

## a) Troubleshoot the implementation

### 1) Elastic Load Balancer not configured correctly

See status 'OutOfService' = "Instance is in the EC2 Availability Zone...."

VPC has two public subnets (PublicSubnetB, PublicSubnetA), one in each AZ (eu-west-1a, eu-west-1B), however, only one of the two AZ (b) initially registered in ELB (see <https://docs.aws.amazon.com/elasticloadbalancing/latest/classic/enable-disable-az.html>)

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Create Load Balancer Actions

Filter by tags and attributes or search by keyword

Name	DNS name	State	VPC ID	Availability Zones	Type	Created At	Monitoring
StackJamesLa-SAelb-XX06...	StackJamesLa-SAelb-XX06...		vpc-07efa10b9139713ab	eu-west-1b	classic	February 25, 2021 at 6:23:0...	

Load balancer: StackJamesLa-SAelb-XX06G9UCDUZO

Description Instances Health check Listeners Monitoring Tags Migration

Connection Draining: Disabled (Edit)

Edit Instances

Instance ID	Name	Availability Zone	Status	
i-077c7a21f5a30783	Instance1-James Last	eu-west-1a	OutOfService	<a href="#">Remove from Load Balancer</a>

Instance is in the EC2 Availability Zone for which LoadBalancer is not configured to route traffic to.

← → ↺ 🏠 🔒 https://docs.aws.amazon.com/elasticloadbalancing/latest/classic/enable-disable-az.html ... 📄 📄 📄

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**Elastic Load Balancing** X  
Classic Load Balancers

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Internet-facing load balancers

Internal load balancers

Registered instances

- Configure health checks
- Configure security groups
- Add or remove Availability Zones**
- Add or remove subnets

## Add or remove Availability Zones for your load balancer in EC2-Classic

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When you add an Availability Zone to your load balancer, Elastic Load Balancing creates a load balancer node in the Availability Zone. Load balancer nodes accept traffic from clients and forward requests to the healthy registered instances in one or more Availability Zones.

You can set up your load balancer in EC2-Classic to distribute incoming requests across EC2 instances in a single Availability Zone or multiple Availability Zones. First, launch EC2 instances in all the Availability Zones that you plan to use. Next, register these instances with your load balancer. Finally, add the Availability Zones to your load balancer. After you add an Availability Zone, the load balancer starts routing requests to the registered instances in that Availability Zone. Note that you can modify the Availability Zones for your load balancer at any time.

By default, the load balancer routes requests evenly across its Availability Zones. To route requests evenly across the registered instances in the Availability Zones, enable cross-zone load balancing. For more information, see [Configure cross-zone load balancing for your Classic Load Balancer](#).

## 2) ELB Health check

...configured to health check against port 443 (http\_s), however, web server on EC 2 instance listening only on 80 (http). Hence health check failing. Solution -> edit health check in ELB to use port 80 instead of 443.

## 3) a) and b) Security Group (SG) f-ups

Note: Security Group = firewalls attached to instances ( instance e.g. a VM of a load balancer instance)

ELB (Elastic Load Balancer has SG *ELBSecurityGroup* attached.

The Web Server (EC2 instance=VM) has SG *AppServerSecurityGroup* attached.

Both SGs are empty, SG default behaviour = block everything unless allowed.

Hence, two changes necessary:

- a) Allow traffic (HTTP=port 80) from ELB to Webserver.
- b) Allow the world (=‘the internet’) to talk to and connect to ELB on port 80.

**N.b.** Security Groups can ‘allow’ as source another SGs, so to allow the ELB to talk to the Webserver on port 80, you can specify as source the SG that is assigned to the ELB (the *ELBSecurityGroup*)

**Security Groups (1/5)** Info

Filter security groups

Name	Security group ID	Security group name	VPC ID	Description	Owner	Inbound rules count	Outb
<input checked="" type="checkbox"/> AppServerSecurityGroup	sg-0450ad1a690eaaddf	StackJamesLast-SASG...	vpc-07efa10b9139713ab	SA Assignment - App s...	142883165113	1 Permission entry	1 Per
<input type="checkbox"/> -	sg-08a4eb599b2ed69f8	default	vpc-07efa10b9139713ab	default VPC security gr...	142883165113	1 Permission entry	1 Per
<input type="checkbox"/> -	sg-0d5ae4831ac7751ef	launch-wizard-1-ssh-all	vpc-d31bc5aa	launch-wizard-1 create...	142883165113	1 Permission entry	1 Per
<input type="checkbox"/> ELBSecurityGroup	sg-0f8503da1044413b4	StackJamesLast-SASG...	vpc-07efa10b9139713ab	SA Assignment - ELB s...	142883165113	2 Permission entries	1 Per
<input type="checkbox"/> -	sg-5a329e07	default	vpc-d31bc5aa	default VPC security gr...	142883165113	1 Permission entry	1 Per

sg-0450ad1a690eaaddf - StackJamesLast-SASGapp-1L21B6TPZ5DJZ

Details Inbound rules Outbound rules Tags

**Inbound rules** Edit inbound rules

Type	Protocol	Port range	Source	Description - optional
HTTP	TCP	80	sg-0f8503da1044413b4 (StackJamesLast-SASGELB-SXEO2FK6HAUE)	ELB Security group inbound