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#### 1. How do you implement rolling updates in ECS?

What: Rolling updates let ECS gradually replace old tasks with new ones during deployment.

Why: To ensure zero downtime and continuous availability while updating your app.

#### How It Works:

- When you update the task definition or container image, ECS replaces tasks in batches.
- It keeps minimum healthy tasks running using deploymentConfiguration.

tasks during the update.

#### 2. How do you handle secrets and environment variables in ECS?

There are 3 main ways:

#### Basic Environment Variables

- Define name and value in Task Definition JSON/YAML
- Not encrypted

#### AWS Secrets Manager

- · Store secrets securely
- Use in ECS like this:

```
json
-----
"secrets": [
{
    "name": "DB_PASSWORD",
    "valueFrom": "arn:aws:secretsmanager:region:account-id:secret:secret-name"
```

#### 」 ☑ AWS Systems Manager (SSM) Parameter Store

• Similar to Secrets Manager, used for config values

Best practice: Use Secrets Manager or SSM for any sensitive info (DB credentials, API keys).

#### 3. How do you implement logging and monitoring for ECS tasks?

### Logging with CloudWatch:

• Configure each container to use awslogs driver:

json

}

```
"logConfiguration": {
    "logDriver": "awslogs",
    "options": {
        "awslogs-group": "/ecs/my-app",
        "awslogs-region": "ap-south-1",
        "awslogs-stream-prefix": "ecs"
    }
```

# Monitoring:

- CloudWatch Metrics: CPU, memory, task count, etc.
- CloudWatch Alarms: Trigger on high CPU, low health, etc.
- Container Insights: Deeper visibility (enabled in CloudWatch > ECS > Enable Insights)
- X-Ray: Optional tracing support for performance debugging

#### 4. What are ECS Exec capabilities and how do you use them?

ECS Exec allows you to open a shell inside a running container, just like docker exec. How to use:

- 1. Enable Exec in Task Definition and Service
- 2. Attach proper IAM policy (e.g., ssmmessages, ssm:StartSession)
- 3. Run command:

bash

aws ecs execute-command \

- --cluster my-cluster \
- --task my-task-id \
- --container my-container \
- --command "/bin/sh" \
- --interactive
- Secure: Uses SSM Session Manager no open SSH ports required.

## 5. How do you implement multi-container task definitions?

**What**: ECS lets you run **multiple containers in a single task** using a task definition. **Why**: To group related containers that **must run together** on the same instance or Fargate task.

**When**: Use it when containers share resources or need **tight coupling** (e.g., log agent, proxy, sidecar).

# Common Use Cases:

- App + Nginx reverse proxy
- App + log shipper (e.g., FluentBit)
- App + monitoring agent

# **Key Configuration:**

- Each container has its own: name, image, portMappings, cpu, memory
- Use dependsOn, links, and **shared volumes** for communication/order
- For inter-container communication:
  - Use localhost with bridge mode
  - Use private IPs with awsvpc mode

#### 6. What are the best practices for ECS security?

Area Best Practice

IAM Use least privilege; create per-task IAM roles

Secrets Use AWS Secrets Manager or SSM Parameter Store

**Networking** Use VPC, private subnets, NAT Gateway

Security Groups Allow only needed ports/IPs

ECS Exec Enable only for debugging, restrict with IAM Image Security Use scanned, signed images; avoid latest tag

**OS/AMI Updates** Regularly patch EC2 AMIs (if using EC2 launch type)

#### 7. How do you troubleshoot ECS service deployment issues?

# ✓ Troubleshooting checklist:

- 1. Check Service Events (ECS Console > Service):
  - o Shows task failures, placement errors, or image pull errors.
- 2. View Task Logs:
  - CloudWatch logs (if enabled)
  - aws ecs describe-tasks → for recent failures
- 3. Task Definitions:
  - Validate image, port mapping, memory/CPU limits
- 4. Networking Issues:
  - Check subnet and security group configs
  - Verify awsvpc mode permissions (for Fargate)
- 5. IAM Roles:
  - Ensure correct task execution roles and permissions
- 6. Target Group Health:
  - o Check ALB → Target Group → Health Checks
  - Update health check path/port if mismatched
- We aws ecs describe-services, describe-tasks, and logs CLI for debugging.

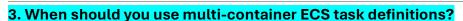


- A. Update all tasks at once
- B. Gradually replace old tasks with new ones to avoid downtime
- C. Scale tasks based on load
- D. Delete unused services
- B. Gradually replace old tasks with new ones to avoid downtime

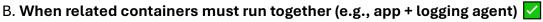


# 2. What is the purpose of ECS Exec?

- A. Restart ECS services remotely
- B. SSH into EC2 hosts
- C. Open a shell inside a running container securely
- D. Execute IAM policies
- C. Open a shell inside a running container securely



- A. When running only one container
- B. When related containers must run together (e.g., app + logging agent)
- C. For database backups
- D. To increase CPU



#### 4. Which of the following is a best practice for ECS security?

- A. Use latest container tags
- B. Use one IAM role for all services
- C. Open all ports for ECS Exec
- D. Use least-privilege IAM roles and private networking
- D. Use least-privilege IAM roles and private networking

## 5. If an ECS task fails to start, what should you check first?

- A. VPC peering
- B. Lambda logs
- C. Service events, CloudWatch logs, and task definition parameters
- D. EBS volume size
- C. Service events, CloudWatch logs, and task definition parameters

