CloudFront + ALB + EC2: Web Hosting (Step-by-Step)

Author: Samarth Mahadik

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This document explains how to host a simple web page using Amazon CloudFront in front of an Application Load Balancer (ALB), which forwards traffic to an EC2 instance. It includes exact steps and screenshots captured during the setup in the N. Virginia (us-east-1) region.

Architecture overview: Users → **CloudFront** (global CDN) → **ALB** (HTTP 80/HTTPS 443) → **EC2** instance (web server).

Step 1. Create a Security Group for ALB (sgalb)

– In EC2 Console → Security Groups → Create security group.

– Name: sgalb. Description: Allow web traffic to ALB. VPC: your VPC.

– Inbound rules: HTTP (80) from 0.0.0.0/0, HTTPS (443) from 0.0.0.0/0.

– Outbound: allow all (default). Save.

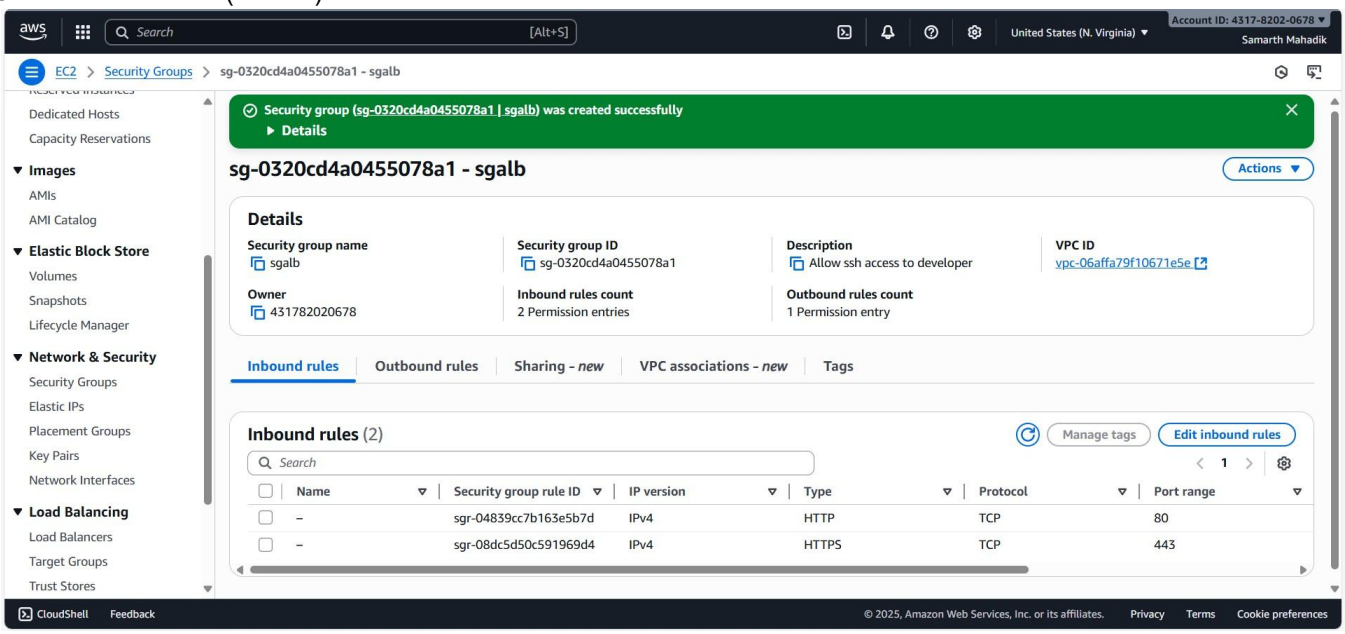

Figure 1: Create a Security Group for ALB (sgalb)

Step 2. Launch EC2 Instance (Web Server)

– EC2 Console → Instances → Launch instances.

– Choose an AMI (e.g., Amazon Linux 2), t2.micro (Free Tier eligible).

– Put instance in the same VPC and public subnets. Keep default security group that allows SSH (optional).

– After boot, install a web server and page (example: 'Hello from CloudFront + ALB + EC2!').

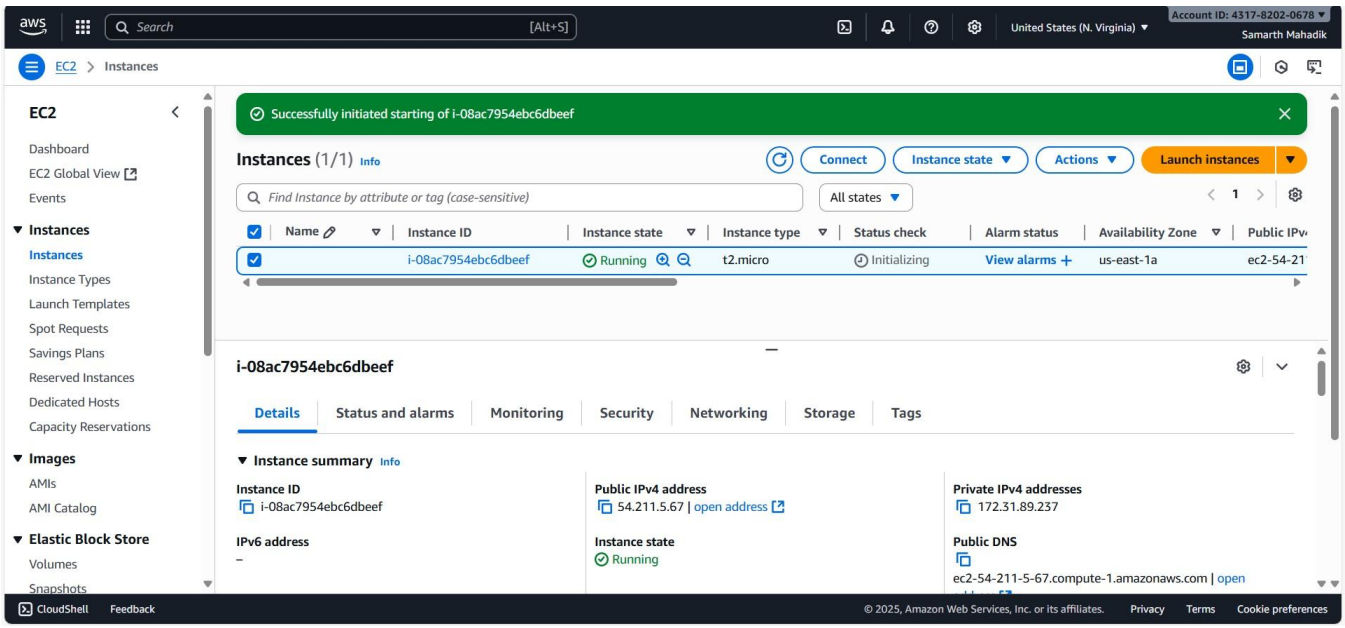

Figure 2: Launch EC2 Instance (Web Server)

Step 3. Create Target Group for ALB

– EC2 Console → Target Groups → Create target group.

– Target type: Instance. Protocol: HTTP, Port: 80. VPC: same as instance.

– Health checks: Protocol HTTP, Path /. Keep defaults and create.

– Register your EC2 instance as a target and save.

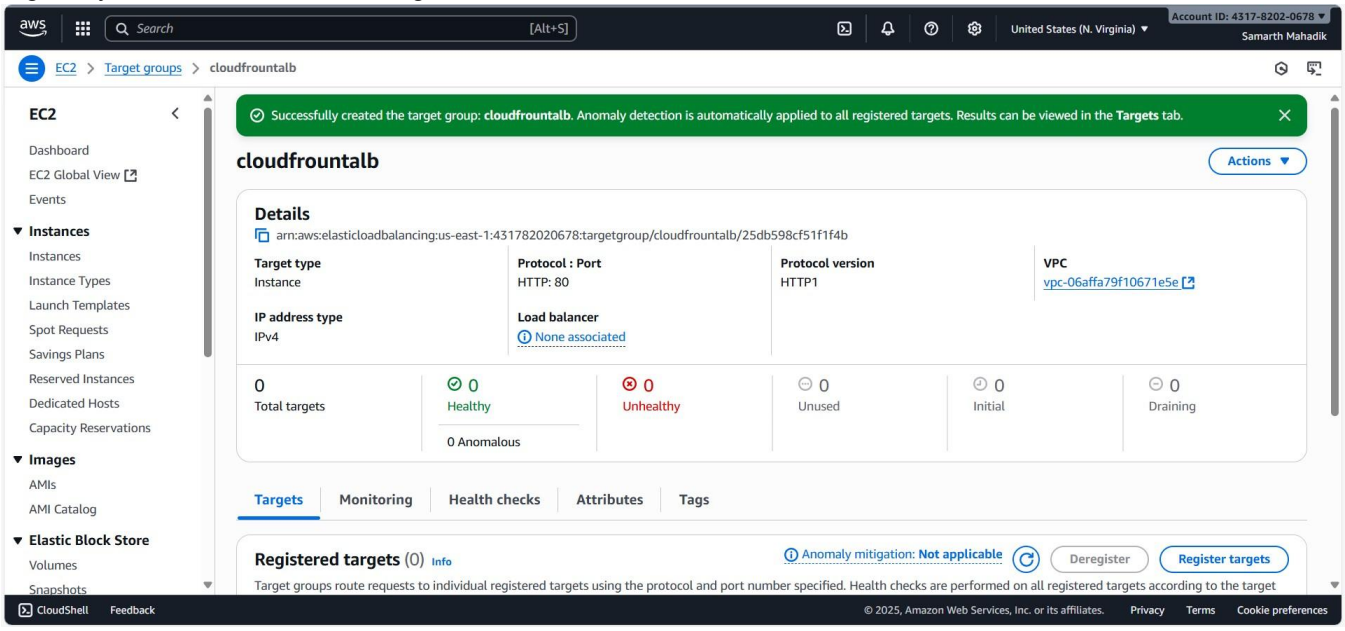

Figure 3: Create Target Group for ALB

Step 4. Create Application Load Balancer

– EC2 Console → Load Balancers → Create load balancer → Application Load Balancer.

– Name: my-alb-prod. Scheme: Internet-facing. IP address type: IPv4.

– Select at least two public subnets (e.g., us-east-1a and us-east-1b).

– Security group: select sgalb.

– Listeners: HTTP :80 → Default action: Forward to the target group created above.

– Create the ALB and note its DNS name.

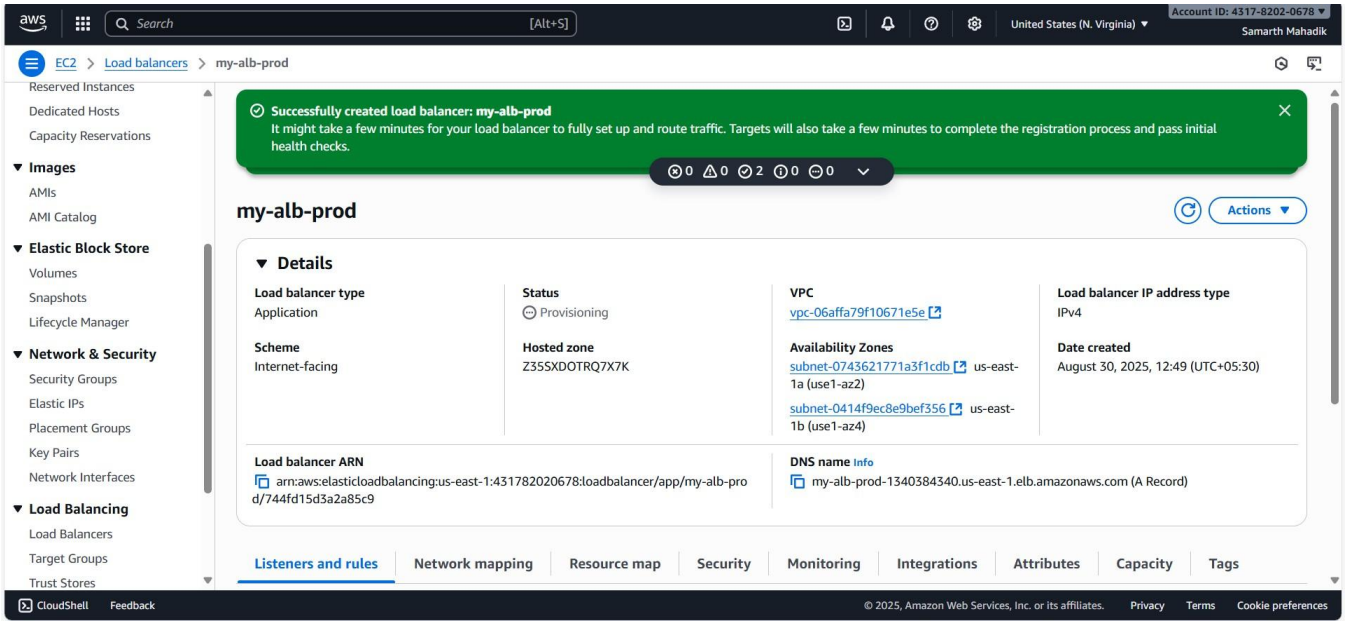

Figure 4: Create Application Load Balancer

Step 5. Create a CloudFront VPC Origin pointing to the ALB

– CloudFront Console → VPC origins → Create VPC origin.

– Origin type: Application Load Balancer. Choose your ALB and VPC.

– Name the origin (e.g., prod-alb-vpc-origin) and create it.

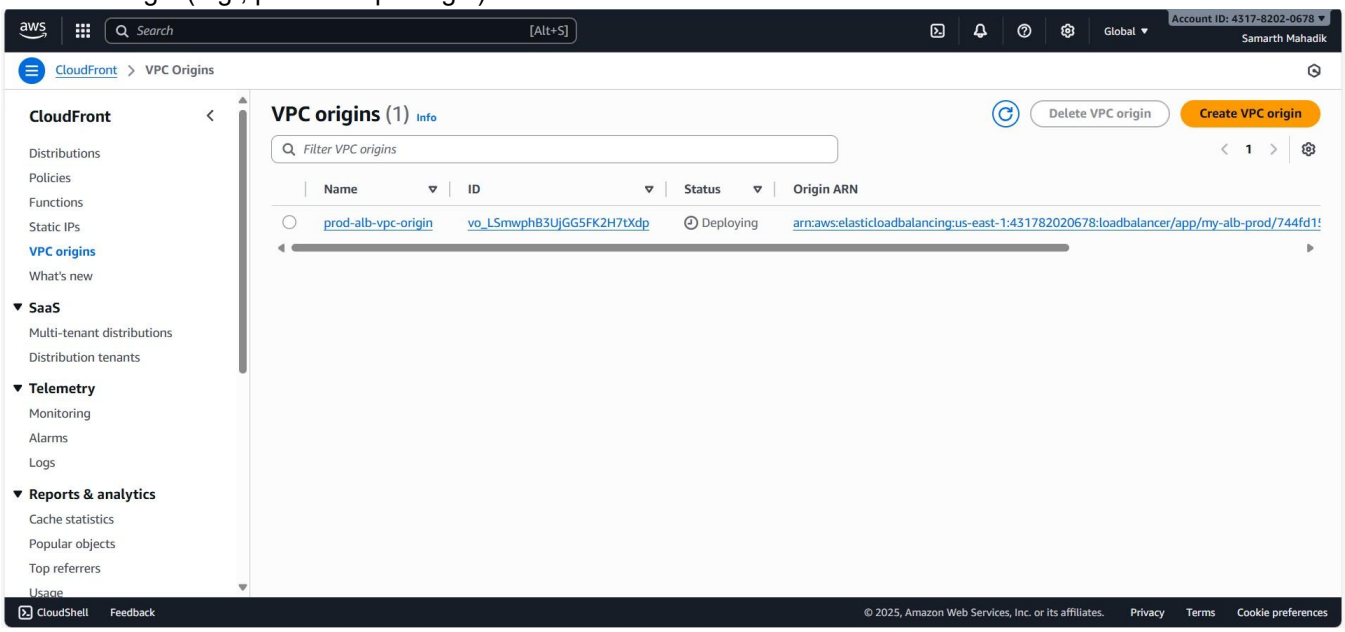

Figure 5: Create a CloudFront VPC Origin pointing to the ALB

Step 6. Create the CloudFront Distribution

– CloudFront Console → Distributions → Create distribution.

– Origin: select the VPC origin you created (prod-alb-vpc-origin).

– Default behavior: Allowed methods GET, HEAD (default). Viewer protocol policy: Redirect HTTP to HTTPS.

– Price class: Use all edge locations (best performance). Create distribution.

– Wait for Status to become 'Deployed'. Note the Distribution domain name (e.g., d3fixnuuzjyluc.cloudfront.net).

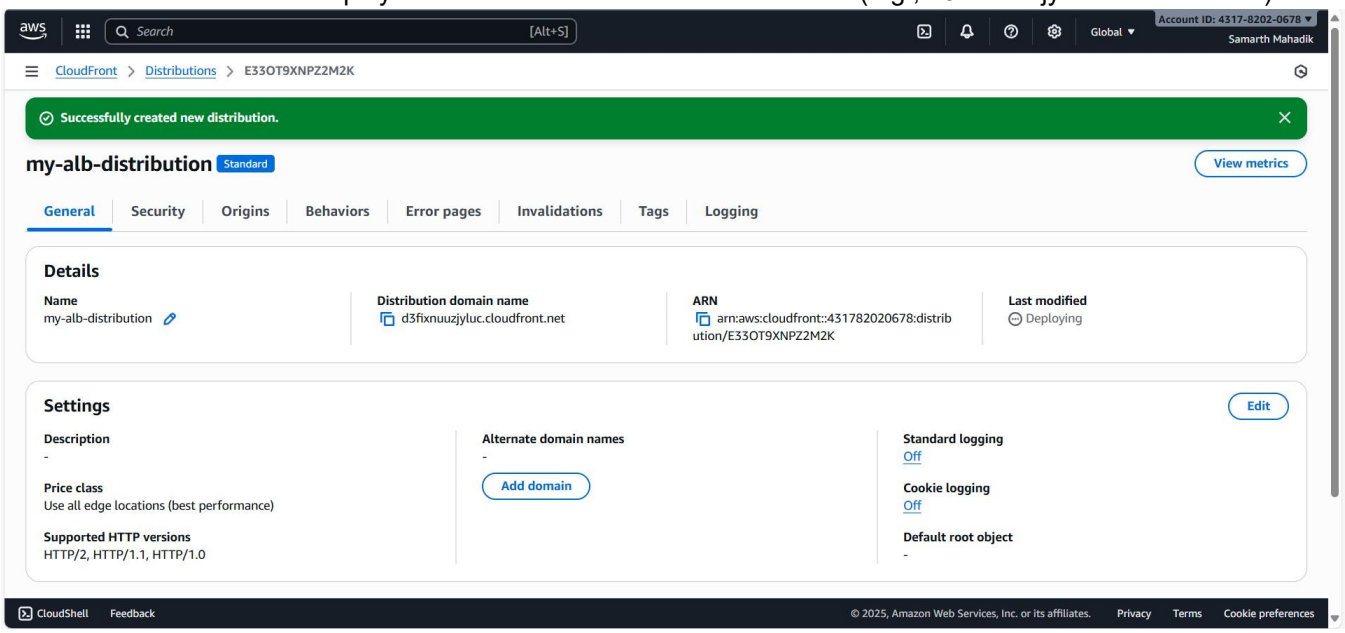

Figure 6: Create the CloudFront Distribution

Step 7. Verify from the CloudFront Domain

– Open the CloudFront Distribution domain in your browser.

– You should see the web page served via CloudFront → ALB → EC2.

– Example output: 'Hello from CloudFront + ALB + EC2!'

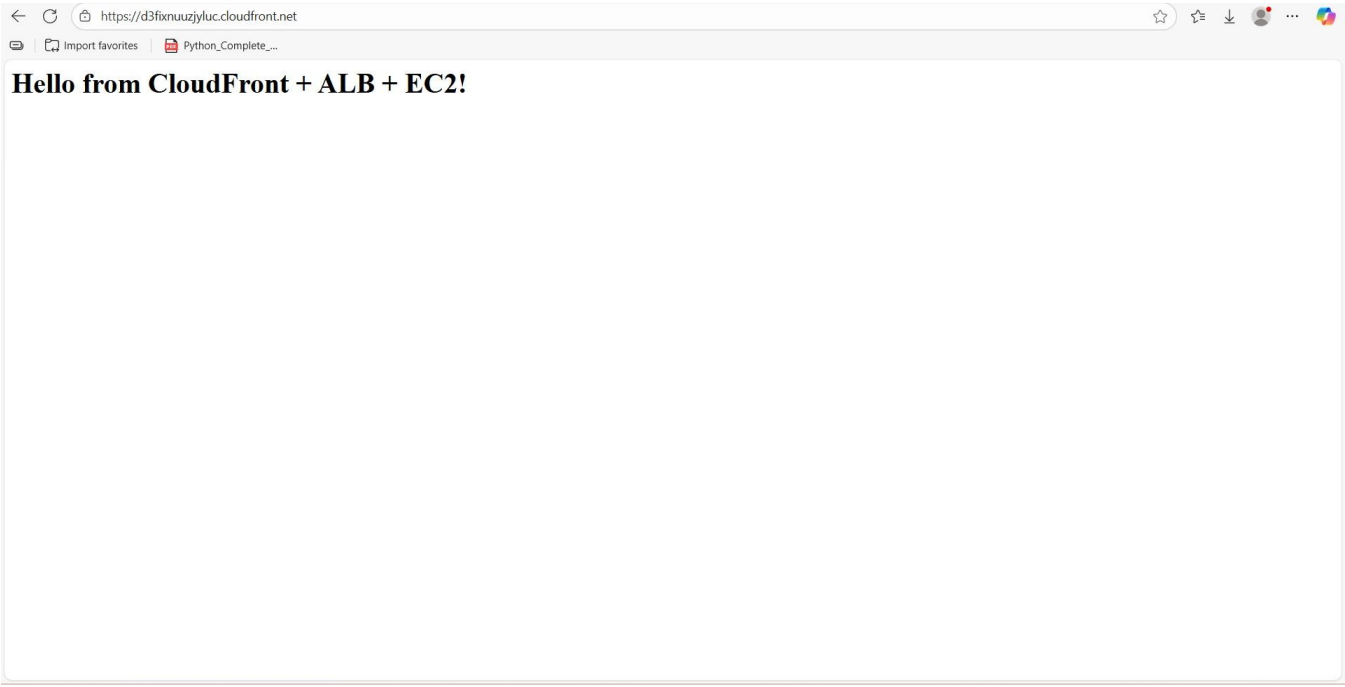

Figure 7: Verify from the CloudFront Domain

Next steps & hardening

– Optional hardening & extras:

– Add a custom domain (CNAME) and attach an ACM certificate to the CloudFront distribution.

– Enable CloudFront standard logging to S3 for access logs.

– Configure WAF for security protections.

– Use an Auto Scaling Group behind the ALB for high availability.