

# TASK 7 – Troubleshooting

## Objective:

This task involved identifying, diagnosing, and resolving common infrastructure bottlenecks and configuration errors encountered during the deployment of the EC2 instances, Docker containers, and the Application Load Balancer.

## 1. App Not Accessible

If you paste your IP/Domain and get a "Connection Timed Out" or "Site cannot be reached" error:

- **Check the Security Group:** This is the #1 cause. Ensure the Inbound Rules allow **HTTP (Port 80)** from source `0.0.0.0/0`.
- **Check the NACL:** Verify the Subnet's Network Access Control List (NACL) hasn't been modified to block port 80.
- **Public IP vs Private IP:** Ensure you are using the **Public IPv4** (or Elastic IP), not the Private one.
- **Target Group Routing:** If using an ALB, ensure your **Target Group** is correctly associated with the Load Balancer's listener on Port 80.

## 2. Container Running but Port Not Reachable

If you can SSH into the instance and see the container with `docker ps`, but can't see the webpage:

- **Bind to 0.0.0.0:** Inside your code (or Nginx config), the app must listen on `0.0.0.0`, not `127.0.0.1`. If it listens on `127.0.0.1`, it only accepts traffic from *inside* the container.
- **Port Mapping Check:** Run `sudo docker ps`. Look at the **PORTS** column. It should say `0.0.0.0:80->80/tcp`. If it just says `80/tcp` without the arrow, you forgot the `-p 80:80` flag in your `docker run` command.
- **Instance Firewall:** Some Linux AMIs have an internal firewall (like `iptables` or `ufw`). Try disabling it temporarily to test:

```
sudo ufw disable
```

OR

```
sudo systemctl stop firewalld
```

### 3. ALB Health Check Failures

If the AWS Console says your instances are `Unhealthy`, the ALB will stop sending them traffic.

- **Check the Path:** By default, ALB looks for a `200 OK` response at the root path (`/`). If your app only has a page at `/login` or `/api`, the health check will fail.
  - *Fix:* Edit the **Target Group** health check settings to match a valid path in your app.
- **Security Group "Loop":** The EC2 instance security group must allow traffic **from the ALB's security group**.
  - *Pro Tip:* Instead of allowing `0.0.0.0/0`, edit the EC2 Security Group to allow Port 80 where the **Source** is the name/ID of the **ALB's Security Group**.
- **Grace Period:** If your Docker container takes 30 seconds to start but the ASG starts checking health after 10 seconds, it will kill the "unhealthy" instance before it's ready.
  - *Fix:* Increase the **Health Check Grace Period** in your Auto Scaling Group settings (e.g., 300 seconds).