

School: CLOUDBOOSTA	Course: Cloud Computing & DevOps
Name: AKOSA SAMUEL ONYEJEKWE	Module: High Availability (HA)
	Class 4: Assignment 4 of 4_ Auto Scaling group (ASG) Provisioning
Student No: CBALC0168	Issue Date: March 17, 2026

Tasks:

1. Design VPC with subnets and routing
2. Configure secure security group rules
3. Deploy web tier using EC2 Apache
4. Provision private EC2 instances for app
5. Deploy private RDS MySQL database
6. Configure application load balancer traffic distribution
7. Implement auto scaling for high availability

Goal:

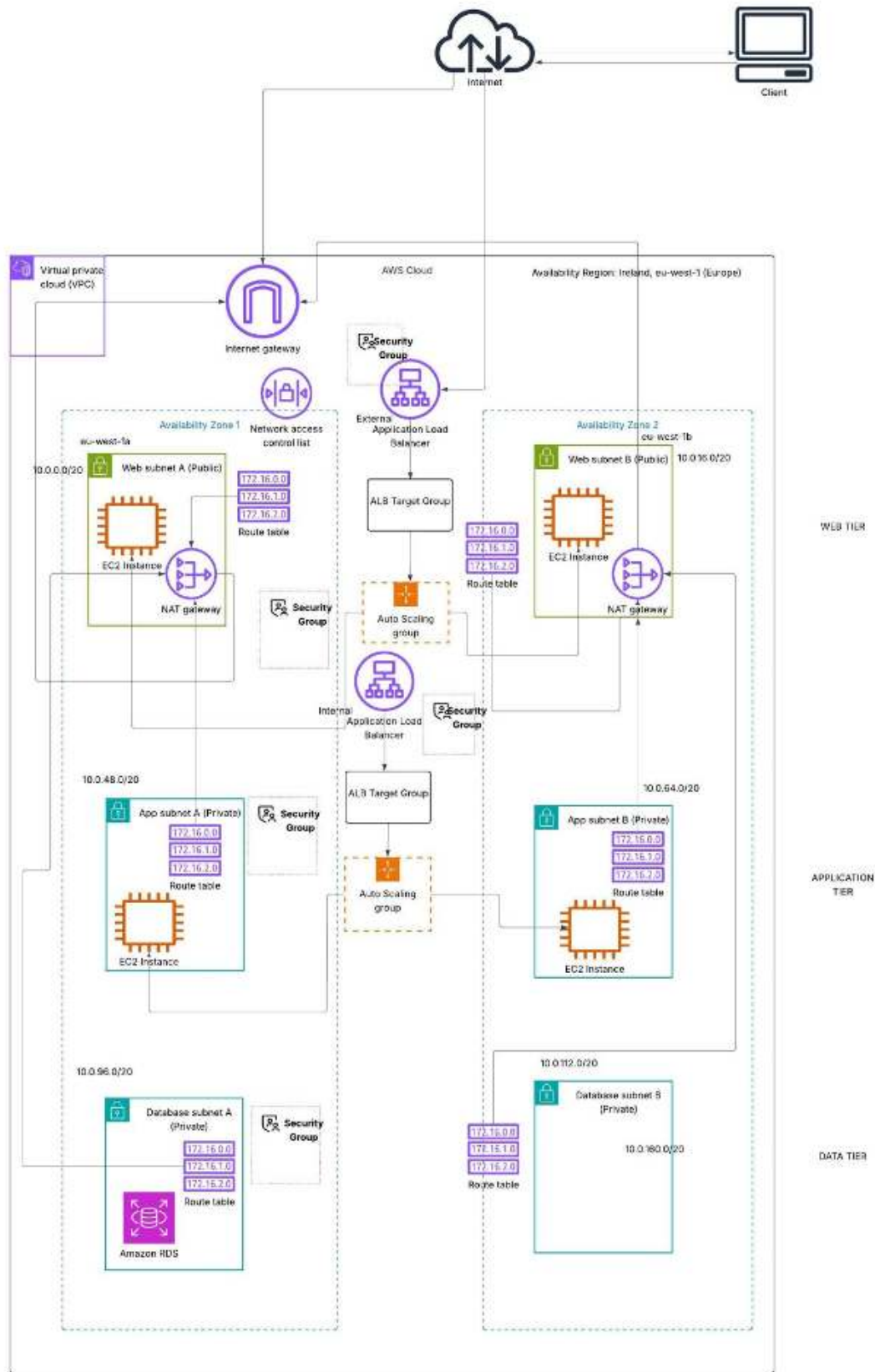
To build a secure, scalable, highly available 3-tier AWS architecture

Result:



DNS name of frontend ELB: **`cba-task-frontend-elb-197632279.eu-west-1.elb.amazonaws.com`**

3-Tier-Architecture Diagram



Architecture Description (3-Tier AWS Design)

The solution defines a traditional 3-tier web architecture on AWS, designed to deliver high availability, scalability, and secure data handling through strict network segmentation and controlled communication between tiers.

The architecture is deployed within a custom VPC configured with the CIDR block 10.0.0.0/16, providing a logically isolated address space for all public and private subnet allocations across the three-tier design.

The architecture deploys 2 NAT Gateways, one per Availability Zone, ensuring zone-local outbound traffic, improved fault tolerance, and elimination of cross-AZ dependencies. A single Internet Gateway (IGW) is attached to the VPC to provide centralised internet access for all public subnets.

Subnet CIDR allocation table, for a 3-tier architecture in eu-west-1 (Ireland):

Subnet CIDR Allocation Plan (VPC Design)

<i>Tier</i>	<i>Subnet Name</i>	<i>Availability Zone</i>	<i>CIDR Block</i>	<i>Subnet Type</i>	<i>Purpose</i>
Web / Public	Public Subnet A	eu-west-1a	10.0.0.0/20	Public	Hosts ALB and Web Tier entry point
Web / Public	Public Subnet B	eu-west-1b	10.0.16.0/20	Public	High availability for ALB and web access
App Tier	App Subnet A	eu-west-1a	10.0.48.0/20	Private	Hosts application (business logic) servers
App Tier	App Subnet B	eu-west-1b	10.0.64.0/20	Private	Redundant app layer across AZs
Data Tier	DB Subnet A	eu-west-1a	10.0.96.0/20	Private	Hosts RDS primary/standby
Data Tier	DB Subnet B	eu-west-1b	10.0.112.0/20	Private	Database high availability and failover

1. VPC Foundation

The architecture is deployed within a custom Virtual Private Cloud (VPC), structured to separate public-facing and internal resources.

Subnet Strategy

- 2 Public Subnets
 - Host internet-facing components (incl., elastic load balancer (ELB) and 2 web tier EC2 instances)
- 4 Private Subnets
 - 2 dedicated to the application tier
 - 2 dedicated to the data tier (RDS)

This design ensures logical isolation between tiers while maintaining high availability across multiple Availability Zones.

Internet & Outbound Access

- Internet Gateway (IGW)
 - Enables inbound and outbound internet connectivity for public subnets
- NAT Gateway
 - Provides secure outbound internet access for private subnet resources without exposing them publicly

Routing

- Public subnet route tables:
 - 0.0.0.0/0 → IGW
- Private subnet route tables:
 - 0.0.0.0/0 → NAT Gateway

This enforces a controlled egress model, where only public-tier resources are directly reachable from the internet.

2. Security Architecture

Security is implemented using tier-specific security groups to enforce strict access boundaries.

Access Control Model

In this architecture, 4 distinct security groups are implemented to enforce layered security and controlled inter-tier communication:

- Load Balancer Security Group (ELB/ALB SG)
 - Acts as the public entry point to the application
 - Allows inbound HTTP/HTTPS traffic from the internet
 - Forwards traffic only to the web tier
- Web Tier Security Group (Frontend EC2 SG)
 - Allows inbound traffic exclusively from the Load Balancer SG
 - Prevents direct public access to web servers
 - Permits outbound communication to the application tier
- Application Tier Security Group (Backend EC2 SG)
 - Accepts inbound traffic only from the Web Tier SG
 - Ensures business logic is not directly exposed externally
 - Allows outbound connectivity to the database layer
- Database Security Group (RDS SG)
 - Restricts inbound access strictly to the Application Tier SG
 - Prevents any direct access from the internet or web tier
 - Enforces maximum data layer isolation

Security Principle

Each layer is accessible only from the layer immediately above it, ensuring least privilege and controlled east-west traffic.

The following are inbound and outbound rules for each of the 5 security groups in this 3-tier architecture:

- Frontend ALB SG → *Public entry, routes to web*
- Web Tier SG → *ALB-only access to frontend*
- Backend ALB SG → *Web-only access to backend*
- App Tier SG → *ALB-only access to app*

- Database SG → *App-only access to database*

1. **Frontend Load Balancer SG (Public ELB)**

Inbound

- HTTP (80) → 0.0.0.0/0
- HTTPS (443) → 0.0.0.0/0

Outbound

- HTTP (80) → Web Tier SG

2. **Web Tier SG (Frontend EC2)**

Inbound

- HTTP (80) → Frontend ALB SG

Outbound

- HTTP (80) → Backend ALB SG
- HTTPS (443) → 0.0.0.0/0 (for updates via NAT)

3. **Backend Load Balancer SG (Internal ALB)**

Inbound

- HTTP (80) → Web Tier SG

Outbound

- HTTP (80) → App Tier SG

4. App Tier SG (Backend EC2)

Inbound

- HTTP (80) → Backend ALB SG

Outbound

- MySQL (3306) → Database SG
- HTTPS (443) → 0.0.0.0/0 (for updates/SSM via NAT)

5. Database SG (RDS)

Inbound

- MySQL (3306) → App Tier SG

Outbound

- Default (allow all outbound) (or restrict if required)

Traffic Flow

Internet



Frontend ALB



Web Tier EC2



Backend (Internal) ALB



App Tier EC2



RDS (MySQL)

3. Web Tier (Presentation Layer)

Components

- EC2 instances running Apache Web Server
- Deployed in public subnets
- Configured using:
 - Amazon Linux 2 AMI
 - User Data scripts for automated installation and configuration

Load Balancing

- Instances are registered with an Elastic Load Balancer (ELB)
- The ELB:
 - Distributes incoming traffic evenly
 - Performs health checks to ensure only healthy instances receive requests

Role

- Handles:
 - Static content delivery
 - Initial request processing
- Acts as the entry point into the application

4. Application Tier (Business Logic Layer)

Components

- EC2 instances deployed in private subnets
- Configured via User Data scripts to run application logic

Role

- Processes:
 - Business logic
 - Application workflows
- Receives traffic only from the web tier
- Interacts with the database tier for data operations

Isolation

- No direct internet exposure
- Accessible only through controlled internal communication

5. Data Tier (Persistence Layer)

Components

- Amazon RDS running MySQL

Deployment

- Hosted in private subnets
- Configured to:
 - Be non-publicly accessible
 - Accept connections only from authorized application sources

Role

- Stores and manages application data
- Ensures durability, consistency, and secure data access

6. End-to-End Traffic Flow

1. User request enters via the internet

2. Routed through the Internet Gateway to the ELB
3. ELB distributes traffic across web tier EC2 instances
4. Web tier:
 - Serves static content
 - Forwards dynamic requests to the application tier
5. Application tier processes logic and queries RDS
6. Response is returned through the same path to the user

7. Availability & Scalability Enhancements

- Multi-AZ deployment ensures resilience against AZ-level failures
- Auto Scaling Groups:
 - Enable dynamic scaling of web and application tiers
 - Improve performance under variable workloads

Implementation Steps (3-Tier AWS Architecture)

This implementation follows a structured, layered deployment approach, beginning with foundational networking and security, followed by tier-specific resource provisioning, and concluding with scalability and validation. This ensures the architecture is secure, modular, and production-ready from inception.

1. VPC & Network Foundation

- Create a custom VPC with appropriate CIDR range
- Create subnets across two Availability Zones:
 - Public Subnets (2) → for Load Balancer and Web Tier
 - Private App Subnets (2) → for Application Tier
 - Private DB Subnets (2) → for RDS

2. Routing & Internet Access

- Create and attach an Internet Gateway (IGW) to the VPC
- Create a NAT Gateway in one of the public subnets

- Configure Route Tables:
 - Public Route Table
 - Route: 0.0.0.0/0 → IGW
 - Associate with public subnets
 - Private Route Tables
 - Route: 0.0.0.0/0 → NAT Gateway
 - Associate with app and DB subnets

3. Security Configuration

- Create Security Groups aligned with tiered access control:
 - Load Balancer SG
 - Allow HTTP/HTTPS from internet
 - Web Tier SG
 - Allow inbound only from Load Balancer
 - App Tier SG
 - Allow inbound only from Web Tier
 - Database SG
 - Allow inbound only from App Tier

4. Database Layer (Data Tier)

- Create a DB Subnet Group using private DB subnets
- Launch Amazon RDS (MySQL) instance:
 - Deploy in private subnets
 - Disable public access
 - Associate with Database SG

5. Load Balancing Layer

- Create an Application Load Balancer (ALB):
 - Internet-facing
 - Deployed in public subnets

- Create Target Group (Web Tier):
 - Configure health checks
 - Register web tier instances

6. Web Tier (Frontend Layer)

- Launch EC2 instance using Amazon Linux 2 AMI
- Configure via User Data:
 - Install Apache Web Server
 - Deploy application content
- Create a custom AMI from the configured instance

7. Application Tier (Backend Layer)

- Launch EC2 instance in private subnet
- Configure via User Data:
 - Install required runtime (e.g., application stack)
 - Deploy application logic
 - Configure connectivity to RDS
- Create a custom AMI from the configured instance

8. Auto Scaling & Launch Templates

- Create Launch Template (Web Tier) using web AMI
- Create Launch Template (App Tier) using app AMI
- Create Auto Scaling Group (Web Tier):
 - Attach to ALB target group
 - Deploy across public subnets
- Create Auto Scaling Group (App Tier):
 - Deploy across private app subnets

9. Final Configuration & Validation

- Verify:

- Load balancer health checks
- Tier-to-tier connectivity (Web → App → DB)
- Internet access via ALB
- Outbound access via NAT Gateway

Architectural Strengths

High Availability

- Multi-AZ resource distribution
- Load-balanced web tier

Security

- Private subnets for backend and database
- Strict security group isolation

Scalability

- Horizontal scaling capability via Auto Scaling

Fault Isolation

- Tier separation prevents cascading failures

Controlled Connectivity

- NAT Gateway ensures secure outbound-only access for private resources

Why we Created Route Tables Per Subnet

- Enforces strict tier isolation by applying different routing rules per subnet
- Enables granular traffic control for each layer of the architecture
- Provides network-level security as an additional defense beyond security groups
- Supports high availability by allowing AZ-specific routing (e.g., NAT per AZ)
- Improves operational flexibility for updates, debugging, and future changes
- Reduces blast radius by isolating routing changes to specific subnets
- Aligns with best practices for production-grade multi-tier architectures

Summary

This architecture represents a well-structured 3-tier AWS deployment that leverages VPC segmentation, load balancing, and layered security controls to deliver a scalable, highly available, and secure application environment. By isolating each tier and enforcing controlled communication pathways, the design ensures operational resilience, data protection, and efficient traffic handling under high load conditions.

Screenshots follow.

- Transit gateway route tables
- Transit gateway multicast
- Metering policies

▼ Traffic Mirroring

- Mirror sessions
- Mirror targets
- Mirror filters

- Network Manager 
- Cloud WAN 
- VPC IP Address Manager 
- AWS Firewall Manager 

✔ You successfully created vpc-0c0e6f00e5b91373c / my-cba-task-vpc

Actions ▼

Info

VPC ID
vpc-0c0e6f00e5b91373c

DNS resolution
Enabled

Main network ACL
acl-0e3521231f4166a7a

IPv6 CIDR

Encryption control ID

State
 Available

Tenancy
default

Default VPC
No

Network Address Usage metrics
Disabled

Encryption control mode

Block Public Access
 Off

DHCP option set
dopt-0bfc8b562b17e025c

IPv4 CIDR
10.0.0.0/16

Route 53 Resolver DNS Firewall rule groups

DNS hostnames
Disabled

Main route table
rtb-07ec87de922b4ee9d

IPv6 pool

Owner ID
009850210027

Create subnet Info

VPC

VPC ID

Create subnets in this VPC:

vpc-0c0c6f00e5b91373c (my-cba-task-vpc)

Associated VPC CIDRs

IPv4 CIDRs

10.0.0.0/16

Subnet settings

Specify the CIDR blocks and Availability Zone for the subnet.

Subnet 1 of 6

Subnet name

Create a tag with a key of 'Name' and a value that you specify.

public-subnet-1a

The name can be up to 256 characters long.

Availability Zone Info

Choose the zone in which your subnet will reside, or let Amazon choose one for you.

Europe (Ireland) / euw1-az2 (eu-west-1a)

IPv4 VPC CIDR block Info

Choose the VPC's IPv4 CIDR block for the subnet. The subnet's IPv4 CIDR must lie within this block.

10.0.0.0/16

IPv4 subnet CIDR block

10.0.0.0/20 4,096 IPs

< > ^ v

Tags - optional

Key

Q Name X

Value - optional

Q public-subnet-1a X Remove

Add new tag

You can add 49 more tags.

Remove

Subnet 2 of 6

Subnet name

Create a tag with a key of 'Name' and a value that you specify.

public-subnet-1b

The name can be up to 256 characters long.

Availability Zone Info

Choose the zone in which your subnet will reside, or let Amazon choose one for you.

Europe (Ireland) / euw1-az3 (eu-west-1b)

IPv4 VPC CIDR block Info

Choose the VPC's IPv4 CIDR block for the subnet. The subnet's IPv4 CIDR must lie within this block.

10.0.0.0/16

IPv4 subnet CIDR block

10.0.16.0/20 4,096 IPs

< > ^ v

Tags - optional

Key

Q Name X

Value - optional

Q public-subnet-1b X Remove

Add new tag

You can add 49 more tags.

Remove

Subnet 3 of 6

Subnet name

Create a tag with a key of 'Name' and a value that you specify.

app-subnet-1a

The name can be up to 256 characters long.

Availability Zone [Info](#)

Choose the zone in which your subnet will reside, or let Amazon choose one for you.

Europe (Ireland) / euw1-az2 (eu-west-1a)

IPv4 VPC CIDR block [Info](#)

Choose the VPC's IPv4 CIDR block for the subnet. The subnet's IPv4 CIDR must lie within this block.

10.0.0.0/16

IPv4 subnet CIDR block

10.0.48.0/20

4,096 IPs

▼ Tags - optional

Key

Q Name



Value - optional

Q app-subnet-1a



Remove

Add new tag

You can add 49 more tags.

Remove

Subnet 4 of 6

Subnet name

Create a tag with a key of 'Name' and a value that you specify.

app-subnet-1b

The name can be up to 256 characters long.

Availability Zone [Info](#)

Choose the zone in which your subnet will reside, or let Amazon choose one for you.

Europe (Ireland) / euw1-az3 (eu-west-1b)

IPv4 VPC CIDR block [Info](#)

Choose the VPC's IPv4 CIDR block for the subnet. The subnet's IPv4 CIDR must lie within this block.

10.0.0.0/16

IPv4 subnet CIDR block

10.0.64.0/20

4,096 IPs

▼ Tags - optional

Key

Q Name



Value - optional

Q app-subnet-1b



Remove

Add new tag

You can add 49 more tags.

Remove

Subnet 5 of 6

Subnet name

Create a tag with a key of 'Name' and a value that you specify.

db-subnet-1a

The name can be up to 256 characters long.

Availability Zone [Info](#)

Choose the zone in which your subnet will reside, or let Amazon choose one for you.

Europe (Ireland) / euw1-az2 (eu-west-1a)

IPv4 VPC CIDR block [Info](#)

Choose the VPC's IPv4 CIDR block for the subnet. The subnet's IPv4 CIDR must lie within this block.

10.0.0.0/16

IPv4 subnet CIDR block

10.0.96.0/20

4,096 IPs

▼ Tags - optional

Key

Q Name



Value - optional

Q db-subnet-1a



Remove

Add new tag

You can add 49 more tags.

Remove

Subnet 6 of 6

Subnet name

Create a tag with a key of 'Name' and a value that you specify.

db-subnet-1b

The name can be up to 256 characters long.

Availability Zone [Info](#)

Choose the zone in which your subnet will reside, or let Amazon choose one for you.

Europe (Ireland) / euw1-az3 (eu-west-1b)



IPv4 VPC CIDR block [Info](#)

Choose the VPC's IPv4 CIDR block for the subnet. The subnet's IPv4 CIDR must lie within this block.

10.0.0.0/16



IPv4 subnet CIDR block

10.0.112.0/20

4,096 IPs

▼ Tags - optional

Key

Q Name



Value - optional

Q db-subnet-1b



Remove

Add new tag

You can add 49 more tags.

Remove

Add new subnet

Cancel

Create subnet



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VPC > Subnets

Transit gateway route tables

Transit gateway multicast

Metering policies

▼ Traffic Mirroring

Mirror sessions

Mirror targets

Mirror filters

Network Manager

Cloud WAN

VPC IP Address Manager

AWS Firewall Manager

Subnets (6) Info

Last updated 1 minute ago

Actions

Create subnet

Find subnets by attribute or tag

Subnet ID : subnet-0ef81758a1e478fe9 X Subnet ID : subnet-04987eb3b0c99260c X Subnet ID : subnet-074e64b3b84d7bced X

Show more (+3) Clear filters

Name

▼

Subnet ID

▼

State

▼

VPC

▼

db-subnet-1a

subnet-02b03952d7e7e8965

Available

vpc-0c0e6f00e5b91373c | my-c...

public-subnet-1b

subnet-04987eb3b0c99260c

Available

vpc-0c0e6f00e5b91373c | my-c...

app-subnet-1b

subnet-0eebeeda0adf69257

Available

vpc-0c0e6f00e5b91373c | my-c...

app-subnet-1a

subnet-074e64b3b84d7bced

Available

vpc-0c0e6f00e5b91373c | my-c...

public-subnet-1a

subnet-0ef81758a1e478fe9

Available

vpc-0c0e6f00e5b91373c | my-c...

db-subnet-1b

subnet-03b01854696c8a92f

Available

vpc-0c0e6f00e5b91373c | mv-c...

< 1 >

Create route table [Info](#)

A route table specifies how packets are forwarded between the subnets within your VPC, the internet, and your VPN connection.

Route table settings

Name - optional
Create a tag with a key of 'Name' and a value that you specify.

VPC
The VPC to use for this route table.

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.

Key

X

Value - optional

X

Remove

Add new tag

You can add 49 more tags.

Cancel

Create route table

Create route table [Info](#)

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Key

X

Value - optional

X

Remove

Add new tag

You can add 49 more tags.

Cancel

Create route table

Create route table [Info](#)

A route table specifies how packets are forwarded between the subnets within your VPC, the internet, and your VPN connection.

Route table settings

Name - optional
Create a tag with a key of 'Name' and a value that you specify.

cba-task-app-subnet-A-route-table

VPC
The VPC to use for this route table.

vpc-0c0c6f00e5b91373c (my-cba-task-vpc) ▼

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.

Key

Q Name

×

Value - optional

Q cba-task-app-subnet-A-route-table

×

Remove

Add new tag

You can add 49 more tags.

Cancel

Create route table

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Create route table [Info](#)

A route table specifies how packets are forwarded between the subnets within your VPC, the internet, and your VPN connection.

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The VPC to use for this route table.

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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.

Key

X

Value - optional

X

Remove

Add new tag

You can add 49 more tags.

Cancel

Create route table

Create route table [Info](#)

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Create a tag with a key of 'Name' and a value that you specify.

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The VPC to use for this route table.

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Key

Value - optional

Remove

Add new tag

You can add 49 more tags.

Cancel

Create route table

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Create route table [Info](#)

A route table specifies how packets are forwarded between the subnets within your VPC, the internet, and your VPN connection.

Route table settings

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Create a tag with a key of 'Name' and a value that you specify.

VPC
The VPC to use for this route table.

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.

Key

Value - optional

[Remove](#)

[Add new tag](#)

You can add 49 more tags.

[Cancel](#)

[Create route table](#)

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Your VPCs

Subnets

Route tables

Internet gateways

Egress-only internet gateways

DHCP option sets

☐	cba-task-public-subnet-A-route-table	rtb-0b590df57ee677211	-	-	No
☐	cba-task-public-subnet-B-route-table	rtb-010bf95fca8065899	-	-	No
☐	cba-task-app-subnet-A-route-table	rtb-03cd3fd42cb9b53bf	-	-	No
☐	cba-task-app-subnet-B-route-table	rtb-0b303d0cbc80b8d7d	-	-	No
☐	cba-task-db-subnet-A-route-table	rtb-0b0a4738bc6829787	-	-	No
☐	cba-task-db-subnet-B-route-table	rtb-04ac86d710a3b59fc	-	-	No

Edit subnet associations

Change which subnets are associated with this route table.

Available subnets (1/6)

☐

db-subnet-1a

subnet-02b03952d7e7e8965

10.0.96.0/20

-

Main (rtb-07ec87de922b4ee9d)

☐

public-subnet-1b

subnet-04987eb3b0c99260c

10.0.16.0/20

-

Main (rtb-07ec87de922b4ee9d)

☐

app-subnet-1b

subnet-0eebceda0adf69257

10.0.64.0/20

-

Main (rtb-07ec87de922b4ee9d)

☐

app-subnet-1a

subnet-074e64b3b84d7bcd

10.0.48.0/20

-

Main (rtb-07ec87de922b4ee9d)

☒

public-subnet-1a

subnet-0cf81758a1e478fe9

10.0.0.0/20

-

Main (rtb-07ec87de922b4ee9d)

☐

db-subnet-1b

subnet-03b01854696c8a92f

10.0.112.0/20

-

Main (rtb-07ec87de922b4ee9d)

Selected subnets

subnet-0cf81758a1e478fe9 / public-subnet-1a

Cancel

Save associations

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Edit subnet associations

Change which subnets are associated with this route table.

Available subnets (1/6)

< 1 >

	Name	Subnet ID	IPv4 CIDR	IPv6 CIDR	Route table ID
☐	db-subnet-1a	subnet-02b03952d7e7e8965	10.0.96.0/20	-	Main (rtb-07ec87de922b4ee9d)
☒	public-subnet-1b	subnet-04987eb3b0c99260c	10.0.16.0/20	-	Main (rtb-07ec87de922b4ee9d)
☐	app-subnet-1b	subnet-0ccbceda0adf69257	10.0.64.0/20	-	Main (rtb-07ec87de922b4ee9d)
☐	app-subnet-1a	subnet-074e64b3b84d7bcd	10.0.48.0/20	-	Main (rtb-07ec87de922b4ee9d)
☐	public-subnet-1a	subnet-0ef81758a1e478fe9	10.0.0.0/20	-	rtb-0b590df57ee677211 / cba-task-p
☐	db-subnet-1b	subnet-03b01854696c8a92f	10.0.112.0/20	-	Main (rtb-07ec87de922b4ee9d)

Selected subnets

subnet-04987eb3b0c99260c / public-subnet-1b

Cancel

Save associations

Edit subnet associations

Change which subnets are associated with this route table.

Available subnets (1/6)

< 1 >

	Name	Subnet ID	IPv4 CIDR	IPv6 CIDR	Route table ID
☐	db-subnet-1a	subnet-02b03952d7e7e8965	10.0.96.0/20	-	Main (rtb-07ec87de922b4ee9d)
☐	public-subnet-1b	subnet-04987eb3b0c99260c	10.0.16.0/20	-	rtb-010bf95fca8065899 / cba-task-p
☐	app-subnet-1b	subnet-0eebceda0adf69257	10.0.64.0/20	-	Main (rtb-07ec87de922b4ee9d)
☒	app-subnet-1a	subnet-074e64b3b84d7bcd	10.0.48.0/20	-	Main (rtb-07ec87de922b4ee9d)
☐	public-subnet-1a	subnet-0ef81758a1e478fe9	10.0.0.0/20	-	rtb-0b590df57ee677211 / cba-task-p
☐	db-subnet-1b	subnet-03b01854696c8a92f	10.0.112.0/20	-	Main (rtb-07ec87dc922b4ee9d)

Selected subnets

subnet-074e64b3b84d7bcd / app-subnet-1a

Cancel

Save associations

Edit subnet associations

Change which subnets are associated with this route table.

Available subnets (1/6)

< 1 >

	Name	Subnet ID	IPv4 CIDR	IPv6 CIDR	Route table ID
☐	db-subnet-1a	subnet-02b03952d7e7e8965	10.0.96.0/20	–	Main (rtb-07ec87de922b4ee9d)
☐	public-subnet-1b	subnet-04987eb3b0c99260c	10.0.16.0/20	–	rtb-010bf95fca8065899 / cba-task-p
☒	app-subnet-1b	subnet-0eebeeda0adf69257	10.0.64.0/20	–	Main (rtb-07ec87de922b4ee9d)
☐	app-subnet-1a	subnet-074e64b3b84d7bcd	10.0.48.0/20	–	rtb-03cd3fd42cb9b53bf / cba-task-a
☐	public-subnet-1a	subnet-0ef81758a1e478fe9	10.0.0.0/20	–	rtb-0b590df57ee677211 / cba-task-p
☐	db-subnet-1b	subnet-03b01854696c8a92f	10.0.112.0/20	–	Main (rtb-07ec87dc922b4ec9d)

Selected subnets

subnet-0eebeeda0adf69257 / app-subnet-1b

Cancel

Save associations

Edit subnet associations

Change which subnets are associated with this route table.

Available subnets (1/6)

☒

db-subnet-1a

subnet-02b03952d7e7e8965

10.0.96.0/20

-

Main (rtb-07ec87de922b4ee9d)

☐

public-subnet-1b

subnet-04987eb3b0c99260c

10.0.16.0/20

-

rtb-010bf95fca8065899 / cba-task-p

☐

app-subnet-1b

subnet-0eebeeda0adf69257

10.0.64.0/20

-

rtb-0b303d0cbc80b8d7d / cba-task-i

☐

app-subnet-1a

subnet-074e64b3b84d7bcd

10.0.48.0/20

-

rtb-03cd3fd42cb9b53bf / cba-task-aj

☐

public-subnet-1a

subnet-0cf81758a1e478fc9

10.0.0.0/20

-

rtb-0b590df57ec677211 / cba-task-g

☐

db-subnet-1b

subnet-03b01854696c8a92f

10.0.112.0/20

-

Main (rtb-07ec87de922b4ee9d)

Selected subnets

subnet-02b03952d7e7e8965 / db-subnet-1a

Cancel

Save associations

Edit subnet associations

Change which subnets are associated with this route table.

Available subnets (1/6)

Filter subnet associations

	Name	Subnet ID	IPv4 CIDR	IPv6 CIDR	Route table ID
☐	db-subnet-1a	subnet-02b03952d7e7e8965	10.0.96.0/20	–	rtb-0b0a4738bc6829787 / cba-task-e
☐	public-subnet-1b	subnet-04987eb3b0c99260c	10.0.16.0/20	–	rtb-010bf95fca8065899 / cba-task-p
☐	app-subnet-1b	subnet-0eebeeda0adf69257	10.0.64.0/20	–	rtb-0b303d0cbc80b8d7d / cba-task-i
☐	app-subnet-1a	subnet-074c64b3b84d7bced	10.0.48.0/20	–	rtb-03cd3fd42cb9b53bf / cba-task-a
☐	public-subnet-1a	subnet-0ef81758a1e478fe9	10.0.0.0/20	–	rtb-0b590df57ee677211 / cba-task-p
☒	db-subnet-1b	subnet-03b01854696c8a92f	10.0.112.0/20	–	Main (rtb-07ec87de922b4cc9d)

Selected subnets

subnet-03b01854696c8a92f / db-subnet-1b

Cancel Save associations

- Transit gateway route tables
- Transit gateway multicast
- Metering policies
- ▼ Traffic Mirroring
- Mirror sessions
- Mirror targets
- Mirror filters
- Network Manager
- Cloud WAN
- VPC IP Address Manager
- AWS Firewall Manager

Route tables (1/8) Info

Last updated 2 minutes ago

Actions

Create route table

Find route tables by attribute or tag

	Name	Route table ID	Explicit subnet associ...	Edge associations	Main
☐	-	rtb-0afc7489bbfc576f2	-	-	Yes
☐	-	rtb-07ec87de922b4ee9d	-	-	Yes
☒	cba-task-db-subnet-B-route-table	rtb-04ac86d710a3b59fc	subnet-03b01854696c8a...	-	No
☐	cba-task-app-subnet-A-route-table	rtb-03cd3fd42cb9b53bf	subnet-074e64b3b84d7b...	-	No
☐	cba-task-...	rtb-01b150f5...	subnet-04a07...	-	No

rtb-04ac86d710a3b59fc / cba-task-db-subnet-B-route-table

Explicit subnet associations (1)

Edit subnet associations

Find subnet association

Name	Subnet ID	IPv4 CIDR	IPv6 CIDR
db-subnet-1b	subnet-03b01854696c8a92f	10.0.112.0/20	-

Create internet gateway [Info](#)

An internet gateway is a virtual router that connects a VPC to the internet. To create a new internet gateway specify the name for the gateway below.

Internet gateway settings

Name tag
Creates a tag with a key of 'Name' and a value that you specify.

my-cba-task-igw

Tags - optional

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.

Key	Value - optional
Name	my-cba-task-igw

Add new tag

You can add 49 more tags.

Cancel

Create internet gateway

Attach to VPC (igw-0d7712a0e46d1d973) [Info](#)

VPC

Attach an internet gateway to a VPC to enable the VPC to communicate with the internet. Specify the VPC to attach below.

Available VPCs

Attach the internet gateway to this VPC.



► **AWS Command Line Interface command**

[Cancel](#)

[Attach internet gateway](#)

Elastic IP address 52.19.198.208 (eipalloc-01af79b76ce73462f) allocated.

Create NAT gateway [Info](#)

A highly available, managed Network Address Translation (NAT) service that instances in private subnets can use to connect to services in other VPCs, on-premises networks, or the internet.

NAT gateway settings

Name - optional

Create a tag with a key of 'Name' and a value that you specify.

my-cba-task-nat-gw1

The name can be up to 256 characters long.

Availability mode [Info](#)

Choose whether to deploy across all zones in the region or restrict to a single availability zone.

☐ Regional - new

Scales automatically across all regional AZs, simplifying management for multi AZ deployments.

☒ Zonal

Provides granular control within a specific availability zone, adhering to subnet level settings.

Subnet

Select a subnet in which to create the NAT gateway.

subnet-0ef81758a1e478fe9 (public-subnet-1a)

Connectivity type

Select a connectivity type for the NAT gateway.

☒ Public

☐ Private

Elastic IP allocation ID [Info](#)

Assign an Elastic IP address to the NAT gateway.

eipalloc-01af79b76ce73462f

[Allocate Elastic IP](#)

Additional settings [Info](#)

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.

Key

Q Name

X

Value - optional

Q my-cba-task-nat-gw1

X

[Remove](#)

[Add new tag](#)

You can add 49 more tags.

[Cancel](#)

[Create NAT gateway](#)

Elastic IP address 34.254.220.223 (eipalloc-008a97592295f3653) allocated.



Create NAT gateway [Info](#)

A highly available, managed Network Address Translation (NAT) service that instances in private subnets can use to connect to services in other VPCs, on-premises networks, or the internet.

NAT gateway settings

Name - optional

Create a tag with a key of 'Name' and a value that you specify.

The name can be up to 256 characters long.

Availability mode [Info](#)

Choose whether to deploy across all zones in the region or restrict to a single availability zone.

☐ Regional - new

Scales automatically across all regional AZs, simplifying management for multi AZ deployments.

☒ Zonal

Provides granular control within a specific availability zone, adhering to subnet level settings.

Subnet

Select a subnet in which to create the NAT gateway.

Connectivity type

Select a connectivity type for the NAT gateway.

☒ Public☐ Private

Elastic IP allocation ID [Info](#)

Assign an Elastic IP address to the NAT gateway.

[Allocate Elastic IP](#)

Additional settings [Info](#)

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.

Key



Value - optional

[Remove](#)[Add new tag](#)

You can add 49 more tags.

[Cancel](#)[Create NAT gateway](#)

VPC > Internet gateways

VPC dashboard <

AWS Global View

Filter by VPC

Internet gateways (2) Info

Find internet gateways by attribute or tag

Actions

Create internet gateway

< 1 >

☐	Name	Internet gateway ID	State	VPC ID
☐	my-cba-task-igw	igw-0d7712a0e46d1d973	Attached	vpc-0c0e6f00e5b91373c my-c



VPC > NAT gateways

VPC dashboard <

AWS Global View 

Filter by VPC 

Virtual private cloud

NAT gateways (2) [Info](#)

 [Actions](#)  [Create NAT gateway](#)

< 1 > 

Name	NAT gateway ID	Connectivity...	State	State message	Availability ...
my-cba-task-nat-gw2	nat-0191b2c706b2f7f8e	Public	✔ Available	-	Zonal
my-cba-task-nat-gw1	nat-01cce5222b89393af	Public	✔ Available	-	Zonal

Edit routes

Destination	Target	Status	Propagated	Route Origin	
10.0.0.0/16	local	Active	No	CreateRouteTable	
0.0.0.0/0	local	-	No	CreateRoute	<button>Remove</button>
	Internet Gateway				
	igw-0d7712a0e46d1d973				
<button>Add route</button>					

VPC > Route tables > rtb-0b590df57ee677211

Transit gateway route tables

Transit gateway multicast

Metering policies

Traffic Mirroring

Mirror sessions

Mirror targets

Mirror filters

Network Manager

Cloud WAN

VPC IP Address Manager

AWS Firewall Manager

Settings

Updated routes for rtb-0b590df57ee677211 / cba-task-public-subnet-A-route-table successfully

Details

Route table ID

rtb-0b590df57ee677211

VPC

vpc-0c0e6f00e5b91373c | my-cba-task-vpc

Main

No

Owner ID

009850210027

Explicit subnet associations

subnet-0ef81758a1e478fe9 / public-subnet-1a

Edge associations

-

Routes

Subnet associations

Edge associations

Route propagation

Tags

Routes (2)

Both

Edit routes

Filter routes

Destination	Target	Status	Propagated	Route Origin
0.0.0.0/0	igw-0d7712a0e46d1d...	Active	No	Create Route
10.0.0.0/16	local	Active	No	Create Route Table

aws

Search

[Alt+S]

Europe (Ireland)

cba_admin

VPC > Route tables

Transit gateway route tables

Transit gateway multicast

Metering policies

Traffic Mirroring

Mirror sessions

Mirror targets

Mirror filters

Network Manager

Cloud WAN

VPC IP Address Manager

AWS Firewall Manager

Route tables (1/8) Info

Last updated less than a minute ago

Actions

Create route table

Find route tables by attribute or tag

	Name	Route table ID	Explicit subnet associ...	Edge associations	Main
☐	-	rtb-07ec87de922b4ee9d	-	-	Yes
☒	cba-task-db-subnet-B-route-table	rtb-04ac86d710a3b59fc	subnet-03b01854696c8a...	-	No
☐	cba-task-app-subnet-A-route-table	rtb-03cd3fd42cb9b53bf	subnet-074e64b3b84d7b...	-	No
☐	cba-task-public-subnet-B-route-table	rtb-010bf95fca8065899	subnet-04987eb3b0c992...	-	No

rtb-04ac86d710a3b59fc / cba-task-db-subnet-B-route-table

Filter routes

Destination	Target	Status	Propagated	Route Origin
0.0.0.0/0	nat-0191b2c706b2f7f8e	Active	No	Create Route
10.0.0.0/16	local	Active	No	Create Route Table

- Transit gateway route tables
- Transit gateway multicast
- Metering policies

Traffic Mirroring

- Mirror sessions
- Mirror targets
- Mirror filters

- Network Manager
- Cloud WAN
- VPC IP Address Manager
- AWS Firewall Manager

Route tables (1/8) info

Last updated 1 minute ago

Actions

Create route table

Find route tables by attribute or tag

	Name	Route table ID	Explicit subnet associ...	Edge associations	Main
☒	cba-task-public-subnet-A-route-table	rtb-0b590df57ee677211	subnet-0ef81758a1e478f...	-	No
☐	cba-task-app-subnet-B-route-table	rtb-0b303d0cbc80b8d7d	subnet-0eebeeda0adf69...	-	No
☐	cba-task-db-subnet-A-route-table	rtb-0b0a4738bc6829787	subnet-02b03952d7e7e8...	-	No
☐	-	rtb-0afc7489bbfc576f2	-	-	Yes

rtb-0b590df57ee677211 / cba-task-public-subnet-A-route-table

Filter routes

Destination	Target	Status	Propagated	Route Origin
0.0.0.0/0	igw-0d7712a0e46d1...	Active	No	Create Route
10.0.0.0/16	local	Active	No	Create Route Table

Create security group [Info](#)

A security group acts as a virtual firewall for your instance to control inbound and outbound traffic. To create a new security group, complete the fields below.

Basic details

Security group name [Info](#)

Name cannot be edited after creation.

Description [Info](#)

VPC [Info](#)

Inbound rules [Info](#)

Type Info	Protocol Info	Port range Info	Source Info	Description - optional Info
HTTP	TCP	80	An... 0.0.0.0/0	from the internet Delete
HTTPS	TCP	443	An... 0.0.0.0/0	from the internet Delete
Add rule				

Rules with source of 0.0.0.0/0 or ::/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

Outbound rules [Info](#)

Type Info	Protocol Info	Port range Info	Destination Info	Description - optional Info
All traffic	All	All	Cus... 0.0.0.0/0	Delete
Add rule				

Rules with destination of 0.0.0.0/0 or ::/0 allow your instances to send traffic to any IPv4 or IPv6 address. We recommend setting security group rules to be more restrictive and to only allow traffic to specific known IP addresses.

Tags - optional

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.

[Add new tag](#)

You can add up to 50 more tags

[Cancel](#)[Create security group](#)

Create security group

A security group acts as a virtual firewall for your instance to control inbound and outbound traffic. To create a new security group, complete the fields below.

Basic details

Security group name

cba-task-web-servers-sg

Name cannot be edited after creation.

Description

ECB only, access to frontend

VPC

vpc-0c0e6f00e5b91373c (my-cba-task-vpc)

Inbound rules

Type	Protocol	Port range	Source	Description - optional
HTTP	TCP	80	Cus... sg-0d0043e3f99c3f88 sg-0d0043e3f99c3f88	from frontend load balancer from frontend load balancer Delete
Add rule				

Outbound rules

Type	Protocol	Port range	Destination	Description - optional
All traffic	All	All	Cus... 0.0.0.0/0	Delete
Add rule				

Rules with destination of 0.0.0.0/0 or ::/0 allow your instances to send traffic to any IPv4 or IPv6 address. We recommend setting security group rules to be more restrictive and to only allow traffic to specific known IP addresses.

Tags - optional

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.

Add new tag

You can add up to 50 more tags.

Cancel

Create security group

CloudShell

Feedback

Console Mobile App

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Privacy

Terms

Cookie preferences

Create security group [Info](#)

A security group acts as a virtual firewall for your instance to control inbound and outbound traffic. To create a new security group, complete the fields below.

Basic details

Security group name [Info](#)

Name cannot be edited after creation.

Description [Info](#)

VPC [Info](#)

Inbound rules [Info](#)

Type Info	Protocol Info	Port range Info	Source Info	Description - optional Info
HTTP	TCP	80	Cus... sg-0955ca5ccdd939cd1 X	from web servers Delete
Add rule				

Outbound rules [Info](#)

Type Info	Protocol Info	Port range Info	Destination Info	Description - optional Info
All traffic	All	All	Cus... 0.0.0.0/0 X	Delete
Add rule				

 Rules with destination of 0.0.0.0/0 or ::/0 allow your instances to send traffic to any IPv4 or IPv6 address. We recommend setting security group rules to be more restrictive and to only allow traffic to specific known IP addresses.

Tags - optional

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.

You can add up to 50 more tags.

Edit inbound rules Info

Inbound rules control the incoming traffic that's allowed to reach the instance.

Inbound rules Info

Security group rule ID

Type Info

Protocol Info

Port range Info

Source Info

Description - optional Info

sg-0430f653c77329f03

MySQL/Aurora ▾

TCP

3306

Cus... ▾

from app servers

Delete

Add rule

sg-00c838fdf3d6fcd98

Cancel

Preview changes

Save rules

☰

VPC > Security Groups

Transit gateway route tables

Transit gateway multicast

Metering policies

▼ Traffic Mirroring

Mirror sessions

Mirror targets

Mirror filters

Network Manager

Security Groups (6) Info

🔄 Actions

Export security groups to CSV

Create security group

Find security groups by attribute or tag

Security group ID	Security group name	VPC ID	Description	Owner
sg-0d0043e3f99cf3f88	cba-task-frontend-ELB-sg	vpc-0c0e6f00e5b91373c	public entry, routes to web	009850210027
sg-0c29482b94269db92	default	vpc-0c0e6f00e5b91373c	default VPC security group	009850210027
sg-0955ca5ccdd939cd1	cba-task-web-servers-sg	vpc-0c0e6f00e5b91373c	ECB only, access to frontend	009850210027
sg-07664e9501cb3c093	cba-task-database-server-sg	vpc-0c0e6f00e5b91373c	app only access to database	009850210027
sg-03196df9a2541650b	default	vpc-07dd61bc41405cdc7	default VPC security group	009850210027
sg-00c838fdf3d6fcd98	cba-task-app-servers-sg	vpc-0c0e6f00e5b91373c	web only access to backend	009850210027

Create DB subnet group

To create a new subnet group, give it a name and a description, and choose an existing VPC. You will then be able to add subnets related to that VPC.

Subnet group details

Name

You won't be able to modify the name after your subnet group has been created.

cba-task-database-subnet-group

Must contain from 1 to 255 characters. Alphanumeric characters, spaces, hyphens, underscores, and periods are allowed.

Description

cba task database subnet group

VPC

Choose a VPC identifier that corresponds to the subnets you want to use for your DB subnet group. You won't be able to choose a different VPC identifier after your subnet group has been created.

my-cba-task-vpc (vpc-0c0e6f00e5b91373c)

6 Subnets, 2 Availability Zones

Add subnets

Availability Zones

Choose the Availability Zones that include the subnets you want to add.

Choose an availability zone

eu-west-1a

eu-west-1b

Subnets

Choose the subnets that you want to add. The list includes the subnets in the selected Availability Zones.

Select subnets

db-subnet-1a

Subnet ID: subnet-02b03952d7e7e8965 CIDR: 10.0.96.0/20

db-subnet-1b

Subnet ID: subnet-03b01854696c8a92f CIDR: 10.0.112.0/20

For Multi-AZ DB clusters, you must select 3 subnets in 3 different Availability Zones.

Subnets selected (2)

Availability zone	Subnet name	Subnet ID	CIDR block
eu-west-1a	db-subnet-1a	subnet-02b03952d7e7e8965	10.0.96.0/20
eu-west-1b	db-subnet-1b	subnet-03b01854696c8a92f	10.0.112.0/20

Cancel

Create

Successfully created cba-task-database-subnet-group. View subnet group

Create database [Info](#)

Choose a database creation method

☒ Full configuration

You set all of the configuration options, including ones for availability, security, backups, and maintenance.

☐ Easy create

Use recommended best-practice configurations. Some configuration options can be changed after the database is created.

Engine options

Engine type [Info](#)

☐ Aurora (MySQL Compatible)



☐ Aurora (PostgreSQL Compatible)



☒ MySQL



☐ PostgreSQL



☐ MariaDB



☐ Oracle



☐ Microsoft SQL Server



☐ IBM Db2



Edition

☒ MySQL Community

Engine version [Info](#)

View the engine versions that support the following database features.

▼ Hide filters

☐ Show only versions that support the Multi-AZ DB cluster [Info](#)

Create a Multi-AZ DB cluster with one primary DB instance and two readable standby DB instances. Multi-AZ DB clusters provide up to 2x faster transaction commit latency and automatic failover in typically under 35 seconds.

☐ Show only versions that support the Amazon RDS Optimized Writes [Info](#)

Amazon RDS Optimized Writes improves write throughput by up to 2x at no additional cost.

Engine version

MySQL 8.4.7

☐ Enable RDS Extended Support [Info](#)

Amazon RDS Extended Support is a [paid offering](#). By selecting this option, you consent to being charged for this offering if you are running your database major version past the RDS end of standard support date for that version. Check the end of standard support date for your major version in the [RDS for MySQL documentation](#).

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.

☐ Sandbox

To develop new applications, test existing applications, or gain hands-on experience with Amazon RDS.

Availability and durability

Deployment options [Info](#)

Choose the deployment option that provides the availability and durability needed for your use case. AWS is committed to a certain level of uptime depending on the deployment option you choose. Learn more in the [Amazon RDS service level agreement \(SLA\)](#).

☐ Multi-AZ DB cluster deployment (3 instances)

Creates a primary DB instance with two readable standbys in separate Availability Zones. This setup provides:

- 99.95% uptime
- Redundancy across Availability Zones
- Increased read capacity
- Reduced write latency



☐ Multi-AZ DB instance deployment (2 instances)

Creates a primary DB instance with a non-readable standby instance in a separate Availability Zone. This setup provides:

- 99.95% uptime
- Redundancy across Availability Zones

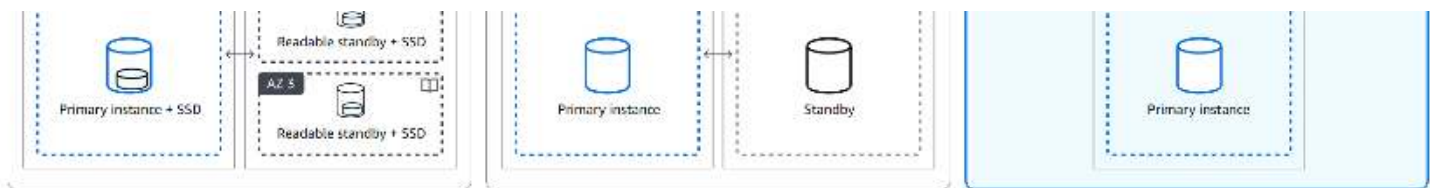


☒ Single-AZ DB instance deployment (1 instance)

Creates a single DB instance without standby instances. This setup provides:

- 99.5% uptime
- No data redundancy





Settings

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.

cba-task-database

The DB instance identifier is case-insensitive, but is stored as all lowercase (as in 'mydbinstance'). Constraints: 1 to 63 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.

admin

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 **Very strong**

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

Confirm master password [Info](#)

Additional credentials settings

Database authentication options [Info](#)

☒ Password authentication

Authenticates using database passwords.

☐ Password and IAM database authentication

Authenticates using the database password and user credentials through AWS IAM users and roles.

☐ Password and Kerberos authentication

Choose a directory in which you want to allow authorized users to authenticate with this DB instance using Kerberos Authentication.

Instance configuration

The DB instance configuration options below are limited to those supported by the engine that you selected above.

DB instance class [Info](#)

Hide filters

☒ Show instance classes that support Amazon RDS Optimized Writes [Info](#)

Amazon RDS Optimized Writes improves write throughput by up to 2x at no additional cost.

☐ Include previous generation classes

☐ Standard classes (includes m classes)

☐ Memory optimized classes (includes r and x classes)

☒ Burstable classes (includes t classes)

Instance type

db.t3.micro

2 vCPUs 1 GiB RAM EBS Bandwidth: Up to 2,085 Mbps Network: Up to 5 Gbps

Storage

Storage type [Info](#)

Provisioned IOPS SSD (io2) storage volumes are now available.

General Purpose SSD (gp3)

Performance scales independently from storage

Allocated storage [Info](#)

20

GiB

Minimum: 20 GiB. Maximum: 6,144 GiB

Provisioned IOPS [Info](#)

3000

IOPS

Baseline IOPS of 3,000 IOPS is included for allocated storage less than 400 GiB.

Storage throughput [Info](#)

125

MiBps

Baseline storage throughput of 125 MiBps is included for allocated storage less than 400 GiB.

To provision additional IOPS and throughput, increase the allocated storage to 400 GiB or greater.

► Additional storage configuration

Connectivity [Info](#)

Compute resource

Choose whether to set up a connection to a compute resource for this database. Setting up a connection will automatically change connectivity settings so that the compute resource can connect to this database.

☒ Don't connect to an EC2 compute resource

Don't set up a connection to a compute resource for this database. You can manually set up a connection to a compute resource later.

☐ Connect to an EC2 compute resource

Set up a connection to an EC2 compute resource for this database.

Virtual private cloud (VPC) [Info](#)

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

my-cba-task-vpc (vpc-0c0c6f00e5b91373c)

6 Subnets, 2 Availability Zones

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

cba-task-database-subnet-group

2 Subnets, 2 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

cba-task-database-server-sg

Availability Zone [Info](#)

No preference

RDS Proxy

RDS Proxy is a fully managed, highly available database proxy that improves application scalability, resiliency, and security.

☐ Create an RDS Proxy [Info](#)

RDS automatically creates an IAM role and a Secrets Manager secret for the proxy. RDS Proxy has additional costs. For more information, see [Amazon RDS Proxy pricing](#).

Certificate authority - optional [Info](#)

Using a server certificate provides an extra layer of security by validating that the connection is being made to an Amazon database. It does so by checking the server certificate that is automatically installed on all databases that you provision.

rds-ca-rsa2048-g1 (default)

Expiry: May 20, 2061

If you don't select a certificate authority, RDS chooses one for you.

▼ Additional configuration

Database port [Info](#)

TCP/IP port that the database will use for application connections.

3306

Tags - optional

A tag consists of a case-sensitive key-value pair.

No tags associated with the resource.

Add new tag

You can add up to 50 more tags.

Monitoring [Info](#)

Choose monitoring tools for this database. Database Insights provides a combined view of Performance Insights and Enhanced Monitoring for your fleet of databases. **Database Insights** pricing is separate from RDS monthly estimates. See [Amazon CloudWatch pricing](#).

☐ Database Insights - Advanced

- Retains 15 months of performance history
- Fleet-level monitoring
- Integration with CloudWatch Application Signals

☒ Database Insights - Standard

▼ Additional monitoring settings

Enhanced Monitoring, CloudWatch Logs and DevOps Guru

Enhanced Monitoring

☒ Enable Enhanced monitoring

Enabling Enhanced Monitoring metrics are useful when you want to see how different processes or threads use the CPU.

OS metrics granularity

60 seconds

Monitoring role for OS metrics

default



Create new role

The monitoring role is an IAM role that allows RDS to send Enhanced Monitoring metrics to Amazon CloudWatch Logs. Choose an existing monitoring role, or choose **default** to have RDS automatically create the IAM role `rds-monitoring-role` for you.

Log exports

Select the log types to publish to Amazon CloudWatch Logs.

- ☐ Audit log
- ☐ Error log
- ☐ General log
- ☐ iam-db-auth-error log
- ☐ Slow query log

IAM role

The following service-linked role is used for publishing logs to CloudWatch Logs.

RDS service-linked role

► Additional configuration

Database options, encryption turned on, backup turned on, backtrack turned off, maintenance, CloudWatch Logs, delete protection turned off.

Estimated monthly costs

DB instance	13.14 USD
Storage	2.54 USD
Total	15.68 USD

This billing estimate is based on on-demand usage as described in [Amazon RDS Pricing](#). Estimate does not include costs for backup storage, I/Os (if applicable), or data transfer.

Estimate your monthly costs for the DB Instance using the [AWS Simple Monthly Calculator](#).

① You are responsible for ensuring that you have all of the necessary rights for any third-party products or services that you use with AWS services.

Cancel

Create database

Aurora and RDS

Databases

Dashboard

Databases

Query editor

Performance insights

Databases (1)

Group resources

⚡

🔄

Modify

Actions

Create database

Filter by databases

DB identifier

▲

Status

▼

Role

▼

Engine

▼

Upgrade rollout order

▼

[cba-task-database](#)

Available

Instance

MySQL Co...

SECOND

cba_admin

▼ Advanced health check settings

[Restore defaults](#)**Health check port**

The port the load balancer uses when performing health checks on targets. By default, the health check port is the same as the target group's traffic port. However, you can specify a different port as an override.

☒ Traffic port☐ Override**Healthy threshold**

The number of consecutive health checks successes required before considering an unhealthy target healthy.

2-10

Unhealthy threshold

The number of consecutive health check failures required before considering a target unhealthy.

2-10

Timeout

The amount of time, in seconds, during which no response means a failed health check.

seconds

2-120

Interval

The approximate amount of time between health checks of an individual target.

seconds

5-300

Success codes

The HTTP codes to use when checking for a successful response from a target. You can specify multiple values (for example, "200,202") or a range of values (for example, "200-299").

Target optimizer - optional [Info](#)

Use a target control port when the target has a strict concurrency limit.

Target control port

The port on which the target communicates its capacity. This value can't be modified after target group creation.

Valid range: 1-65535

Attributes

[i](#) Certain default attributes will be applied to your target group. You can view and edit them after creating the target group.

► **Tags - optional**

Consider adding tags to your target group. Tags enable you to categorize your AWS resources so you can more easily manage them.

[Cancel](#)[Next](#)

Step 1

Create target group

Step 2 - recommended

Register targets

Step 3

Review and create

Review and create

Review your target group configuration before creating

Step 1: Target group details

Target group details

Name

cba-task-frontend-ELB-tg

VPC

[vpc-0c0e6f00e5b91373c](#)

Target type

Instance

IP address type

IPv4

Protocol : Port

HTTP: 80

Protocol version

HTTP1

Health check details

Health check protocol

HTTP

Health check path

/

Health check port

traffic-port

Interval

30 seconds

Timeout

5 seconds

Healthy threshold

5

Unhealthy threshold

2

Success codes

200

Step 2: Register targets

Targets (0)

Instance ID

Name

Port

Zone

No targets added

Cancel

Previous

Create target group

CloudShell

Feedback

Console Mobile App

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Privacy

Terms

Cookie preferences

EC2 > Target groups > cba-task-frontend-ELB-tg

Network & Security

Security Groups

Elastic IPs

Placement Groups

Key Pairs

Network Interfaces

Load Balancing

Load Balancers

Target Groups

Trust Stores

Auto Scaling

Auto Scaling Groups

Settings

Successfully created the target group: **cba-task-frontend-ELB-tg**. Anomaly detection is automatically applied to all registered targets. Results can be viewed in the **Targets** tab.

cba-task-frontend-ELB-tg

Actions

Details

arn:aws:elasticloadbalancing:eu-west-1:009850210027:targetgroup/cba-task-frontend-ELB-tg/71aef9965a112985

Target type	Protocol : Port	Protocol version	VPC
Instance	HTTP: 80	HTTP1	vpc-0c0e6f00e5b91373c
IP address type	Load balancer		
IPv4	None associated		

0	0	0	0	0	0
Total targets	Healthy	Unhealthy	Unused	Initial	Draining
	0 Anomalous				

cba-task-frontend-ELB-sg (sg-0d0043e3f99cf3f88)

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 HTTP:80 Remove

Protocol

HTTP

Port

80

1-65535

Default action [Info](#)

The default action is used if no other rules apply. Choose the default action for traffic on this listener.

Routing action

☒ Forward to target groups

☐ Redirect to URL

☐ Return fixed response

Forward to target group [Info](#)

Choose a target group and specify routing weight or [create target group](#).

Target group

cba-task-frontend-ELB-tg

Target type: Instance, IPv4 | Target stickiness: Off

HTTP



Weight

1

0-999

Percent

100%

+ Add target group

You can add up to 4 more target groups.

Target group stickiness [Info](#)

Enables the load balancer to bind a user's session to a specific target group. To use stickiness the client must support cookies. If you want to bind a user's session to a specific target, turn on the Target Group attribute Stickiness.

☐ Turn on target group stickiness

Listener tags - optional

Consider adding tags to your listener. Tags enable you to categorize your AWS resources so you can more easily manage them.

Add listener tag

You can add up to 50 more tags.

Add listener

You can add up to 49 more listeners.

► 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. The 'Key' is required, but 'Value' is optional. For example, you can have Key = production-webserver, or Key = webserver, and Value = production.

Optimize with service integrations - optional [Info](#)

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.



Amazon CloudFront + AWS Web Application Firewall (WAF) - new [Info](#)

Optimizes: Performance, Availability, Security

☐ Apply application layer acceleration and security protections - *in front of the load balancer*

Automatically configures and creates a CloudFront distribution with the basic recommended AWS WAF security protections, and associates it to your load balancer. [Additional charges apply](#)

► Benefits and considerations



AWS Web Application Firewall (WAF) [Info](#)

Optimizes: Security

☐ Apply application layer security protections - *in front of targets*

Your choice of either a pre-defined security configuration with basic recommended AWS WAF security protections, or associate any of your existing WAF configurations for custom protections. [Additional charges apply](#)

► Benefits and considerations



AWS Global Accelerator [Info](#)

Optimizes: Performance, Availability

☐ Apply global load balancing across multiple regions

Creates an accelerator in your account with two global static IPs that act as a fixed entry point to your load balancer. If you do not need global static IPs or traffic management across multiple regions, select Amazon CloudFront. [Additional charges apply](#)

► Benefits and considerations

Review

Review the load balancer configurations and make changes if needed. After you finish reviewing the configurations, choose **Create load balancer**.

Summary

Review and confirm your configurations. [Estimate cost](#)

Basic configuration [Edit](#)

Name: cba-task-frontend-ELB

Scheme: Internet-facing

IP address type: IPv4

Network mapping [↗](#) [Edit](#)

VPC: [vpc-0c0e6f00c5b91373c](#)

Public IPv4 IPAM pool: -

Availability Zones and subnets:

- eu-west-1a
[subnet-0ef81758a1e478fe9](#)
public-subnet-1a
- eu-west-1b
[subnet-04987eb3b0c99260c](#)
public-subnet-1b

Security groups [↗](#) [Edit](#)

cba-task-frontend-ELB-sg

[sg-0d0043e3f99cf3f88](#)

Listeners and routing [Edit](#)

HTTP:80 | [Forward to 1 target group](#)

Service integrations [Edit](#)

Amazon CloudFront + AWS Web Application Firewall (WAF): -

AWS WAF: -

AWS Global Accelerator: -

Tags [Edit](#)

-

Attributes

① Certain default attributes will be applied to your load balancer. You can view and edit them after creating the load balancer.

Creation workflow and status

► Server-side tasks and status

After completing and submitting the above steps, all server-side tasks and their statuses become available for monitoring.

[Cancel](#)

[Create load balancer](#)

EC2 > Load balancers > cba-task-frontend-ELB

▼ Network & Security

Security Groups

Elastic IPs

Placement Groups

Key Pairs

Network Interfaces

▼ Load Balancing

Load Balancers

Target Groups

Trust Stores

▼ Auto Scaling

Auto Scaling Groups

Settings

Load balancer ARN

 [arn:aws:elasticloadbalancing:eu-west-1:009850210027:loadbalancer/app/cba-task-frontend-ELB/4971fd4656675e0c](#)

DNS name [Info](#)

 [cba-task-frontend-ELB-197632279.eu-west-1.elb.amazonaws.com](#) (A Record)

< **Listeners and rules** Network mapping Resource map Security Monitoring Integrations At >

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.



< 1 > 

☐	Protocol:Port	Default action	Rules	ARN	Security policy
☐	HTTP:80	• Forward to target group cba-task-frontend-ELB-tg : 1 (100%) Target group stickiness: Off	1 rule	 ARN	Not applicable

EC2

Dashboard

AWS Global View

Events

Instances

Instances

Instance Types

Launch Templates

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

Capacity Reservations

Capacity Manager

EC2 > Instances > i-0e4dd7635218e2346

Instance summary for i-0e4dd7635218e2346 (cba-task-app-tier-server)

Updated less than a minute ago

Connect

Instance state

Actions

Instance ID

i-0e4dd7635218e2346

IPv6 address

-

Hostname type

IP name: ip-10-0-52-60.eu-west-1.compute.internal

Answer private resource DNS name

-

Auto-assigned IP address

-

IAM role

Public IPv4 address

-

Instance state

Running

Private IP DNS name (IPv4 only)

ip-10-0-52-60.eu-west-1.compute.internal

Instance type

t3.micro

VPC ID

vpc-0c0e6f00e5b91373c (my-cba-task-vpc)

Subnet ID

Private IPv4 addresses

10.0.52.60

Public DNS

-

Elastic IP addresses

-

AWS Compute Optimizer finding

Opt-in to AWS Compute Optimizer for recommendations.

Learn more

Auto Scaling Group name

EC2 > Launch templates > cba-task-web-server-LT

▼ Network & Security

Security Groups

Elastic IPs

Placement Groups

Key Pairs

Network Interfaces

▼ Load Balancing

Load Balancers

Target Groups

Trust Stores

▼ Auto Scaling

Auto Scaling Groups

Settings

cba-task-web-server-LT (lt-0d92630f0feb25caf)

Actions ▼Delete template

Launch template details

Launch template ID

lt-0d92630f0feb25caf

Launch template name

cba-task-web-server-LT

Default version

1

Owner

arn:aws:iam::009850210027:user/cba_admin

DetailsVersionsTemplate tags

Launch template version details

Actions ▼Delete template version

Version

1 (Default) ▼

Description

Version 1

Date created

2026-03-18T18:11:28.000Z

Created by

arn:aws:iam::009850210027:user/cba_admin

Instance detailsStorageResource tagsNetwork interfacesAdvanced details

AMI ID

Instance type

Availability Zone

Availability Zone Id

☰

EC2 > Launch templates > cba-task-app-server-LT

🔍

🗨

▼ Network & Security

Security Groups

Elastic IPs

Placement Groups

Key Pairs

Network Interfaces

▼ Load Balancing

Load Balancers

Target Groups

Trust Stores

▼ Auto Scaling

Auto Scaling Groups

Settings

cba-task-app-server-LT (lt-0c98b08a28fe6c87b)

Actions ▼Delete template

Launch template details

Launch template ID

lt-0c98b08a28fe6c87b

Launch template name

cba-task-app-server-LT

Default version

1

Owner

arn:aws:iam::009850210027:user/cba_admin

DetailsVersionsTemplate tags

Launch template version details

Actions ▼Delete template version

Version

1 (Default) ▼

Description

Version 1

Date created

2026-03-18T18:16:39.000Z

Created by

arn:aws:iam::009850210027:user/cba_admin

Instance detailsStorageResource tagsNetwork interfacesAdvanced details

AMI ID

Instance type

Availability Zone

Availability Zone Id

Auto Scaling groups (2) [Info](#)

Last updated less than a minute ago 

[Launch configurations](#)

[Launch templates !\[\]\(c67d78573a00692a594fc41f0f7ec02c_img.jpg\)](#)

[Actions ▼](#)

Create Auto Scaling group

☐	Name ▼	Launch template/configuration  ▼	Instances ▼	Status ▼	Desired capacity ▼	Min ▼	Max
☐	cba-task-app-tier-ASG	cba-task-app-server-LT Version Default	2	-	2	2	2
☐	cba-task-web-tier-ASG	cba-task-web-server-LT Version Default	3	-	2	2	2

EC2 > Auto Scaling groups

less than a minute ago

Launch configurations

Launch templates

Actions

Create Auto Scaling group

Search your Auto Scaling groups

	Name	Launch template/configuration	Instances	Status	Desired capacity	Min	Max
☒	cba-task-app-tier-ASG	cba-task-app-server-LT Version Default	2	-	2	2	2
☐	cba-task-web-tier-ASG	cba-task-web-server-LT Version Default	3	-	2	2	2

Auto Scaling group: cba-task-app-tier-ASG

☐	Instance ID	Lifecycle	Instance...	Weighte...	Launch t...	Availabil...	Health s...	Protect...
☐	i-079cf845c16ee6493	InService	m1.small	-	cba-task-app-ser	euw1-az2 (...)	✓ Healthy	
☐	i-0ae598c48351b5cdf	InService	m1.small	-	cba-task-app-ser	euw1-az3 (...)	✓ Healthy	