

## AWS Web Application Deployment with CloudFront and WAF - Walkthrough Summary

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**Project Goal:** Deploy a secure web application using EC2, CloudFront, and AWS WAF with OWASP protection.

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### 1. EC2 Setup

- **Launch EC2 instance** using Amazon Linux 2023.
- Open ports 22 (SSH) and 80 (HTTP) in the **Security Group**.
- Connect to the EC2 instance using `.pem` key with:

```
ssh -i "WebAppInstance.pem" ec2-user@<EC2 Public DNS>
```

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### 2. Install and Configure Web Server

- Install Apache web server:

```
sudo yum update -y
sudo yum install httpd -y
sudo systemctl start httpd
sudo systemctl enable httpd
```

- Modify `index.html`:

```
echo "Hello from Tony's secure AWS web app!" | sudo tee /var/www/html/
index.html
```

- Verify via EC2 public DNS:

```
curl http://<EC2 Public DNS>
```

**Output:** `Hello from Tony's secure AWS web app!`

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### 3. CloudFront Configuration

- Create a **CloudFront distribution**:
- **Origin:** EC2 Public DNS (e.g., `ec2-34-228-71-196.compute-1.amazonaws.com`)
- **Origin Protocol Policy:** HTTP only

- **Viewer Protocol Policy:** Redirect HTTP to HTTPS
  - Enable **WAF security protections**
  - Wait until **Status = Deployed**
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#### 4. AWS WAF Setup

- Create a **Web ACL** in AWS WAF:
  - Scope: CloudFront
  - Associate with the CloudFront distribution
  - Add managed rule group: **AWSManagedRulesCommonRuleSet** (OWASP protection)
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#### 5. Test WAF Protection

- Test payloads via CloudFront URL:

```
curl "https://<CloudFront URL>/?search=<script>alert('x')</script>"
curl "https://<CloudFront URL>/?id=1' OR '1'='1"
curl "https://<CloudFront URL>/?admin=true"
curl "https://<CloudFront URL>/?search=../../../../etc/passwd"
```

- All return:

```
403 ERROR: The request could not be satisfied. Request blocked.
```

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#### 6. Troubleshooting Notes

- If CloudFront returns `504 Gateway Timeout`:
  - Confirm EC2 is running
  - Ensure EC2 allows traffic on port 80
  - Check CloudFront origin settings and wait for deployment
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#### 7. Key Services Used

- **EC2:** Hosts the web application
  - **CloudFront:** CDN layer with performance and caching
  - **AWS WAF:** Blocks malicious input using managed rules
  - **Security Groups:** Controls inbound/outbound EC2 traffic
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## 8. Outcome

- Successfully deployed a public web app with **CloudFront CDN** and **WAF protection**.
- Verified defense against **OWASP Top 10** payloads.

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This document can be presented to an interviewer or included in a portfolio to demonstrate hands-on cloud security implementation and web application deployment experience.