

Monitoring and Troubleshooting ECS Fargate with ECS Exec (SSM Session Manager)

0) Prerequisites

- Install AWS CLI v2
- Install Session Manager plugin (often bundled in CLI v2)
- Verify: ``aws --version`` and ``session-manager-plugin``

1) IAM Policy for ECS Task Role

Attach the following policy to the **Task Role** in ECS task definition:

```
{
  "Effect": "Allow",
  "Action": [
    "ssmmessages:CreateControlChannel",
    "ssmmessages:CreateDataChannel",
    "ssmmessages:OpenControlChannel",
    "ssmmessages:OpenDataChannel"
  ],
  "Resource": "*"
}
```

Also ensure your IAM user/role has ``ecs:ExecuteCommand`` permission.

2) Enable Exec Logging (Audit)

Create CloudWatch Logs group and enable exec logging:

```
aws logs create-log-group --region ap-south-1 --log-group-name /aws/ecs/exec
```

```
aws ecs update-cluster --region ap-south-1 --cluster <YOUR_CLUSTER> --configuration "executeCommandConfiguration={\"logging\": {\"enabled\": true, \"logGroup\": \"/aws/ecs/exec\"}}
```

3) Enable ECS Exec on Service

```
aws ecs update-service --region ap-south-1 --cluster <YOUR_CLUSTER> --service <YOUR_SERVICE> --enable-exec
```

4) Networking Considerations

For private subnets without internet, create VPC endpoints:

- `com.amazonaws.<region>.ssm`
- `com.amazonaws.<region>.ssmmessages`
- `com.amazonaws.<region>.ec2messages`

5) Exec into a Running Container

Find running task:

```
aws ecs list-tasks --cluster <YOUR_CLUSTER> --service-name <YOUR_SERVICE>
```

Run exec:

```
aws ecs execute-command --cluster <YOUR_CLUSTER> --task <TASK_ARN> --container <CONTAINER_NAME> --command
```

6) Troubleshooting

- `InvalidParameterException`: Exec not enabled → re-enable service and redeploy
- `TargetNotConnectedException`: Missing VPC endpoints or IAM policy

- Use AWS `ecs-exec-checker` script to verify setup

7) Security Best Practices

- Restrict `ecs:ExecuteCommand` to specific IAM roles/users
- Always keep audit logging enabled
- Disable `exec` for services that don't require interactive troubleshooting