

Project - 1: Deploying a Multi-Tier Website Using AWS EC2

Description:

Amazon Elastic Compute Cloud (Amazon EC2) provides scalable computing capacity in the Amazon Web Services (AWS) cloud. Using Amazon EC2 eliminates your need to invest in hardware up front so you can develop and deploy applications faster. You can use Amazon EC2 to launch as many or as few virtual servers as you need, configure security and networking, and manage storage. Amazon EC2 enables you to scale up or down to handle changes in requirements or spikes in popularity, reducing your need to forecast traffic.

Problem Statement:

Company ABC wants to move their product to AWS. They have the following things set up right now:

1. MySQL DB
2. Website (PHP)

The company wants high availability on this product, therefore wants Auto Scaling to be enabled on this website.

Creating ec2 Instance

Instances | EC2 | ap-south-1

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

aws

Services

Search

[Alt+S]

EC2

EC2 Image Builder

S3

IAM

VPC

Dashboard

EC2 Global View

Events

Instances

Instances

Instance Types

Launch Templates

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

Capacity

Reservations

Images

AMIs

AMI Catalog

Elastic Block Store

Instances (1/1)

Info

Last updated less than a minute ago

Connect

Instance state

Actions

Launch instances

Find Instance by attribute or tag (case-sensitive)

All states

Instance state = running

Clear filters

< 1 >

<input checked="" type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	Alarm status
<input checked="" type="checkbox"/>	main-instance	i-01d23e6772805a34a	Running	t2.micro	Initializing	View alarms

i-01d23e6772805a34a (main-instance)

Details

Status and alarms

Monitoring

Security

Networking

Storage

Tags

Instance summary

Instance ID

i-01d23e6772805a34a

IPv6 address

-

Public IPv4 address

65.2.69.63 | open address

Instance state

Running

Private IPv4 addresses

172.31.9.182

Public IPv4 DNS

CloudShell

Feedback

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Privacy

Terms

Cookie preferences

Configured Security Group & Allow SSH ,HTTP, & RDS (MySql/Aurora)

Instances | EC2 | ap-south-1

SecurityGroup | EC2 | ap-south-

Load balancer details | EC2 | ap

ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#SecurityGroup:groupId=sg-05b7c3291c7e3278f

aws Services Search [Alt+S]

EC2 EC2 Image Builder S3 IAM VPC

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

Elastic IPs

Placement Groups

Key Pairs

Network Interfaces

Load Balancing

Load Balancers

Target Groups

EC2 > Security Groups > sg-05b7c3291c7e3278f - project01-sg

sg-05b7c3291c7e3278f - project01-sg

Actions

Details

Security group name

project01-sg

Security group ID

sg-05b7c3291c7e3278f

Description

Allow SSH, HTTP & RDS

VPC ID

vpc-09da02eb16a97ff13

Owner

654654393526

Inbound rules count

3 Permission entries

Outbound rules count

1 Permission entry

Inbound rules

Outbound rules

Sharing - new

VPC associations - new

Tags

Inbound rules (3)

Manage tags

Edit inbound rules

Search

	Name	Security group rule...	IP version	Type	Protocol	Port range	Source
<input type="checkbox"/>	-	sgr-073a19afb0e352c82	IPv4	HTTP	TCP	80	0.0.0.0/0
<input type="checkbox"/>	-	sgr-06727ae845dd16...	IPv4	SSH	TCP	22	0.0.0.0/0
<input type="checkbox"/>	-	sgr-0a9df6178288b8e0c	IPv4	MYSQL/Aurora	TCP	3306	0.0.0.0/0

CloudShell

Feedback

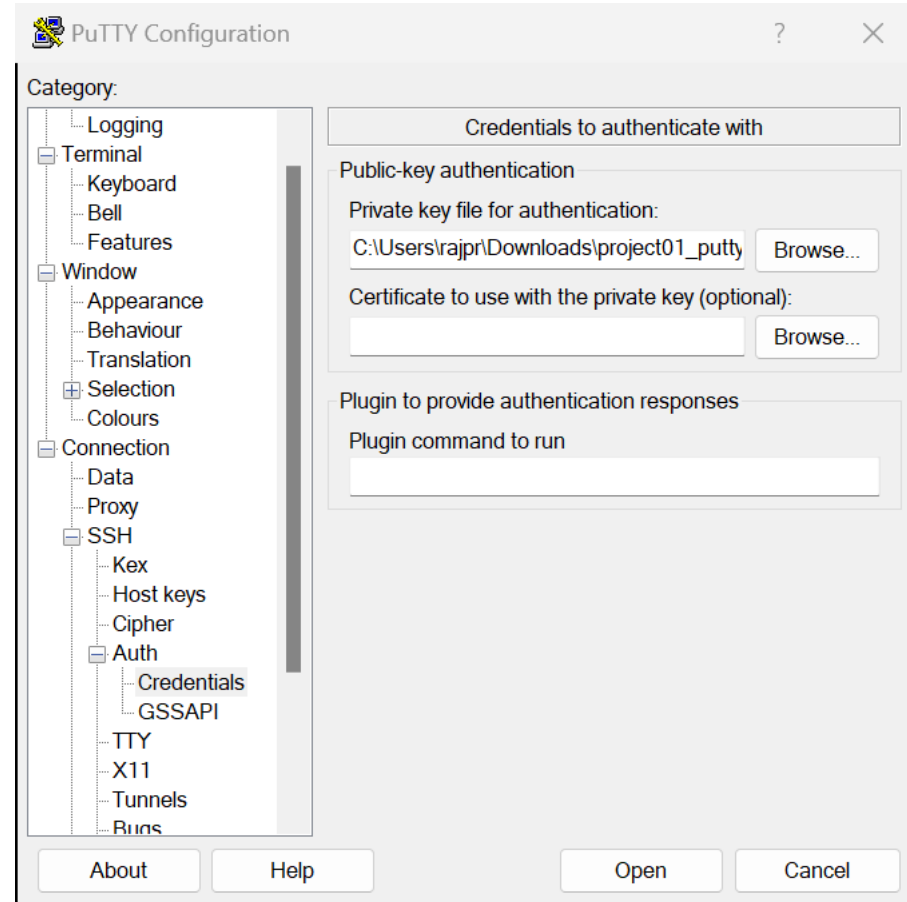
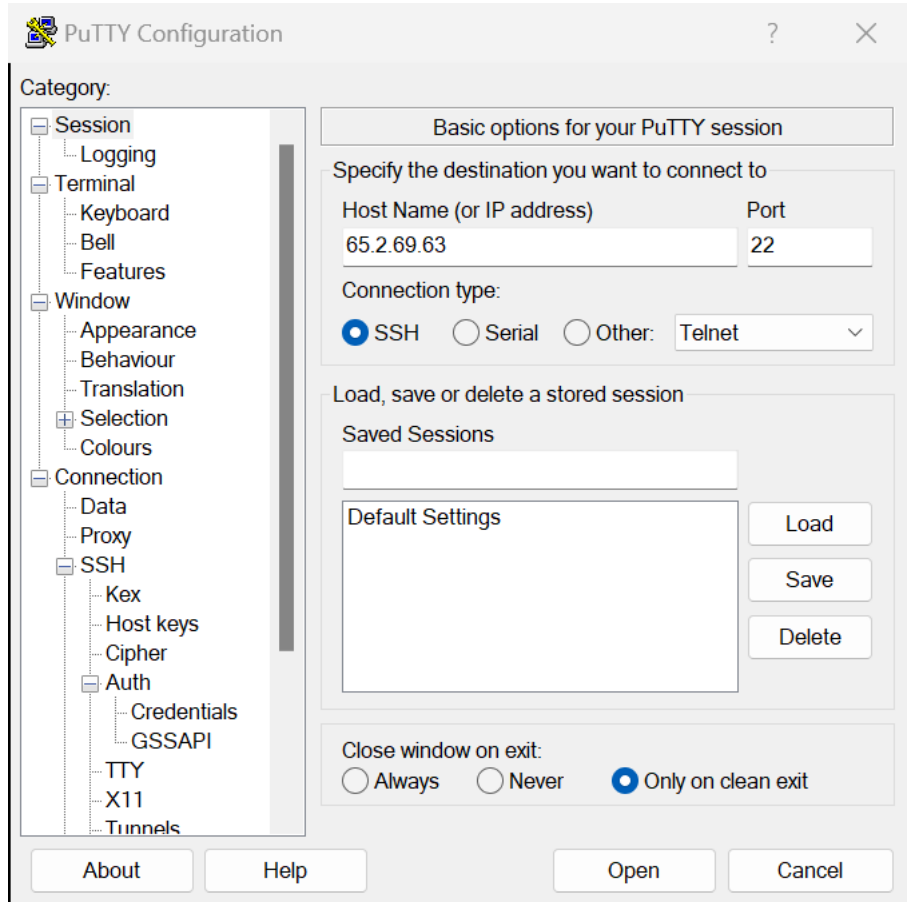
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Cookie preferences

Connecting through putty



Successfully connect to console using Putty

```
ubuntu@ip-172-31-9-182: ~  
login as: ubuntu  
Authenticating with public key "project01_putty"  
Welcome to Ubuntu 22.04.5 LTS (GNU/Linux 6.8.0-1015-aws x86_64)  
  
* Documentation:  https://help.ubuntu.com  
* Management:    https://landscape.canonical.com  
* Support:       https://ubuntu.com/pro  
  
System information as of Fri Nov  1 14:23:40 UTC 2024  
  
System load:  0.0          Processes:            103  
Usage of /:   21.1% of 7.57GB Users logged in:       0  
Memory usage: 20%         IPv4 address for eth0: 172.31.9.182  
Swap usage:   0%  
  
Expanded Security Maintenance for Applications is not enabled.  
  
0 updates can be applied immediately.  
  
Enable ESM Apps to receive additional future security updates.  
See https://ubuntu.com/esm or run: sudo pro status  
  
The list of available updates is more than a week old.  
To check for new updates run: sudo apt update  
  
The programs included with the Ubuntu system are free software;  
the exact distribution terms for each program are described in the  
individual files in /usr/share/doc/*/copyright.  
  
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by  
applicable law.  
  
To run a command as administrator (user "root"), use "sudo <command>".  
See "man sudo_root" for details.  
  
ubuntu@ip-172-31-9-182:~$
```

We need to setup web server and need to install package

- First Update your system using the command
sudo apt-get update
- Then use this command in PuTTY to install Apache2
sudo apt-get install apache2 -y
sudo systemctl status apache2
- Then install php-mysql using the following command
sudo add-apt-repository -y ppa:ondrej/php
sudo apt install php5.6 mysql-client php5.6-mysqli

sudo apt-get update

```
ubuntu@ip-172-31-9-182: ~$ sudo apt update
Hit:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease [128 kB]
Get:3 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease [127 kB]
Get:4 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 Packages [14.1 MB]
Get:5 http://security.ubuntu.com/ubuntu jammy-security InRelease [129 kB]
Get:6 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/universe Translation-en [5652 kB]
Get:7 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 c-n-f Metadata [286 kB]
Get:8 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse amd64 Packages [217 kB]
Get:9 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse Translation-en [112 kB]
Get:10 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse amd64 c-n-f Metadata [8372 B]
Get:11 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [2122 kB]
Get:12 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main Translation-en [364 kB]
Get:13 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 c-n-f Metadata [17.9 kB]
Get:14 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 Packages [2594 kB]
Get:15 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted Translation-en [448 kB]
Get:16 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 c-n-f Metadata [612 B]
Get:17 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages [1133 kB]
Get:18 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe Translation-en [265 kB]
Get:19 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 c-n-f Metadata [26.4 kB]
Get:20 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 Packages [43.3 kB]
Get:21 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse Translation-en [10.8 kB]
Get:22 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 c-n-f Metadata [440 B]
Get:23 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main amd64 Packages [67.7 kB]
Get:24 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main Translation-en [11.1 kB]
Get:25 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main amd64 c-n-f Metadata [388 B]
Get:26 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/restricted amd64 c-n-f Metadata [116 B]
Get:27 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 Packages [28.8 kB]
Get:28 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe Translation-en [16.5 kB]
Get:29 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 c-n-f Metadata [672 B]
Get:30 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/multiverse amd64 c-n-f Metadata [116 B]
Get:31 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [1905 kB]
Get:32 http://security.ubuntu.com/ubuntu jammy-security/main Translation-en [306 kB]
Get:33 http://security.ubuntu.com/ubuntu jammy-security/main amd64 c-n-f Metadata [13.3 kB]
Get:34 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 Packages [2534 kB]
Get:35 http://security.ubuntu.com/ubuntu jammy-security/restricted Translation-en [438 kB]
Get:36 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 c-n-f Metadata [580 B]
Get:37 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packages [912 kB]
Get:38 http://security.ubuntu.com/ubuntu jammy-security/universe Translation-en [180 kB]
Get:39 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 c-n-f Metadata [19.5 kB]
Get:40 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 Packages [37.2 kB]
Get:41 http://security.ubuntu.com/ubuntu jammy-security/multiverse Translation-en [7588 B]
Get:42 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 c-n-f Metadata [224 B]
Fetched 34.3 MB in 37s (919 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
16 packages can be upgraded. Run 'apt list --upgradable' to see them.
ubuntu@ip-172-31-9-182:~$
```


sudo systemctl status apache2

```
ubuntu@ip-172-31-9-182: ~$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
   Active: active (running) since Fri 2024-11-01 14:28:41 UTC; 57s ago
     Docs: https://httpd.apache.org/docs/2.4/
    Main PID: 2168 (apache2)
      Tasks: 55 (limit: 1130)
    Memory: 5.4M
       CPU: 31ms
    CGroup: /system.slice/apache2.service
            └─2168 /usr/sbin/apache2 -k start
              └─2170 /usr/sbin/apache2 -k start
                └─2171 /usr/sbin/apache2 -k start

Nov 01 14:28:41 ip-172-31-9-182 systemd[1]: Starting The Apache HTTP Server...
Nov 01 14:28:41 ip-172-31-9-182 systemd[1]: Started The Apache HTTP Server.
ubuntu@ip-172-31-9-182:~$
```

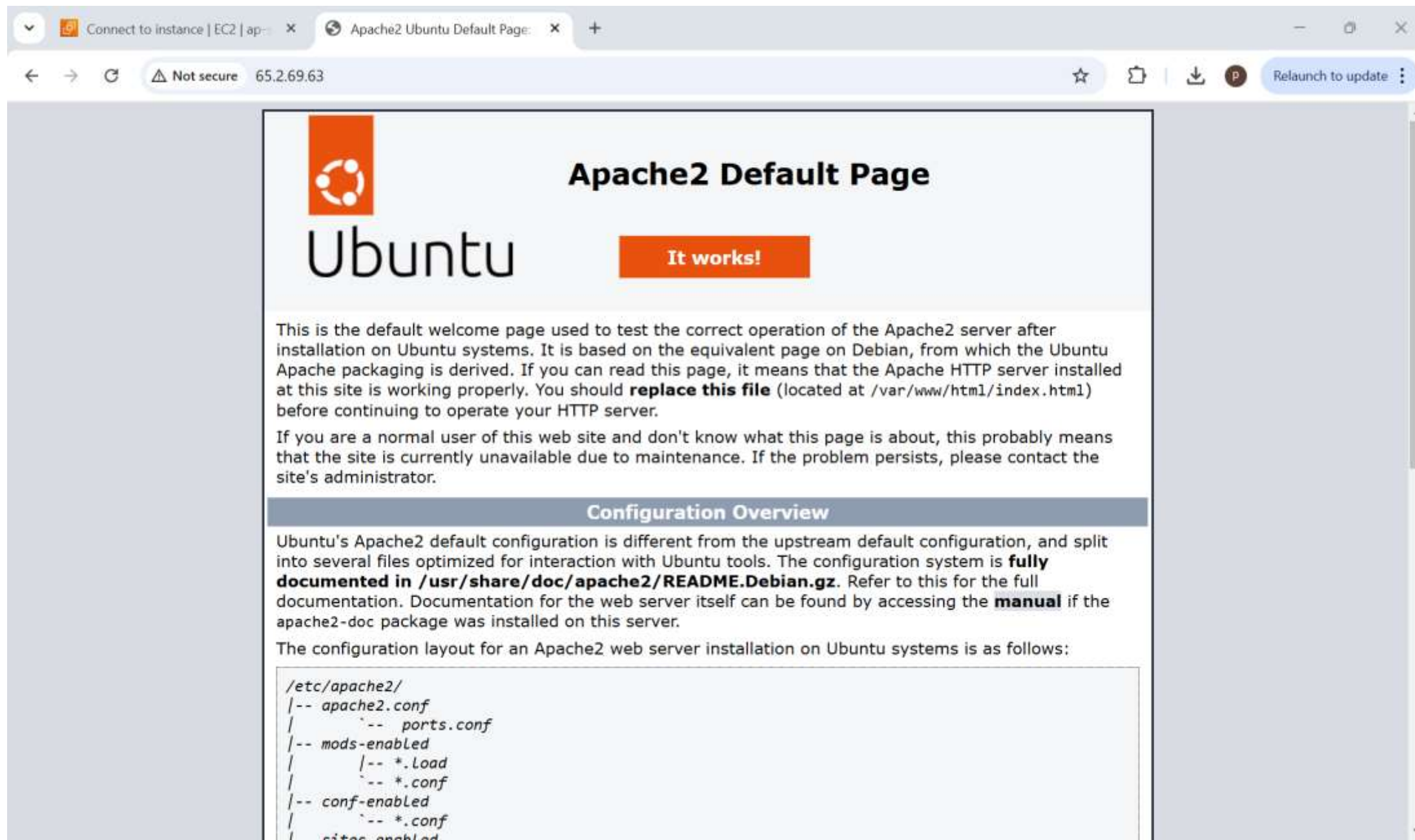
sudo systemctl status apache2

```
ubuntu@ip-172-31-9-182: ~  
ubuntu@ip-172-31-9-182:~$ sudo add-apt-repository -y ppa:ondrej/php  
PPA publishes dbgsym, you may need to include 'main/debug' component  
Repository: 'deb https://ppa.launchpadcontent.net/ondrej/php/ubuntu/ jammy main'  
Description:  
Co-installable PHP versions: PHP 5.6, PHP 7.x, PHP 8.x and most requested extensions are included. Only Supported Ubuntu Releases (https://wiki.ubuntu.com/Releases) are provided.  
  
Debian oldstable and stable packages are provided as well: https://deb.sury.org/#debian-dpa  
  
You can get more information about the packages at https://deb.sury.org  
  
BUGS&FEATURES: This PPA now has a issue tracker:  
https://deb.sury.org/#bug-reporting  
  
CAVEATS:  
1. If you are using php-gearman, you need to add ppa:ondrej/pkg-gearman  
2. If you are using apache2, you are advised to add ppa:ondrej/apache2  
3. If you are using nginx, you are advised to add ppa:ondrej/nginx-mainline  
   or ppa:ondrej/nginx  
  
PLEASE READ: If you like my work and want to give me a little motivation, please consider donating regularly: https://donate.sury.org/  
  
WARNING: add-apt-repository is broken with non-UTF-8 locales, see  
https://github.com/oerdnj/deb.sury.org/issues/56 for workaround:  
  
# LC_ALL=C.UTF-8 add-apt-repository ppa:ondrej/php  
More info: https://launchpad.net/~ondrej/+archive/ubuntu/php  
Adding repository.  
Adding deb entry to /etc/apt/sources.list.d/ondrej-ubuntu-php-jammy.list  
Adding disabled deb-src entry to /etc/apt/sources.list.d/ondrej-ubuntu-php-jammy.list  
  
Adding key to /etc/apt/trusted.gpg.d/ondrej-ubuntu-php.gpg with fingerprint B8DC7E53946656EFBCE4C1DD71DAEAAB4AD4CAB6  
Hit:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease  
Hit:2 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease  
Hit:3 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease  
Hit:4 http://security.ubuntu.com/ubuntu jammy-security InRelease  
Get:5 https://ppa.launchpadcontent.net/ondrej/php/ubuntu jammy InRelease [24.6 kB]  
Get:6 https://ppa.launchpadcontent.net/ondrej/php/ubuntu jammy/main amd64 Packages [134 kB]  
Get:7 https://ppa.launchpadcontent.net/ondrej/php/ubuntu jammy/main Translation-en [42.1 kB]  
Fetched 201 kB in 2s (120 kB/s)  
Reading package lists... Done  
ubuntu@ip-172-31-9-182:~$
```

sudo add-apt-repository -y ppa:ondrej/php

```
ubuntu@ip-172-31-9-182: ~  
Creating config file /etc/php/5.6/mods-available/mysqlnd.ini with new version  
Creating config file /etc/php/5.6/mods-available/mysqli.ini with new version  
Creating config file /etc/php/5.6/mods-available/pdo_mysql.ini with new version  
Creating config file /etc/php/5.6/mods-available/mysql.ini with new version  
Setting up php5.6-opcache (5.6.40-79+ubuntu22.04.1+deb.sury.org+1) ...  
Creating config file /etc/php/5.6/mods-available/opcache.ini with new version  
Setting up php5.6-readline (5.6.40-79+ubuntu22.04.1+deb.sury.org+1) ...  
Creating config file /etc/php/5.6/mods-available/readline.ini with new version  
Setting up php5.6-cli (5.6.40-79+ubuntu22.04.1+deb.sury.org+1) ...  
update-alternatives: using /usr/bin/php5.6 to provide /usr/bin/php (php) in auto mode  
update-alternatives: using /usr/bin/phar5.6 to provide /usr/bin/phar (phar) in auto mode  
update-alternatives: using /usr/bin/phar.phar5.6 to provide /usr/bin/phar.phar (phar.phar) in auto mode  
Creating config file /etc/php/5.6/cli/php.ini with new version  
Setting up libapache2-mod-php5.6 (5.6.40-79+ubuntu22.04.1+deb.sury.org+1) ...  
Creating config file /etc/php/5.6/apache2/php.ini with new version  
Module mpm_event disabled.  
Enabling module mpm_prefork.  
apache2_switch mpm Switch to prefork  
apache2_invoke: Enable module php5.6  
Setting up php5.6 (5.6.40-79+ubuntu22.04.1+deb.sury.org+1) ...  
Processing triggers for man-db (2.10.2-1) ...  
Processing triggers for libc-bin (2.35-0ubuntu3.8) ...  
Processing triggers for php5.6-cli (5.6.40-79+ubuntu22.04.1+deb.sury.org+1) ...  
Processing triggers for libapache2-mod-php5.6 (5.6.40-79+ubuntu22.04.1+deb.sury.org+1) ...  
Scanning processes...  
Scanning candidates...  
Scanning linux images...  
  
Running kernel seems to be up-to-date.  
  
Restarting services...  
systemctl restart packagekit.service polkit.service  
Service restarts being deferred:  
systemctl restart networkd-dispatcher.service  
systemctl restart unattended-upgrades.service  
  
No containers need to be restarted.  
  
No user sessions are running outdated binaries.  
  
No VM guests are running outdated hypervisor (qemu) binaries on this host.  
ubuntu@ip-172-31-9-182:~$
```

We able to access Apache2 server using ec2 public IP



The screenshot shows a web browser window with the following details:

- Browser Tabs:** "Connect to instance | EC2 | ap..." and "Apache2 Ubuntu Default Page: x".
- Address Bar:** "Not secure 65.2.69.63".
- Page Content:**
 - Logo:** Ubuntu logo (orange square with white dots).
 - Title:** "Apache2 Default Page".
 - Message:** "It works!" (in a red button).
 - Text:**

This is the default welcome page used to test the correct operation of the Apache2 server after installation on Ubuntu systems. It is based on the equivalent page on Debian, from which the Ubuntu Apache packaging is derived. If you can read this page, it means that the Apache HTTP server installed at this site is working properly. You should **replace this file** (located at `/var/www/html/index.html`) before continuing to operate your HTTP server.

If you are a normal user of this web site and don't know what this page is about, this probably means that the site is currently unavailable due to maintenance. If the problem persists, please contact the site's administrator.
 - Section Header:** "Configuration Overview".
 - Text:**

Ubuntu's Apache2 default configuration is different from the upstream default configuration, and split into several files optimized for interaction with Ubuntu tools. The configuration system is **fully documented in /usr/share/doc/apache2/README.Debian.gz**. Refer to this for the full documentation. Documentation for the web server itself can be found by accessing the **manual** if the `apache2-doc` package was installed on this server.

The configuration layout for an Apache2 web server installation on Ubuntu systems is as follows:
 - Code Block:**

```
/etc/apache2/  
|-- apache2.conf  
|   |-- ports.conf  
|-- mods-enabled  
|   |-- *.load  
|   |-- *.conf  
|-- conf-enabled  
|   |-- *.conf  
|-- sites-enabled
```

Connecting filezilla to transfer Images folder in web server

Site Manager

Select entry:

My Sites

New site

New site

New folder

New Bookmark

Rename

Delete

Duplicate

General

Advanced

Transfer Settings

Charset

Protocol: SFTP - SSH File Transfer Protocol

Host: 65.2.69.63

Port:

Logon Type: Key file

User: ubuntu

Key file: C:\Users\rajpr\Downloads\project01_putty.p

Browse...

Background color: None

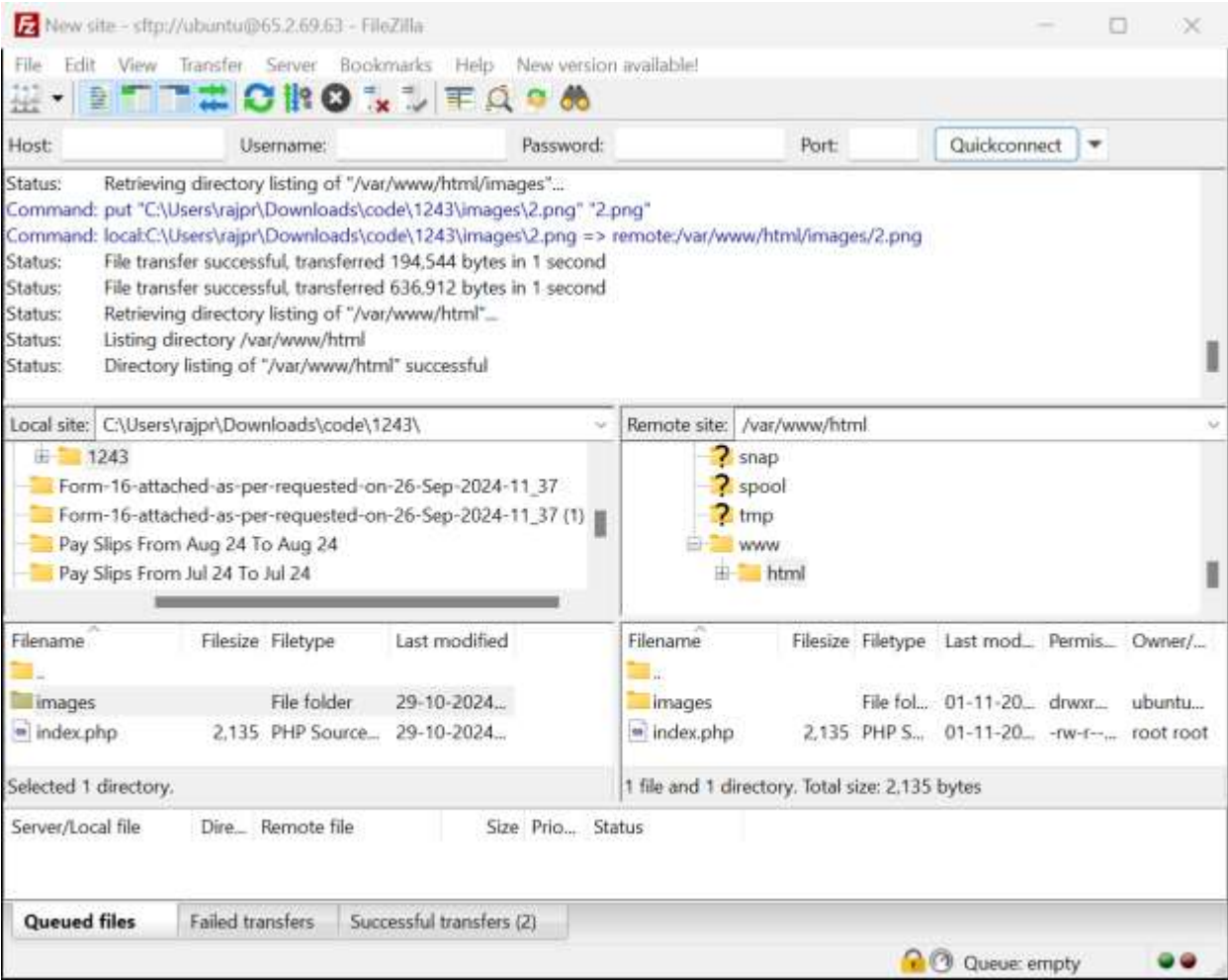
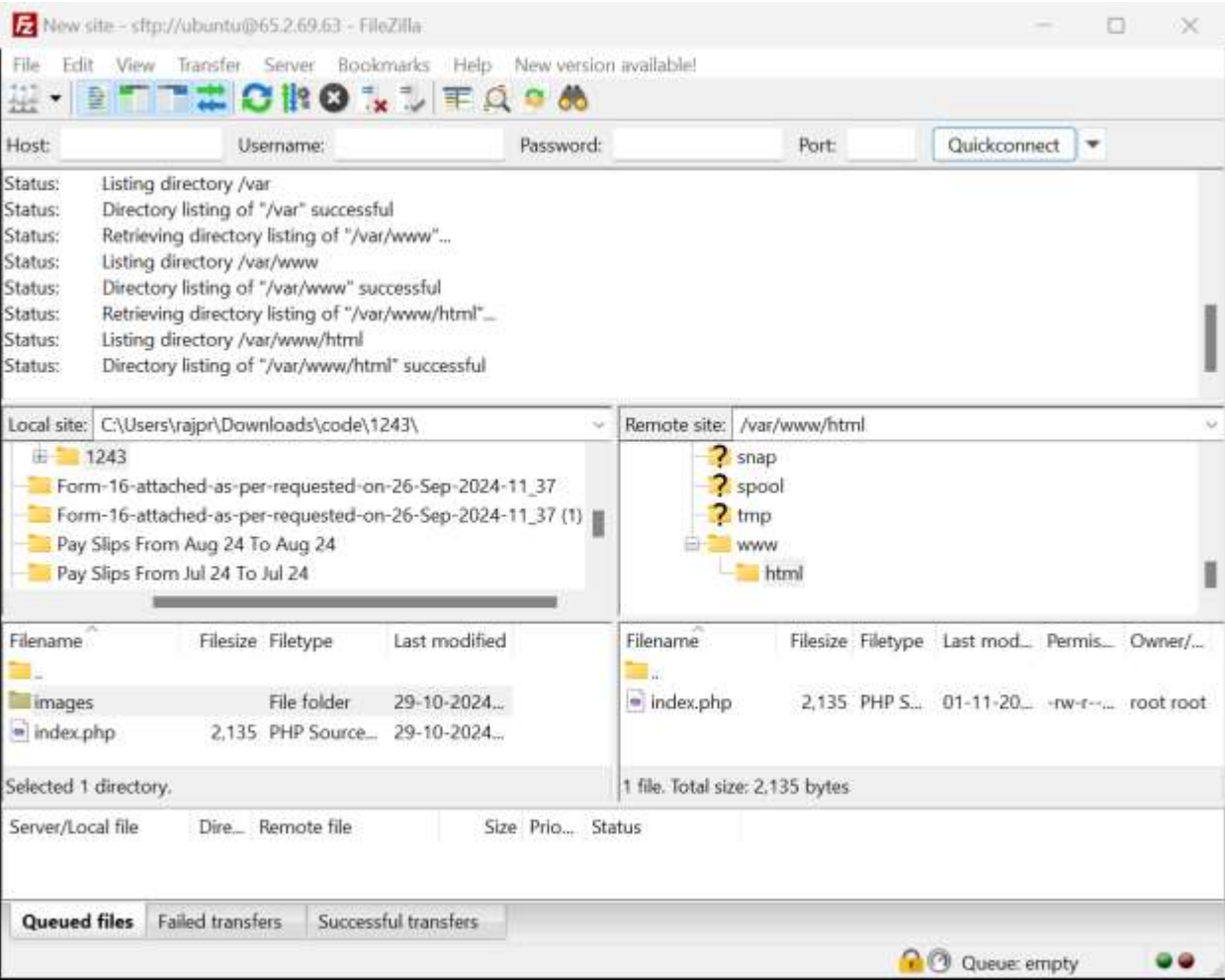
Comments:

Connect

OK

Cancel


Connecting filezilla to transfer Images folder in web server



We able to web application home page through ec2

Instances | EC2 | ap-south-1 x EC2 Instance Connect x 65.2.69.63 x +

← → ↻ ⚠ Not secure 65.2.69.63 ☆ 📄 ⓘ



Name:

Email:

Submit

Connection failed: php_network_getaddresses: getaddrinfo failed: Name or service not known

The image shows a web browser window with a single tab titled 'Instances | EC2 | ap-south-1'. The address bar shows the URL '65.2.69.63' and a warning icon indicating 'Not secure'. The page content features the 'IntelliPaat' logo in the top right corner. In the center, there is a light gray rectangular box containing a form with two input fields labeled 'Name:' and 'Email:', and a green 'Submit' button below them. At the bottom left of the page, a red error message states: 'Connection failed: php_network_getaddresses: getaddrinfo failed: Name or service not known'. The background of the page has a light blue pattern with various icons connected by lines, suggesting a network or cloud theme.

Configuring new MySQL RDS server

Instances | EC2 | ap-south-1

Create database - RDS Manager

65.2.69.63

ap-south-1.console.aws.amazon.com/rds/home?region=ap-south-1#launch-dbinstance:

aws

Services

Search

[Alt+S]

EC2

EC2 Image Builder

S3


IAM

VPC


Engine type

Info


☐ Aurora (MySQL Compatible)




☒ MySQL




☐ PostgreSQL




☐ Microsoft SQL Server




☐ Aurora (PostgreSQL Compatible)




☐ MariaDB



☐ Oracle



☐ IBM Db2



MySQL

MySQL is the most popular open source database in the world. MySQL on RDS offers the rich features of the MySQL community edition with the flexibility to easily scale compute resources or storage capacity for your database.

- Supports database size up to 64 TiB.
- Supports General Purpose, Memory Optimized, and Burstable Performance instance classes.
- Supports automated backup and point-in-time recovery.
- Supports up to 15 Read Replicas per instance, within a single Region or 5 read replicas cross-region.

CloudShell

Feedback

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Configuring new MySQL RDS server – Free-tier

The screenshot shows the AWS Management Console interface for configuring a new MySQL RDS instance. The browser address bar shows the URL: `ap-south-1.console.aws.amazon.com/rds/home?region=ap-south-1#launch-dbinstance:`. The console header includes the AWS logo, a search bar, and navigation links for EC2, EC2 Image Builder, S3, IAM, and VPC. The user's account name is 'prakash24' and the region is 'Mumbai'.

The main content area is divided into two sections: 'Templates' and 'Availability and durability'.

Templates
Choose a sample template to meet your use case.

- ☐ **Production**
Use defaults for high availability and fast, consistent performance.
- ☐ **Dev/Test**
This instance is intended for development use outside of a production environment.
- ☒ **Free tier**
Use RDS Free Tier to develop new applications, test existing applications, or gain hands-on experience with Amazon RDS. [Info](#)

Availability and durability

Deployment options [Info](#)
The deployment options below are limited to those supported by the engine you selected above.

- ☐ **Multi-AZ DB Cluster**
Creates a DB cluster with a primary DB instance and two readable standby DB instances, with each DB instance in a different Availability Zone (AZ). Provides high availability, data redundancy and increases capacity to serve read workloads.
- ☐ **Multi-AZ DB instance (not supported for Multi-AZ DB cluster snapshot)**
Creates a primary DB instance and a standby DB instance in a different AZ. Provides high availability and data redundancy, but the standby DB instance doesn't support connections for read workloads.
- ☒ **Single DB Instance (not supported for Multi-AZ DB cluster snapshot)**
Creates a single DB instance with no standby DB instances.

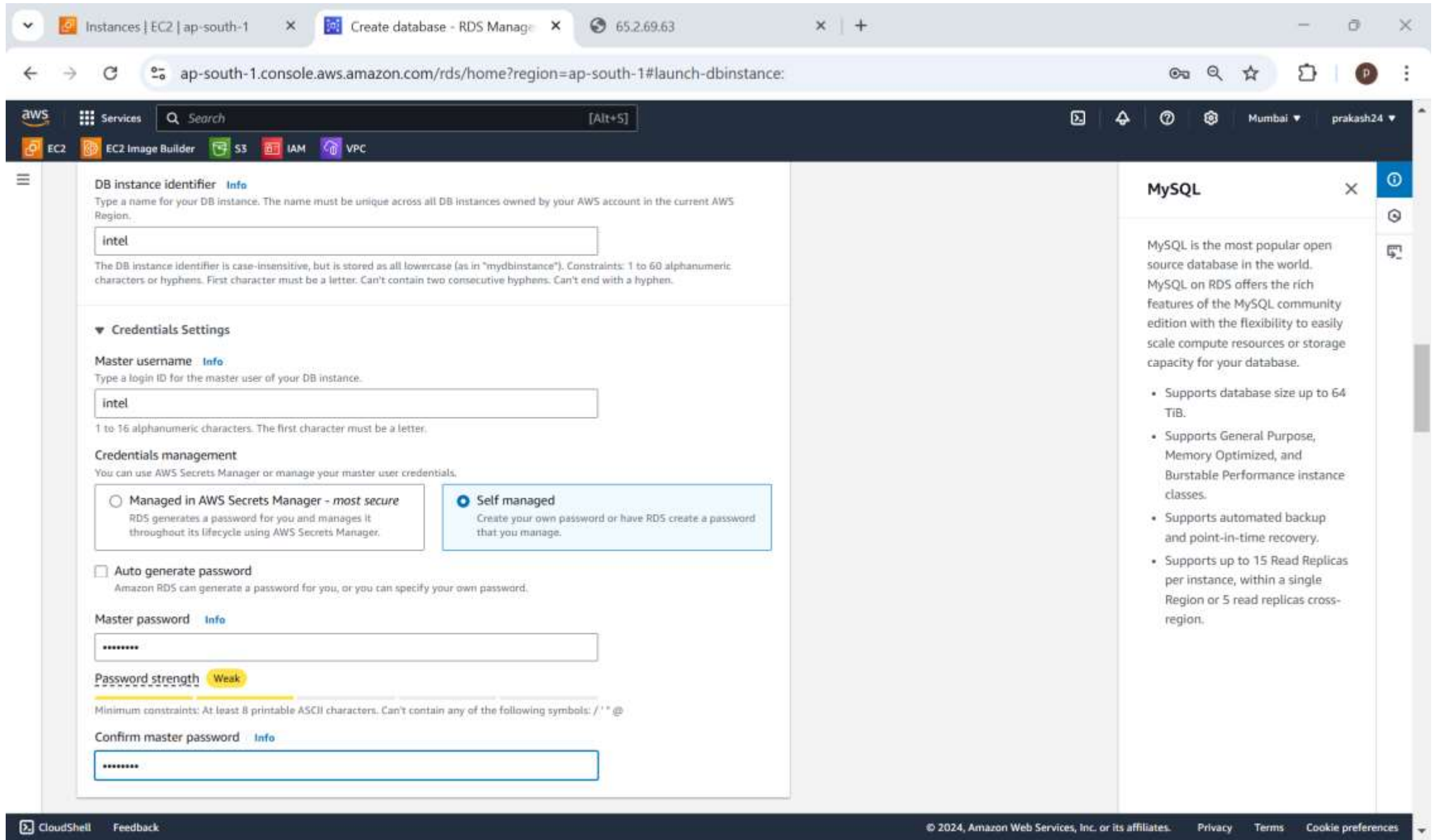
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- Supports up to 15 Read Replicas per instance, within a single Region or 5 read replicas cross-region.

At the bottom of the console, there are links for CloudShell, Feedback, and a footer with copyright information: © 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences.

Configuring new MySQL RDS server – Setup Password



Instances | EC2 | ap-south-1 | Create database - RDS Manager | 65.2.69.63

ap-south-1.console.aws.amazon.com/rds/home?region=ap-south-1#launch-dbinstance:

DB instance identifier [Info](#)

Type a name for your DB instance. The name must be unique across all DB instances owned by your AWS account in the current AWS Region.

intel

The DB instance identifier is case-insensitive, but is stored as all lowercase (as in "mydbinstance"). Constraints: 1 to 60 alphanumeric characters or hyphens. First character must be a letter. Can't contain two consecutive hyphens. Can't end with a hyphen.

▼ Credentials Settings

Master username [Info](#)

Type a login ID for the master user of your DB instance.

intel

1 to 16 alphanumeric characters. The first character must be a letter.

Credentials management

You can use AWS Secrets Manager or manage your master user credentials.

☐ Managed in AWS Secrets Manager - most secure

RDS generates a password for you and manages it throughout its lifecycle using AWS Secrets Manager.

☒ Self managed

Create your own password or have RDS create a password that you manage.

☐ Auto generate password

Amazon RDS can generate a password for you, or you can specify your own password.

Master password [Info](#)

Password strength [Weak](#)

Minimum constraints: At least 8 printable ASCII characters. Can't contain any of the following symbols: / ' * @

Confirm master password [Info](#)

MySQL

MySQL is the most popular open source database in the world. MySQL on RDS offers the rich features of the MySQL community edition with the flexibility to easily scale compute resources or storage capacity for your database.

- Supports database size up to 64 TiB.
- Supports General Purpose, Memory Optimized, and Burstable Performance instance classes.
- Supports automated backup and point-in-time recovery.
- Supports up to 15 Read Replicas per instance, within a single Region or 5 read replicas cross-region.

CloudShell Feedback

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Configuring new MySQL RDS server – Public Access

Instances | EC2 | ap-south-1

Create database - RDS Manager

65.2.69.63

ap-south-1.console.aws.amazon.com/rds/home?region=ap-south-1#launch-dbinstance:

aws

Services

Search

[Alt+5]

EC2

EC2 Image Builder

S3

IAM

VPC

Virtual private cloud (VPC)

Info

Choose the VPC. The VPC defines the virtual networking environment for this DB instance.

Default VPC (vpc-09da02eb16a97ff13)

3 Subnets, 3 Availability Zones

Only VPCs with a corresponding DB subnet group are listed.

After a database is created, you can't change its VPC.

DB subnet group

Info

Choose the DB subnet group. The DB subnet group defines which subnets and IP ranges the DB instance can use in the VPC that you selected.

default-vpc-09da02eb16a97ff13

3 Subnets, 3 Availability Zones

Public access

Info

☒ Yes

RDS assigns a public IP address to the database. Amazon EC2 instances and other resources outside of the VPC can connect to your database. Resources inside the VPC can also connect to the database. Choose one or more VPC security groups that specify which resources can connect to the database.

☐ No

RDS doesn't assign a public IP address to the database. Only Amazon EC2 instances and other resources inside the VPC can connect to your database. Choose one or more VPC security groups that specify which resources can connect to the database.

VPC security group (firewall)

Info

Choose one or more VPC security groups to allow access to your database. Make sure that the security group rules allow the appropriate incoming traffic.

☒ Choose existing

Choose existing VPC security groups

☐ Create new

Create new VPC security group

Existing VPC security groups

Choose one or more options

MySQL

MySQL is the most popular open source database in the world. MySQL on RDS offers the rich features of the MySQL community edition with the flexibility to easily scale compute resources or storage capacity for your database.

- Supports database size up to 64 TiB.
- Supports General Purpose, Memory Optimized, and Burstable Performance instance classes.
- Supports automated backup and point-in-time recovery.
- Supports up to 15 Read Replicas per instance, within a single Region or 5 read replicas cross-region.

CloudShell

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Configuring new MySQL RDS server – Available Status

Instances | EC2 | ap-south-1

Databases - RDS Management

65.2.69.63

← → ↻ 🔍 ap-south-1.console.aws.amazon.com/rds/home?region=ap-south-1#databases:

🔑 🔍 ⭐ 📁 👤

aws

Services 🔍 Search [Alt+S]

📦 EC2 📦 EC2 Image Builder 📦 S3 📦 IAM 📦 VPC

Amazon RDS

Dashboard

Databases

Query Editor

Performance insights

Snapshots

Exports in Amazon S3

Automated backups

Reserved instances

Proxies

Subnet groups

Parameter groups

Option groups

Custom engine versions

Zero-ETL integrations [New](#)

Events

Event subscriptions

Recommendations 0

Certificate update

Successfully created database [intel](#)

View connection details

You can use settings from intel to simplify configuration of [suggested database add-ons](#) while we finish creating your DB for you.

RDS > Databases

ⓘ Consider creating a Blue/Green Deployment to minimize downtime during upgrades

You may want to consider using Amazon RDS Blue/Green Deployments and minimize your downtime during upgrades. A Blue/Green Deployment provides a staging environment for changes to production databases. [RDS User Guide](#) [Aurora User Guide](#)

Databases (1)

☒ Group resources

🔄

Modify

Actions ▾

Restore from S3

Create database

🔍 Filter by databases

< 1 > ⚙️

DB identifier	Status	Role	Engine	Region ...	Size	Recommendations
intel	Available	Instance	MySQL Co...	ap-south-1c	db.t4g.mi...	

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Configuring new MySQL RDS server – Available Status

- Connect to MySQL server

```
mysql -h intel.chc0yayiooqd.ap-south-1.rds.amazonaws.com -u intel -p
```

- Creating MySQL Database

```
CREATE DATABASE intel;
```

- Creating MySQL Table

```
CREATE TABLE data (  
  id INT PRIMARY KEY AUTO_INCREMENT,  
  firstname VARCHAR(50) NOT NULL,  
  email VARCHAR(100) UNIQUE );
```

We Successfully Connect to MySQL server using ec2

The screenshot displays the AWS Management Console interface. The browser tabs at the top include 'Instances | EC2 | ap-south-1', 'EC2 Instance Connect', and 'Database Details - RDS Manag'. The address bar shows the URL: `ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=ap-south-1&connType=standard&instanceId=i-01d23e6772805a34a&os...`.

The main content area shows the AWS navigation bar with 'Services' and a search bar. Below the navigation bar, the 'EC2' service is selected, and the 'EC2 Instance Connect' page is displayed. The page shows a terminal window for an EC2 instance with the following output:

```
ubuntu@ip-172-31-9-182:~$ mysql -h intel.chc0yayiooqd.ap-south-1.rds.amazonaws.com -u intel -p intel
Enter password:
ERROR 1049 (42000): Unknown database 'intel'
ubuntu@ip-172-31-9-182:~$ mysql -h intel.chc0yayiooqd.ap-south-1.rds.amazonaws.com -u intel -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 36
Server version: 8.0.39 Source distribution

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affiliates. Other names may be trademarks of their respective
owners.

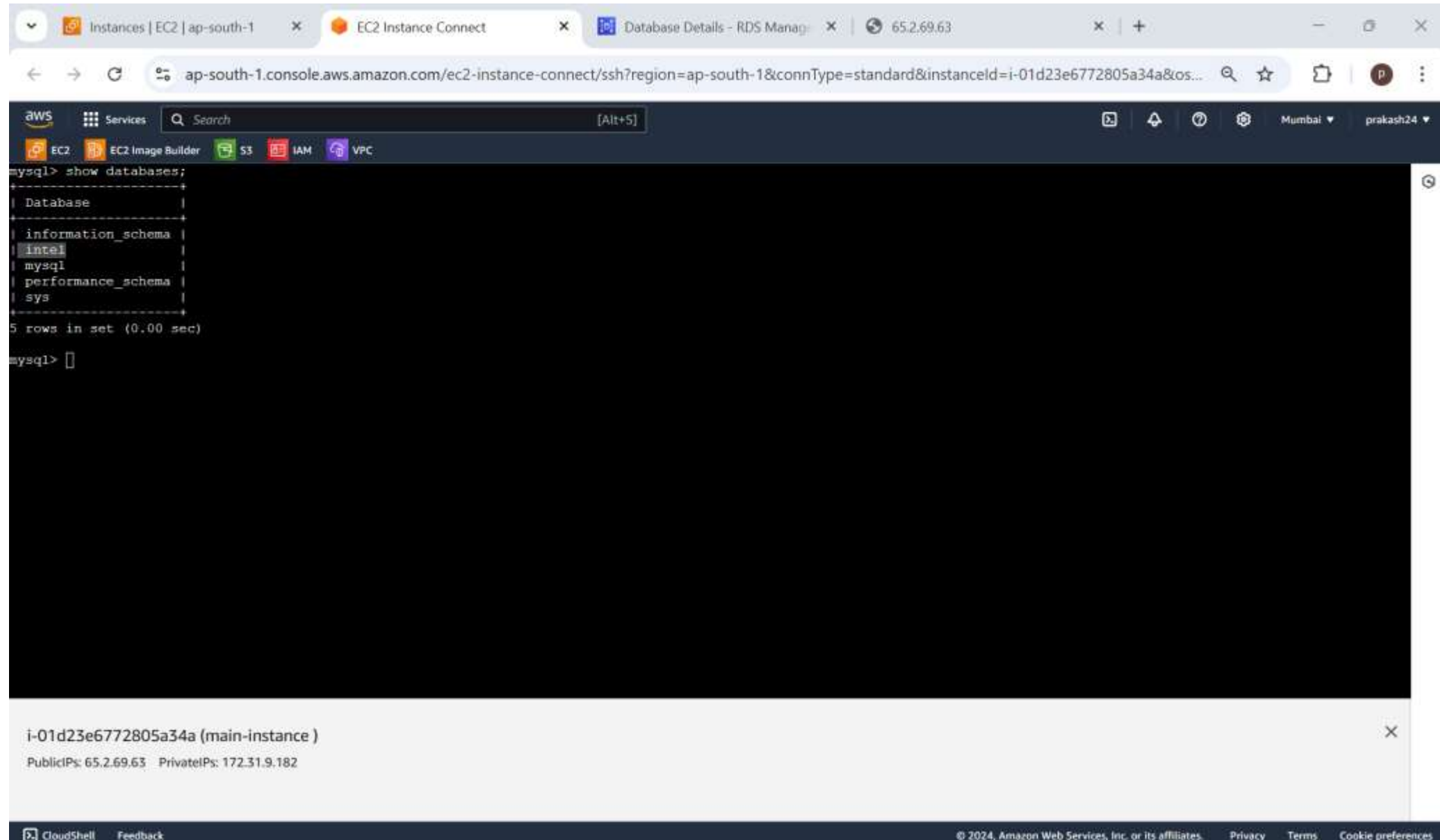
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql>
```

Below the terminal window, the instance details for 'i-01d23e6772805a34a (main-instance)' are shown, including the public IP address '65.2.69.63' and the private IP address '172.31.9.182'.

The footer of the console shows 'CloudShell' and 'Feedback' links, along with the copyright notice '© 2024, Amazon Web Services, Inc. or its affiliates.' and links for 'Privacy', 'Terms', and 'Cookie preferences'.

SHOW DATABASES; - MySQL Query



The screenshot shows the AWS CloudShell interface with a terminal window. The terminal displays the output of the MySQL query 'show databases;'. The output lists five databases: information_schema, intel, mysql, performance_schema, and sys. The 'intel' database is highlighted. Below the list, it shows '5 rows in set (0.00 sec)'. The terminal prompt is 'mysql> '.

Instances | EC2 | ap-south-1

EC2 Instance Connect

Database Details - RDS Manag

65.2.69.63

ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=ap-south-1&connType=standard&instanceId=i-01d23e6772805a34a&os...

Services Search [Alt+5]

EC2 EC2 Image Builder S3 IAM VPC

```
mysql> show databases;
+-----+
| Database |
+-----+
| information_schema |
| intel          |
| mysql          |
| performance_schema |
| sys            |
+-----+
5 rows in set (0.00 sec)

mysql>
```

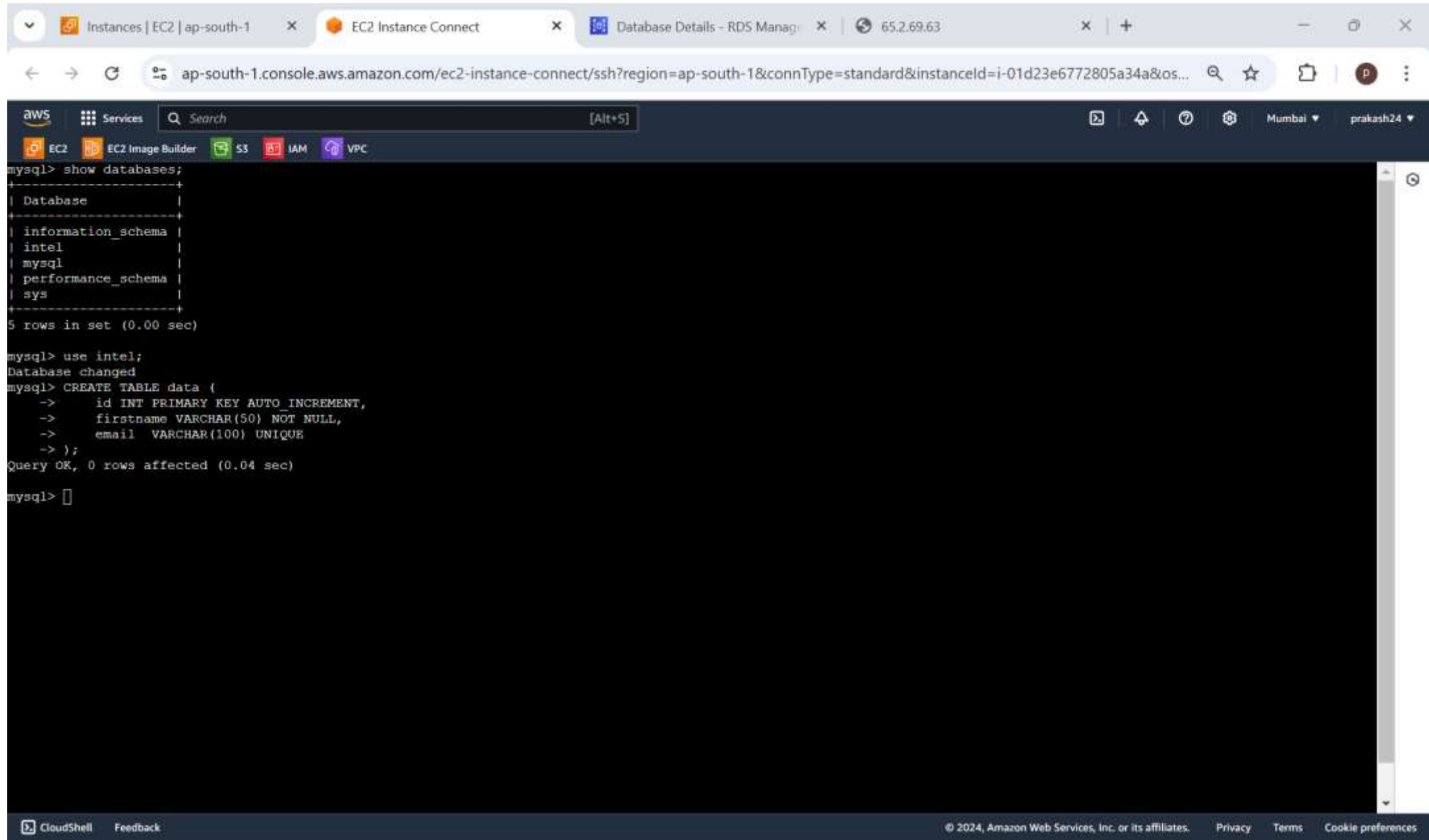
i-01d23e6772805a34a (main-instance)

PublicIPs: 65.2.69.63 PrivateIPs: 172.31.9.182

CloudShell Feedback

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USE <DATABASE NAME> to change database and creating table



The screenshot shows the AWS CloudShell interface with a terminal window. The terminal displays the following commands and output:

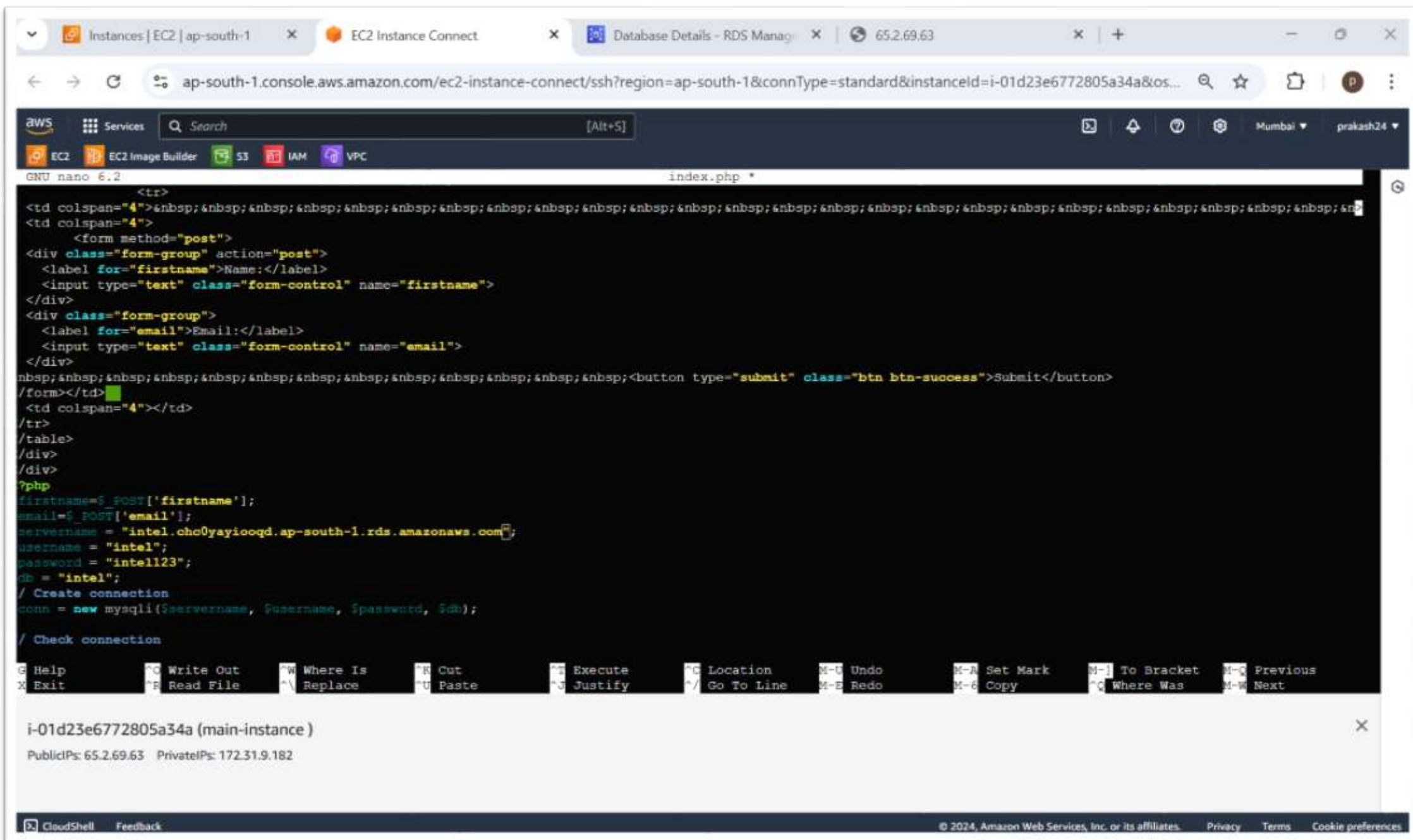
```
mysql> show databases;
+-----+
| Database |
+-----+
| information_schema |
| intel      |
| mysql      |
| performance_schema |
| sys        |
+-----+
5 rows in set (0.00 sec)

mysql> use intel;
Database changed
mysql> CREATE TABLE data (
  ->   id INT PRIMARY KEY AUTO_INCREMENT,
  ->   firstname VARCHAR(50) NOT NULL,
  ->   email VARCHAR(100) UNIQUE
  -> );
Query OK, 0 rows affected (0.04 sec)

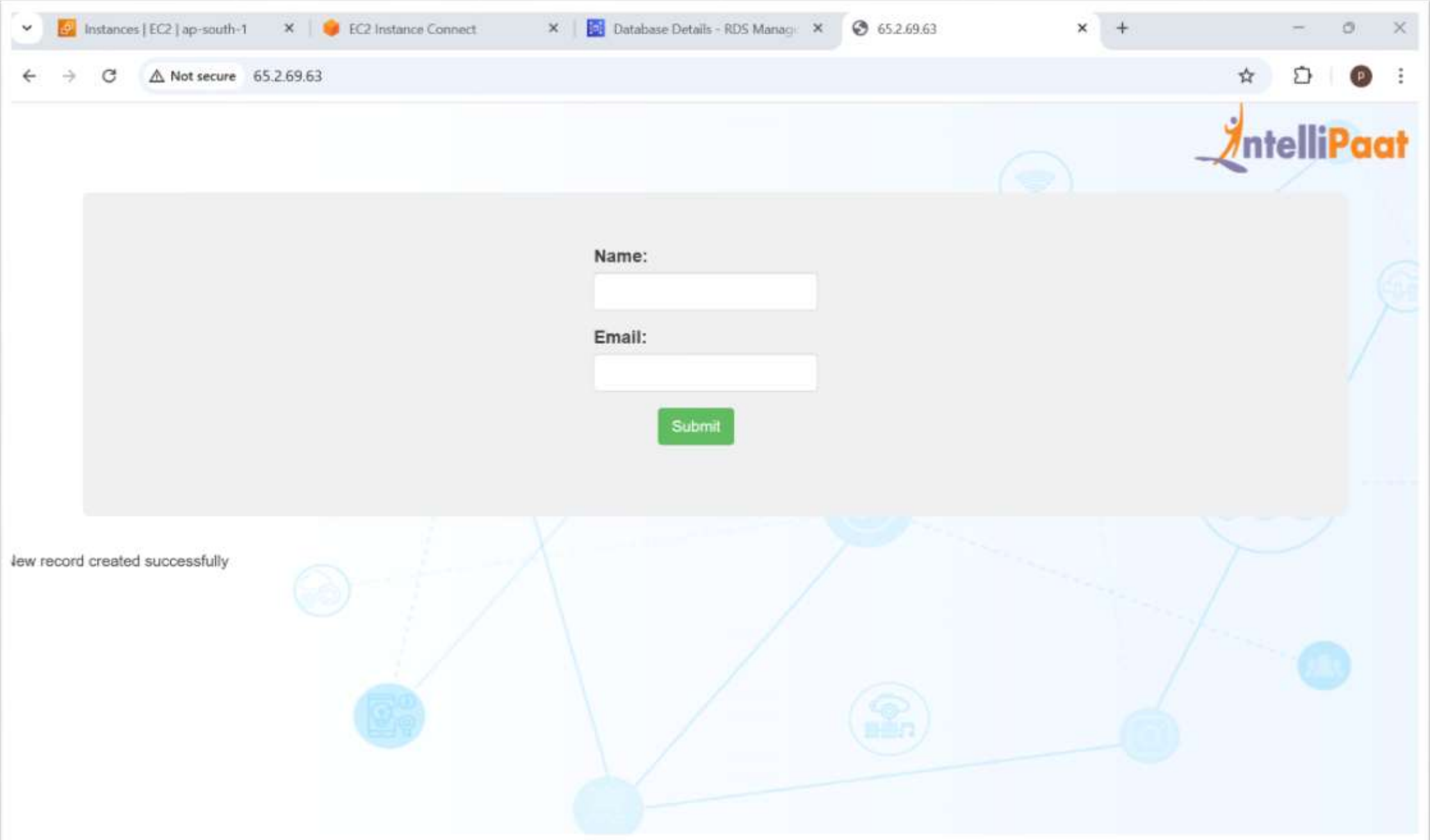
mysql>
```

The interface includes a top navigation bar with the AWS logo, a search bar, and a list of services (EC2, EC2 Image Builder, S3, IAM, VPC). The terminal window is titled "CloudShell" and has a "Feedback" link. The footer contains copyright information for Amazon Web Services, Inc. or its affiliates, along with links for Privacy, Terms, and Cookie preferences.

Changing MySQL public endpoint



We Successfully insert the one record in database table



We can see the insert record in database

Instances | EC2 | ap-south-1 x EC2 Instance Connect x Database Details - RDS Manag... x 65.2.69.63 x +

ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=ap-south-1&connType=standard&instanceId=i-01d23e6772805a34a&os...

aws Services Search [Alt+S]

EC2 EC2 Image Builder S3 IAM VPC

```
mysql> show databases;
+-----+
| Database |
+-----+
| information_schema |
| intel      |
| mysql      |
| performance_schema |
| sys        |
+-----+
5 rows in set (0.00 sec)

mysql> use intel
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> select * from data;
+----+-----+-----+
| id | firstname | email |
+----+-----+-----+
| 1  | raj       | ratre.raj@gmail.com |
+----+-----+-----+
1 row in set (0.00 sec)

mysql>
```

i-01d23e6772805a34a (main-instance)

PublicIPs: 65.2.69.63 PrivateIPs: 172.31.9.182

CloudShell Feedback

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Creating a AMI from main instance

The screenshot shows the AWS Management Console for the 'ap-south-1' region. The 'Instances' page is active, displaying a list of EC2 instances. One instance, 'main-instance' (ID: i-01d23e6772805a34a), is in the 'Running' state. The 'Actions' menu for this instance is open, showing options like 'Connect', 'View details', and 'Create image'. The 'Create image' option is highlighted. Below the instance list, the details for 'i-01d23e6772805a34a (main-instance)' are shown, including its public IPv4 address (65.2.69.63) and instance state (Running).

Instances (1/1) Info

Find Instance by attribute or tag (case-sensitive)

Instance state = running X Clear filters

Name	Instance ID	Instance state	Instance type	Status check	Alarm status
main-instance	i-01d23e6772805a34a	Running	t2.micro	2/2 checks passed	View alarms +

Actions

- Create image
- Create template from instance
- Launch more like this

i-01d23e6772805a34a (main-instance)

Details Status and alarms Monitoring Security Networking Storage Tags

Instance summary Info

Instance ID	Public IPv4 address	Private IPv4 addresses
i-01d23e6772805a34a	65.2.69.63 open address	172.31.9.182
IPv6 address	Instance state	Public IPv4 DNS
-	Running	ec2-65-2-69-63.ap-south-1.compute.amazonaws.com

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AMI Created Successfully

Images | EC2 | ap-south-1

EC2 Instance Connect

Database Details - RDS Manag

65.2.69.63

ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#Images:visibility=owned-by-me

aws

Services

Search

[Alt+S]

EC2

EC2 Image Builder

S3

IAM

VPC

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

Amazon Machine Images (AMIs) (1/1)

Info

Owned by me

Find AMI by attribute or tag

Recycle Bin

EC2 Image Builder

Actions

Launch instance from AMI

Name	AMI name	AMI ID	Source	Owner	Visibility
my_main_instance	ami-0b512ad7853a39903	654654393526/my_main_instance	654654393526	Private	

AMI ID: ami-0b512ad7853a39903

Details

Permissions

Storage

Tags

AMI ID	Image type	Platform details	Root device type
ami-0b512ad7853a39903	machine	Linux/UNIX	EBS
AMI name	Owner account ID	Architecture	Usage operation
my_main_instance	654654393526	x86_64	RunInstances
Root device name	Status	Source	Virtualization type
/dev/sda1	Pending	654654393526/my_main_instance	hvm
Boot mode	State reason	Creation date	Kernel ID
uefi-preferred	-	2024-11-01T15:46:56.000Z	-
Description	Product codes	RAM disk ID	Reservation time

CloudShell

Feedback

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Creating a launch template so we can launch instance using Auto Scaling Group

Images | EC2 | ap-... x | Create Auto Scalin... x | Create launch tem... x | EC2 Instance Conn... x | Database Details... x | 65.2.69.63 x | + -

← → ↻ ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#CreateTemplate:autoScalingGuidance=true 🔍 ☆ 📄 📑 📌

aws Services 🔍 Search [Alt+S] 📄 🔔 ⚙️ 🏠 Mumbai prakash24

EC2 EC2 Image Builder S3 IAM VPC

EC2 > ... > Create launch template

Create launch template

Creating a launch template allows you to create a saved instance configuration that can be reused, shared and launched at a later time. Templates can have multiple versions.

Launch template name and description

Launch template name - *required*

my-main-lt

Must be unique to this account. Max 128 chars. No spaces or special characters like '%', '*', '@'.

Template version description

A web application

Max 255 chars

Auto Scaling guidance [Info](#)

Select this if you intend to use this template with EC2 Auto Scaling

☒ 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.

Summary

- Software image (AMI)
- Virtual server type (instance type)
- Firewall (security group)
- Storage (volumes)

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 750 hours of public IPv4 address usage per month, 30 GiB of EBS storage, 2 million I/Os, 1 GB of snapshots, and 100 GB of bandwidth to the internet.

Cancel Create launch template

CloudShell Feedback

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Selecting Instance Type t2:micro in launch template

Images | EC2 | ap-south-1 | Create Auto Scaling | Create launch tem | EC2 Instance Con | Database Details | 65.2.69.63

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

Services Search [Alt+S]

EC2 EC2 Image Builder S3 IAM VPC

Amazon Machine Image (AMI)

my_main_instance
ami-0b512ad7853a39903
2024-11-01T15:46:56.000Z Virtualization: hvm ENA enabled: true Root device type: ebs

Description
my web application PHP

Architecture x86_64 AMI ID ami-0b512ad7853a39903

Instance type Info Get advice Advanced

Instance type

t2.micro Free tier eligible
Family: t2 1 vCPU 1 GiB Memory Current generation: true
On-Demand Linux base pricing: 0.0124 USD per Hour
On-Demand Windows base pricing: 0.017 USD per Hour
On-Demand RHEL base pricing: 0.0268 USD per Hour
On-Demand Ubuntu Pro base pricing: 0.0142 USD per Hour
On-Demand SUSE base pricing: 0.0124 USD per Hour

All generations Compare instance types

Additional costs apply for AMIs with pre-installed software

Key pair (login) Info

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

Summary

Software Image (AMI)
my web application PHP
ami-0b512ad7853a39903

Virtual server type (instance type)
t2.micro

Firewall (security group)
-

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

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 750 hours of public IPv4 address usage per month, 30 GiB of EBS storage, 2 million IOs, 1 GB of snapshots, and 100 GB of bandwidth to the internet.

Cancel Create launch template

Selecting Instance Type Security Group in launch template

Instances | EC2 | ap-south-1 | Create Auto Scaling | Create launch tem | EC2 Instance Conn | Database Details | 65.2.69.63

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

aws Services Search [Alt+S] Mumbai prakash24

EC2 EC2 Image Builder S3 IAM VPC

▼ Key pair (login) Info

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

project01_putty

Create new key pair

▼ Network settings Info

Subnet Info

Don't include in launch template

Create new subnet

When you specify a subnet, a network interface is automatically added to your template.

Firewall (security groups) Info

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

project01-sg sg-05b7c3291c7e3278f X

VPC: vpc-09da02eb16a97ff13

Compare security group rules

► Advanced network configuration

▼ Summary

Software Image (AMI)

my web application PHP

ami-0b512ad7853a39903

Virtual server type (instance type)

t2.micro

Firewall (security group)

project01-sg

Storage (volumes)

1 volume(s) - 8 GiB

Free tier: In your first year includes

750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 750 hours of public IPv4 address usage per month, 30 GiB of EBS storage, 2 million IOs, 1 GB of snapshots, and 100 GB of bandwidth to the internet.

Cancel

Create launch template

CloudShell Feedback

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Choosing Launch Template for Auto Scaling Group

Instances | EC2 | ap-south-1

Create Auto Scaling group

Create launch template

EC2 Instance Connect

Database Details

65.2.69.63

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

aws Services Search [Alt+S]

EC2 EC2 Image Builder S3 IAM VPC

Mumbai prakash24

EC2 > Auto Scaling groups > Create Auto Scaling group

Step 1
Choose launch template

Step 2
Choose instance launch options

Step 3 - optional
Configure advanced options

Step 4 - optional
Configure group size and scaling

Step 5 - optional
Add notifications

Step 6 - optional
Add tags

Step 7
Review

Choose launch template [Info](#)

Specify a launch template that contains settings common to all EC2 instances that are launched by this Auto Scaling group.

Name

Auto Scaling group name

Enter a name to identify the group.

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

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.

[Create a launch template](#)

Version

CloudShell Feedback

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Choosing Launch Template for Auto Scaling Group

Instances | EC2 | a

Create Auto Scal

Create launch tem

EC2 Instance Conn

Database Details

65.2.69.63

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

aws

Services

Search

[Alt+S]

EC2

EC2 Image Builder

S3

IAM

VPC

Add tags

Step 7

Review

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.

my-main-lt

Create a launch template

Version

Default (1)

Create a launch template version

Description

A web application

AMI ID

ami-0b512ad7853a39903

Key pair name

project01_putty

Launch template

my-main-lt

lt-0862212fd8d7c6259

Security groups

-

Security group IDs

sg-05b7c3291c7e3278f

Instance type

t2.micro

Request Spot Instances

No

Additional details

Storage (volumes)

-

Date created

Fri Nov 01 2024 21:50:03 GMT+0530 (India Standard Time)

Cancel

Next

CloudShell

Feedback

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Selecting AZ show the instance can launch

Instances | EC2 | [Create Auto Scaling](#) | [Create launch template](#) | [EC2 Instance Connect](#) | [Database Details](#) | 65.2.69.63

← → ↻ 🔍 ☆ 📌 🗒️ 👤

aws

Services 🔍 Search [Alt+S]

EC2

EC2 Image Builder

S3

IAM

VPC

Step 4 - optional

[Configure group size and scaling](#)

Step 5 - optional

[Add notifications](#)

Step 6 - optional

[Add tags](#)

Step 7

[Review](#)

Launch template

Version

Description

[my-main-lt](#)

Default

A web application

lt-0862212fd8d7c6259

Instance type

t2.micro

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-09da02eb16a97ff13

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-0938ef38c2baa63a9

172.31.32.0/20

Default

ap-south-1b | subnet-0b589d49699caccb2

172.31.0.0/20

Default

ap-south-1c | subnet-0d380e0325f047d0e

172.31.16.0/20

Default

Create a subnet

CloudShell

Feedback

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Configuring A Application Load Balancer

The screenshot displays the AWS Management Console interface for configuring an Auto Scaling group. The browser address bar shows the URL: `ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#CreateAutoScalingGroup:`. The console header includes the AWS logo, a search bar, and navigation links for EC2, EC2 Image Builder, S3, IAM, and VPC. The user's location is Mumbai, and the account name is prakash24.

The main content area is titled "Configure advanced options - optional" with an info icon. It provides instructions: "Use a load balancer to distribute network traffic across multiple servers. Enable service-to-service communications with VPC Lattice. Shift resources away from impaired Availability Zones with zonal shift. You can also customize health check replacements and monitoring."

The left sidebar shows a navigation menu with steps: Step 1: Choose launch template, Step 2: Choose instance launch options, Step 3 - optional: Configure advanced options (selected), Step 4 - optional: Configure group size and scaling, Step 5 - optional: Add notifications, Step 6 - optional: Add tags, and Step 7: Review.

The "Load balancing" section is active, showing three options:

- ☐ No load balancer: Traffic to your Auto Scaling group will not be fronted by a load balancer.
- ☐ Attach to an existing load balancer: Choose from your existing load balancers.
- ☒ Attach to a new load balancer: Quickly create a basic load balancer to attach to your Auto Scaling group.

The "Attach to a new load balancer" section is expanded, showing instructions: "Define a new load balancer to create for attachment to this Auto Scaling group."

The "Load balancer type" section provides instructions: "Choose from the load balancer types offered below. Type selection cannot be changed after the load balancer is created. If you need a different type of load balancer than those offered here, visit the [Load Balancing console](#)." Two options are shown:

- ☒ Application Load Balancer: HTTP, HTTPS
- ☐ Network Load Balancer: TCP, UDP, TLS

The "Load balancer name" section includes a note: "Name cannot be changed after the load balancer is created." The input field contains the text "project-01-asg-1".

The footer of the console shows "CloudShell" and "Feedback" links, along with copyright information: "© 2024, Amazon Web Services, Inc. or its affiliates." and links for "Privacy", "Terms", and "Cookie preferences".

Configuring A Application Load Balancer – Internet Facing

The screenshot displays the AWS Management Console interface for configuring an Application Load Balancer. The browser tabs at the top include 'Instances | EC2 | ap-south-1', 'Create Auto Scaling', 'Create launch tem', 'EC2 Instance Conn', and 'Database Details'. The address bar shows the URL: `ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#CreateAutoScalingGroup:`.

The console header shows the AWS logo, 'Services' menu, a search bar, and the user's profile 'prakash24' in Mumbai. The left sidebar contains navigation links for 'EC2', 'EC2 Image Builder', 'S3', 'IAM', and 'VPC', along with an 'Add tags' link. The main content area is titled 'Attach to a new load balancer' and includes the instruction: 'Define a new load balancer to create for attachment to this Auto Scaling group.'

The configuration steps are as follows:

- Load balancer type:** Two options are presented: 'Application Load Balancer' (selected, supporting HTTP and HTTPS) and 'Network Load Balancer' (supporting TCP, UDP, and TLS).
- Load balancer name:** A text input field contains the name 'project-01-asg-1'. A note states: 'Name cannot be changed after the load balancer is created.'
- Load balancer scheme:** Two options are shown: 'Internal' and 'Internet-facing' (selected). A note states: 'Scheme cannot be changed after the load balancer is created.'
- Network mapping:** A descriptive text states: 'Your new load balancer will be created using the same VPC and Availability Zone selections as your Auto Scaling group. You can select different subnets and add subnets from additional Availability Zones.'
- VPC:** A dropdown menu shows the selected VPC as 'vpc-09da02eb16a97ff13'.
- Availability Zones and subnets:** A table lists the selected subnets for each Availability Zone. Only public subnets are available for selection to support DNS resolution.

Availability Zone	Subnet
ap-south-1c	subnet-0d380e0325f047d0e
ap-south-1b	subnet-0b589d49699caccb2
ap-south-1a	subnet-0938ef58c2baa63a9

The footer of the console includes links for 'CloudShell' and 'Feedback', and a copyright notice: '© 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences'.

Configuring A Application Load Balancer – Group Size

The screenshot shows the AWS Management Console interface for configuring an Auto Scaling group. The browser address bar indicates the URL: `ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#CreateAutoScalingGroup:`. The console header shows the AWS logo, a search bar, and navigation links for EC2, EC2 Image Builder, S3, IAM, and VPC. The user's location is Mumbai and the account name is prakash24.

The main content area is titled "Group size" and includes the following sections:

- Group size** [Info](#)
Set the initial size of the Auto Scaling group. After creating the group, you can change its size to meet demand, either manually or by using automatic scaling.
- Desired capacity type**
Choose the unit of measurement for the desired capacity value. vCPUs and Memory(GiB) are only supported for mixed instances groups configured with a set of instance attributes.
Units (number of instances) ▼
- Desired capacity**
Specify your group size.
2
- Scaling** [Info](#)
You can resize your Auto Scaling group manually or automatically to meet changes in demand.
- Scaling limits**
Set limits on how much your desired capacity can be increased or decreased.

Min desired capacity	Max desired capacity
1	3

Equal or less than desired capacity Equal or greater than desired capacity
- Automatic scaling - optional**
Choose whether to use a target tracking policy [Info](#)
You can set up other metric-based scaling policies and scheduled scaling after creating your Auto Scaling group.
 - ☒ **No scaling policies**
Your Auto Scaling group will remain at its initial size and will not dynamically resize to meet demand.
 - ☐ **Target tracking scaling policy**
Choose a CloudWatch metric and target value and let the scaling policy adjust the desired capacity in proportion to the metric's value.

The footer of the console shows "CloudShell" and "Feedback" links, along with copyright information for Amazon Web Services, Inc. or its affiliates, and links for Privacy, Terms, and Cookie preferences.

Creating a Auto Scaling Group

Instances | EC2 | ap-south-1

Create Auto Scaling Group

Create launch template

EC2 Instance Connect

Database Details

65.2.69.63

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

aws

Services

Search

[Alt+S]

EC2

EC2 Image Builder

S3

IAM

VPC

Mumbai

prakash24

Instance maintenance policy

Replacement behavior

No policy

Min healthy percentage

-

Max healthy percentage

-

Instance scale-in protection

Instance scale-in protection

☐ Enable instance protection from scale in

Step 5: Add notifications

Edit

Notifications

No notifications

Step 6: Add tags

Edit

Tags (1)

Key	Value	Tag new instances
Name	asg	Yes

Preview code

Cancel

Previous

Create Auto Scaling group

CloudShell

Feedback

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Auto Scaling Group launch the desire capacity of instance

Instances | EC2 |

Auto Scaling group

Create launch tem

EC2 Instance Conn

Database Details

65.2.69.63

ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#Instances:tag:Name=asg,v=3;\$case=tags:true%5C,client:false;\$regex=t...

Services

Search

[Alt+S]

EC2EC2 Image BuilderS3IAMVPC

Dashboard

EC2 Global View

Events

Instances

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

Placement Groups

Instances (3) Info

Last updated less than a minute ago

Connect

Instance state

Actions

Launch instances

Find Instance by attribute or tag (case-sensitive)

All states

Name = asg

Clear filters

	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IP
<input type="checkbox"/>	asg	i-038d8dcf963f4f4aa	Running	t2.micro	Initializing	View alarms	ap-south-1a	ec2-13-126-172-99.ap-...	13.12
<input type="checkbox"/>	asg	i-0bb4e2bb45c91f42d	Running	t2.micro	Initializing	View alarms	ap-south-1b	ec2-65-1-106-74.ap-so...	65.1

Select an instance

CloudShell

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Activity Pan of Auto Scaling Group

Instances | EC2 | ap-south-1

Auto Scaling group details

EC2 Instance Connect

Database Details - RDS

65.2.69.63

ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#AutoScalingGroupDetails:id=project-01-asg;view=activity

Services

Search

[Alt+S]

EC2

EC2 Image Builder

S3

IAM

VPC

Mumbai

prakash24

project-01-asg

DetailsActivityAutomatic scalingInstance managementMonitoringInstance refresh

Activity notifications (0)

Filter notifications

Send to

On instance action

No notifications are currently specified

Create notification

Activity history (3)

Filter activity history

Status	Description	Cause	Start time	End time
Successful	Launching a new EC2 instance: i-038d8dcf963f4f4aa	At 2024-11-01T16:24:49Z a user request created an AutoScalingGroup changing the desired capacity from 0 to 2. At 2024-11-01T16:24:54Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 2.	2024 November 01, 09:54:55 PM +05:30	2024 November 01, 09:55:57 PM +05:30
Successful	Launching a new EC2 instance: i-0bb4e2bb45c91f42d	At 2024-11-01T16:24:49Z a user request created an AutoScalingGroup changing the desired capacity from 0 to 2. At 2024-11-01T16:24:54Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 2.	2024 November 01, 09:54:55 PM +05:30	2024 November 01, 09:55:02 PM +05:30
	Updating load balancers (target group)			

CloudShellFeedback

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Active Application Load Balancer

Instances | EC2 | x

Instances | EC2 | x

Load balancer def | x

EC2 Instance Conn | x

Database Details | x

65.2.69.63 | x

+

-

x

← → ↻ ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#LoadBalancer:loadBalancerArn=arn:aws:elasticloadbalancing:ap-south-1:654654393526:loadbalancer/app/project-01-asg-1/6891d499bffd2b89

aws

Services

Search

[Alt+S]

EC2

EC2 Image Builder

S3

IAM

VPC

Savings Plans

Reserved Instances

Dedicated Hosts

Capacity Reservations New

▼ Images

AMIs

AMI Catalog

▼ Elastic Block Store

Volumes

Snapshots

Lifecycle Manager

▼ Network & Security

Security Groups

Elastic IPs

Placement Groups

Key Pairs

Network Interfaces

▼ Load Balancing

Load Balancers

Target Groups

Trust Stores New

▼ Auto Scaling

Auto Scaling Groups

EC2 > Load balancers > project-01-asg-1

project-01-asg-1

Details

Load balancer type

Application

Status

Active

VPC

vpc-09da02eb16a97ff13

Load balancer IP address type

IPv4

Scheme

Internet-facing

Hosted zone

ZP97RAFLXTNZK

Availability Zones

subnet-0d380e0325f047d0e ap-south-1c (aps1-az2)

Date created

November 1, 2024, 21:54 (UTC+05:30)

subnet-0b589d49699caccb2 ap-south-1b (aps1-az3)

subnet-0938ef38c2baa63a9 ap-south-1a (aps1-az1)

Load balancer ARN

arn:aws:elasticloadbalancing:ap-south-1:654654393526:loadbalancer/app/project-01-asg-1/6891d499bffd2b89

DNS name

Info

project-01-asg-1-1677464422.ap-south-1.elb.amazonaws.com (A Record)

Listeners and rules

Network mapping

Resource map - new

Security

Monitoring

Integrations

Attributes

Tags

Listeners and rules (1) Info

Manage rules

Manage listener

Add listener

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

< 1 >

CloudShell

Feedback

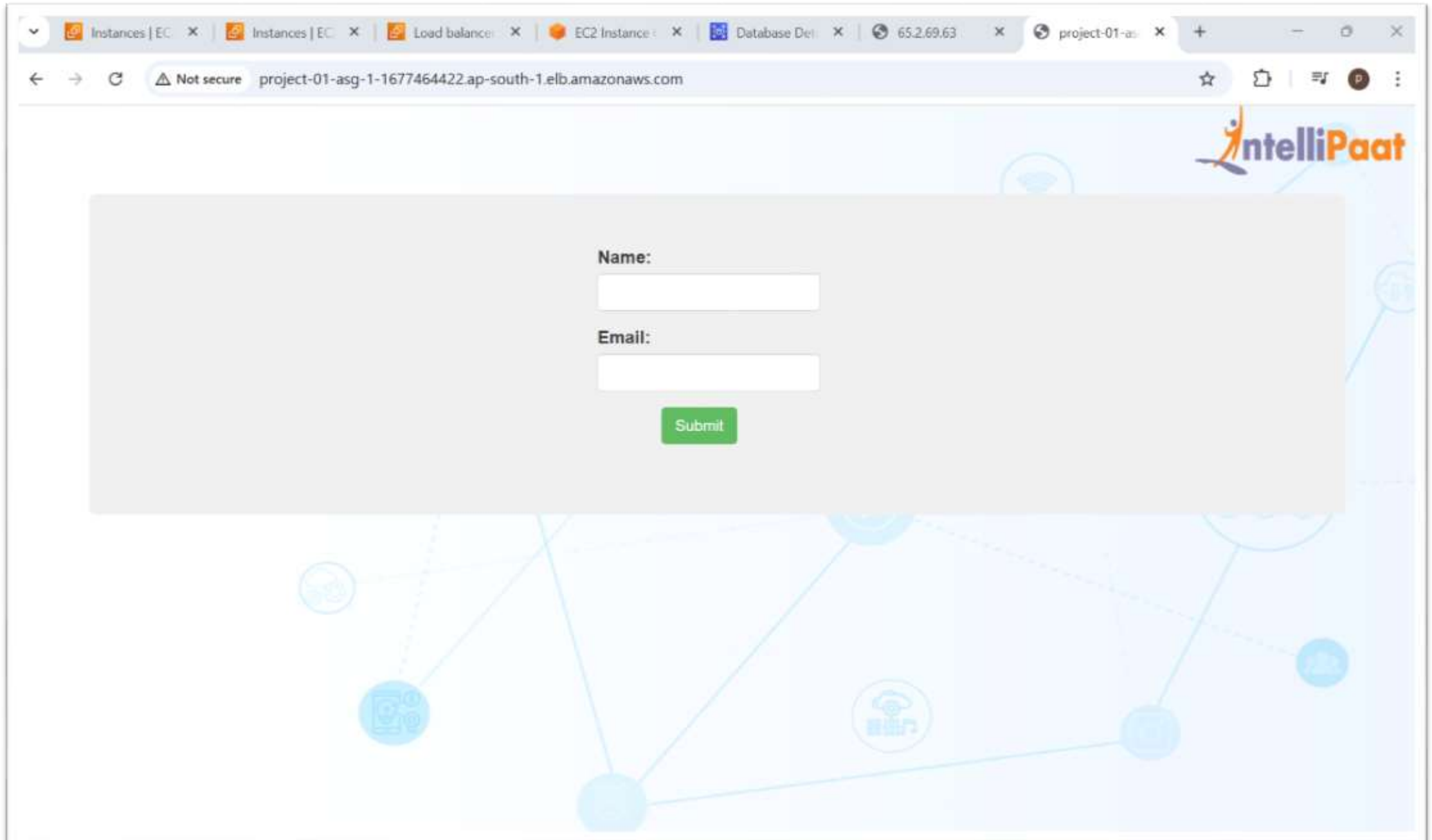
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We can able to access the application using Load Balancer URL



Adding Record in Host Zone of Route 53 so we can access through DNS

us-east-1.console.aws.amazon.com/route53/v2/hostedzones?region=ap-south-1#CreateRecordSet/Z0608619CAF98V1L4M6E

aws Services Search [Alt+S] Global prakash24

EC2 EC2 Image Builder S3 IAM VPC

Record 1 Delete

Record name [Info](#) samplewebapp.in

Record type [Info](#) A – Routes traffic to an IPv4 address and some AWS resources

Keep blank to create a record for the root domain.

☒ Alias

Route traffic to [Info](#)

Alias to Application and Classic Load Balancer

Asia Pacific (Mumbai)

Alias hosted zone ID: ZP97RAFLXTNZK

Routing policy [Info](#) Simple routing

Evaluate target health ☒ Yes

Add another record

Cancel Create records

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Record added in Host Zone of Route 53

us-east-1.console.aws.amazon.com/route53/v2/hostedzones?region=ap-south-1#ListRecordSets/Z0608619CAF9BV1L4M6E

aws

Services

Search

[Alt+S]

EC2

EC2 Image Builder

S3

IAM

VPC

prakash24

Record for samplewebapp.in was successfully created.

Route 53 propagates your changes to all of the Route 53 authoritative DNS servers within 60 seconds. Use "View status" button to check propagation status.

View status

Records (3)

DNSSEC signing

Hosted zone tags (0)

Records (3) Info

Automatic mode is the current search behavior optimized for best filter results. [To change modes go to settings.](#)

Filter records by property or value

Type

Routing policy

Alias

< 1 >

<input type="checkbox"/>	Record ...	Type	Routin...	Differ...	Alias	Value/Route traffic to	TTL (s...	Health ...
<input type="checkbox"/>	samplewe...	A	Simple	-	Yes	dualstack.project-01-asg-1-1...	-	-
<input type="checkbox"/>	samplewe...	NS	Simple	-	No	ns-340.awsdns-42.com. ns-660.awsdns-18.net. ns-1993.awsdns-57.co.uk. ns-1038.awsdns-01.org.	172800	-
<input type="checkbox"/>	samplewe...	SOA	Simple	-	No	ns-340.awsdns-42.com. awsd...	900	-

CloudShell

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We can access the web application using mapped domain Name

