates the use of [Amazon EC2 Auto Scaling](#) to manage and scale your EC2 capacity.

IP addresses

- Supports load balancing to VPC and on-premises resources.
- Facilitates routing to multiple targets with different interfaces on the same instance.
- Offers flexibility with microservice based architectures, simplifying inter-application communication.
- Supports IPv6 targets, enabling end-to-end IPv6 communication, and IPv4-to-IPv6 NAT.

Lambda function

- Facilitates routing to a single Lambda function.
- Accessible to Application Load Balancers only.

Application Load Balancer

- Offers the flexibility for a Network Load Balancer to accept and route TCP requests within a specific VPC.
- Facilitates using static IP addresses and PrivateLink with an Application Load Balancer.

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Create network load balancer | Step 1: Create target group | SecurityGroup | EC2 | ap-south-1

Lambda function

- Facilitates routing to a single Lambda function.
- Accessible to Application Load Balancers only.

Application Load Balancer

- Offers the flexibility for a Network Load Balancer to accept and route TCP requests within a specific VPC.
- Facilitates using static IP addresses and PrivateLink with an Application Load Balancer.

Target group name
119_NLB_Target

A maximum of 32 alphanumeric characters including hyphens are allowed, but the name must not begin or end with a hyphen.

Protocol - Port
Choose a protocol for your target group that corresponds to the Load Balancer type that will route traffic to it. Some protocols now include anomaly detection for the targets and you can set mitigation options once your target group is created. This choice cannot be changed after creation.

| | |
|---------|----|
| TCP | 80 |
| 1-65535 | |

IP address type
Only targets with the indicated IP address type can be registered to this target group.

IPv4
Each instance has a default network interface (eth0) that is assigned the primary private IPv4 address. The instance's primary private IPv4 address is the one that will be applied to the target.

IPv6
Each instance you register must have an assigned primary IPv6 address. This is configured on the instance's default network interface (eth0). [Learn more](#)

VPC
Select the VPC with the instances that you want to include in the target group. Only VPCs that support the IP address type selected above are available in this list.

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Create network load balancer | Step 2: Create target group | SecurityGroup | EC2 | ap-south-1

Step 1
Specify group details

Step 2
Register targets

This is an optional step to create a target group. However, to ensure that your load balancer routes traffic to this target group you must register your targets.

Available instances (3)

| Instance ID | Name | State | Security groups | Zone |
|---------------------|----------------|---------|------------------|-------------|
| i-Ofbaa4936eaa8881f | 119_kesav_NLB1 | Running | launch-wizard-29 | ap-south-1b |
| i-00ff77bdacc306db7 | 119_kesav_NLB2 | Running | launch-wizard-29 | ap-south-1b |
| i-0caf401600a4f9beb | 120_kiruthi | Running | launch-wizard-28 | ap-south-1b |

0 selected

Ports for the selected instances
Ports for routing traffic to the selected instances.
80
1-65535 (separate multiple ports with commas)

Review targets

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Create network load balancer | Step 2: Create target group | SecurityGroup | EC2 | ap-south-1

Step 1
Specify group details

Step 2
Register targets

2 selections are now pending below. Include more or register targets when ready.

Targets (2)

| Instance ID | Name | Port | State | Security groups | Zone | Private IPv4 address | Subnet ID |
|---------------------|----------------|------|---------|------------------|-------------|----------------------|--------------------------|
| i-Ofbaa4936eaa8881f | 119_kesav_NLB1 | 80 | Running | launch-wizard-29 | ap-south-1b | 172.31.12.82 | subnet-0a0adb3871d068d33 |
| i-00ff77bdacc306db7 | 119_kesav_NLB2 | 80 | Running | launch-wizard-29 | ap-south-1b | 172.31.5.204 | subnet-0a0adb3871d068d33 |

2 pending

Create target group

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Screenshot of the AWS Cloud Console showing the creation of a target group named "119-NLB-Target".

Details:

| | | | |
|--------------------------------|-------------------------|----------------------------|-----------------------|
| Target type: Instance | Protocol: Port: TCP: 80 | VPC: vpc-0dc9393263ac33355 | IP address type: IPv4 |
| Load balancer: None associated | Total targets: 2 | Healthy: 0 | Unhealthy: 0 |
| | Unused: 2 | Initial: 0 | Draining: 0 |

Registered targets (2):

| Target | Status |
|-----------------------|-----------|
| sg-01196eba3628865d7 | Healthy |
| vpc-0dc9393263ac33355 | Unhealthy |

Actions: Deregister, Register targets.

Screenshot of the AWS Cloud Console showing the configuration of a load balancer listener.

Listeners and routing:

| | | |
|---------------|----------|--|
| Protocol: TCP | Port: 80 | Default action: Forward to: 119-NLB-Target |
|---------------|----------|--|

Listener tags - optional:

Add listener tag: You can add up to 50 more tags.

Load balancer tags - optional:

Screenshot of the AWS Cloud Console showing the creation of a Network Load Balancer (NLB).

Details:

| | | | |
|-----------------------------|---------------------------|--|---|
| Load balancer type: Network | Status: Provisioning | VPC: vpc-0dc9393263ac33355 | IP address type: IPv4 |
| Scheme: Internet-facing | Hosted zone: ZVDRBQ08TROA | Availability Zones: | Date created: May 22, 2024, 10:55 (UTC+05:30) |
| | | subnet-0f15c5b66f6338b0 ap-south-1c (ap-s1-az2) | |
| | | subnet-0172a662782775d23 ap-south-1a (ap-s1-az1) | |
| | | subnet-0aadb3871d068d33 ap-south-1b (ap-s1-az3) | |

DNS name info: 119-kesav-NLB-rev-aa98117c63bb96a5.elb.ap-south-1.amazonaws.com (A Record)

The screenshot shows the AWS CloudWatch Metrics Insights search results for a specific query. The search bar at the top contains the query: `CloudWatch Metrics Insights MetricsSearch: "arn:aws:cloudwatchmetrics:metric:AWS/CloudWatchMetricsInsights/CloudWatchMetricsInsightsMetricsSearch:119-kesav-NLB-rev"`. The results table below lists various metrics and dimensions, such as `CloudWatch Metrics Insights MetricsSearch: "arn:aws:cloudwatchmetrics:metric:AWS/CloudWatchMetricsInsights/CloudWatchMetricsInsightsMetricsSearch:119-kesav-NLB-rev"`, `CloudWatch Metrics Insights MetricsSearch: "arn:aws:cloudwatchmetrics:metric:AWS/CloudWatchMetricsInsights/CloudWatchMetricsInsightsMetricsSearch:119-kesav-NLB-rev"`, and `CloudWatch Metrics Insights MetricsSearch: "arn:aws:cloudwatchmetrics:metric:AWS/CloudWatchMetricsInsights/CloudWatchMetricsInsightsMetricsSearch:119-kesav-NLB-rev"`. The table includes columns for Metric Name, Dimension, Value, and Last Seen.

This screenshot shows the AWS CloudWatch Metrics Insights search results for a different query. The search bar at the top contains the query: `CloudWatch Metrics Insights MetricsSearch: "arn:aws:cloudwatchmetrics:metric:AWS/CloudWatchMetricsInsights/CloudWatchMetricsInsightsMetricsSearch:119-kesav-NLB-rev"`. The results table lists various metrics and dimensions, including `CloudWatch Metrics Insights MetricsSearch: "arn:aws:cloudwatchmetrics:metric:AWS/CloudWatchMetricsInsights/CloudWatchMetricsInsightsMetricsSearch:119-kesav-NLB-rev"`, `CloudWatch Metrics Insights MetricsSearch: "arn:aws:cloudwatchmetrics:metric:AWS/CloudWatchMetricsInsights/CloudWatchMetricsInsightsMetricsSearch:119-kesav-NLB-rev"`, and `CloudWatch Metrics Insights MetricsSearch: "arn:aws:cloudwatchmetrics:metric:AWS/CloudWatchMetricsInsights/CloudWatchMetricsInsightsMetricsSearch:119-kesav-NLB-rev"`. The table includes columns for Metric Name, Dimension, Value, and Last Seen.

This screenshot shows the AWS CloudWatch Metrics Insights search results for a third query. The search bar at the top contains the query: `CloudWatch Metrics Insights MetricsSearch: "arn:aws:cloudwatchmetrics:metric:AWS/CloudWatchMetricsInsights/CloudWatchMetricsInsightsMetricsSearch:119-kesav-NLB-rev"`. The results table lists various metrics and dimensions, including `CloudWatch Metrics Insights MetricsSearch: "arn:aws:cloudwatchmetrics:metric:AWS/CloudWatchMetricsInsights/CloudWatchMetricsInsightsMetricsSearch:119-kesav-NLB-rev"`, `CloudWatch Metrics Insights MetricsSearch: "arn:aws:cloudwatchmetrics:metric:AWS/CloudWatchMetricsInsights/CloudWatchMetricsInsightsMetricsSearch:119-kesav-NLB-rev"`, and `CloudWatch Metrics Insights MetricsSearch: "arn:aws:cloudwatchmetrics:metric:AWS/CloudWatchMetricsInsights/CloudWatchMetricsInsightsMetricsSearch:119-kesav-NLB-rev"`. The table includes columns for Metric Name, Dimension, Value, and Last Seen.



This is from ip-172-31-12-82.ap-south-1.compute.internal