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[Amazon Elastic Container Service \(ECS\) - Quiz](#) > **Report**

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Amazon Elastic Container Service (ECS) - Quiz

Completed on 09-January-2020



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Domains wise Quiz Performance Report

No	1
Domain	Other
Total Question	9
Correct	2
Incorrect	7
Unattempted	0
Marked for review	0

No	2
Domain	Specify Secure Applications and Architectures
Total Question	1
Correct	0
Incorrect	1
Unattempted	0
Marked for review	0
Total	Total
All Domain	All Domain
Total Question	10
Correct	2
Incorrect	8
Unattempted	0
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Review the Answers

Sorting by





All

Question 1

Incorrect

Domain : Other

Which of the following are features of AWS ECS? (Choose 3 options)

- ✓ A. Task Definition 
- ✓ B. Tasks 
- ✓ C. Container Registry 
- D. Cluster 
- E. Source Image Storage

Explanation:

Answer: A, B, D

Here is a high-level overview of ECS service.

Welcome to Amazon Elastic Container Registry

Amazon Elastic Container Registry (ECR) is a fully-managed Docker container registry that makes it easy for developers to store, manage, and deploy Docker container images.

[Get started](#)[Getting started with Amazon Elastic Container Registry](#)

End-to-End Integration

Amazon ECR integrates with Amazon ECS and the Docker CLI, allowing you to simplify your development and production workflows. You can push your container images to Amazon ECR using the Docker CLI from your development machine, and Amazon ECS can pull them directly for production deployments.



Secure Image Storage

Amazon ECR transfers your container images over HTTPS and automatically encrypts your images at rest. You can configure policies to manage permissions for each repository and restrict access to IAM users, roles, or other AWS accounts.



Reliable Image Access

Amazon ECR eliminates the need to operate and scale the infrastructure required to power your container registry. Amazon ECR uses Amazon S3 for storage to make your container images highly available and accessible, allowing you to reliably deploy new containers for your applications.

Following are the features for AWS ECS.

Containers and Images

Task Definitions

Tasks and Scheduling

Clusters

Container Agent

For more information on ECS features, refer documentation here.

<https://docs.aws.amazon.com/AmazonECS/latest/developerguide/Welcome.html#welccfeatures>

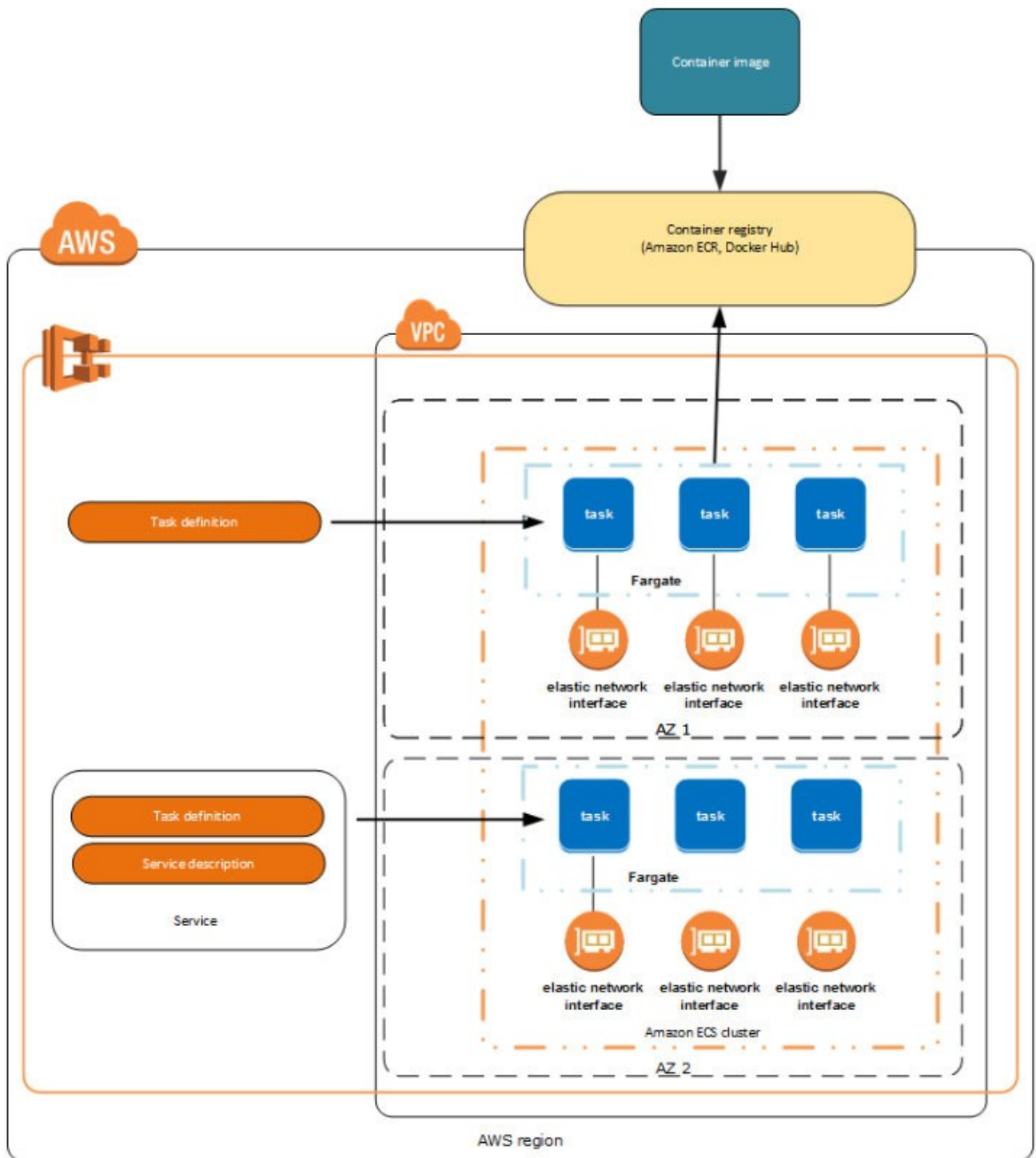
Options A, B and D are part of above feature list.

Option C is not part of ECS. Amazon Elastic Container Registry (Amazon ECR) is a fully managed Docker container registry that makes it easy for developers to store, manage, and deploy Docker container images.

For more information on AWS ECR, refer documentation here.

<https://docs.aws.amazon.com/AmazonECR/latest/userguide/what-is-ecr.html>

Option E is not correct. It is part of AWS ECR.



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Question 2

Correct

Domain : Other

Which of the following statement defines task definition?

- ✓ A. JSON template that describes containers which forms your application. 
- B. Template for a program that runs inside AWS ECS Cluster.
- C. AWS managed service that launches ECS clusters.
- D. Template that defines actions for each IAM user on the ECS cluster and its containers.

Explanation:

Answer: A

Task Definitions

To prepare your application to run on Amazon ECS, you create a *task definition*. The task definition is a text file, in JSON format, that describes one or more containers, up to a maximum of ten, that form your application. It can be thought of as a blueprint for your application. Task definitions specify various parameters for your application. Examples of task definition parameters are which containers to use, which launch type to use, which ports should be opened for your application, and what data volumes should be used with the containers in the task. The specific parameters available for the task definition depend on which launch type you are using. For more information about creating task definitions, see [Amazon ECS Task Definitions](#).

The following is an example of a simple task definition containing a single container that runs an NGINX web server using the Fargate launch type. For a more extended example demonstrating the use of multiple containers in a task definition, see [Example Task Definitions](#).

```
{
  "family": "webserver",
  "containerDefinitions": [
    {
      "name": "web",
      "image": "nginx",
      "memory": "100",
      "cpu": "99"
    }
  ],
  "requiresCompatibilities": [
    "FARGATE"
  ],
  "networkMode": "awsvpc",
  "memory": "512",
  "cpu": "256",
}
```

For more information on how to create task definitions, refer documentation [here](#).

https://docs.aws.amazon.com/AmazonECS/latest/developerguide/task_definitions.html

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Question 3

Correct

Domain : Other

Your organization is planning to use AWS ECS for docker applications. However, they would like to apply 3rd party monitoring tools on the ECS instances. They approached you asking for a recommendation. What do you suggest?

- A. AWS ECS is a managed service. Customers cannot install 3rd party softwares. Use CloudWatch for monitoring metrics.
- ✓ B. Customers will have control over AWS ECS instances and can setup monitoring like a normal EC2 instance. 
- C. Raise a case with AWS to install 3rd party software on ECS. AWS will review the case and install if 3rd party software is in their trusted software entries.
- D. AWS ECS is a managed service. Customers cannot install 3rd party softwares. Use application level monitoring.

Explanation:**Answer: B****Q: Can I apply additional security configuration and isolation frameworks to my container instances?**

Yes. As an Amazon EC2 customer, you have root access to the operating system of your container instances, enabling you to take ownership of the operating system's security settings as well as load and configure additional software components for security capabilities such as monitoring, patch management, log management and host intrusion detection.

For more information on ECS instances, refer documentation here.

https://docs.aws.amazon.com/AmazonECS/latest/developerguide/ECS_instances.html

Options A and D are not correct. AWS ECS uses EC2 instances with ECS-optimized AMI. You will have root access to the instances and you can manage them.

Option C is not a valid statement.

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Question 4

Incorrect

Domain : Other

Which of the following is a correct statement in relation to ECS instances when accessing Amazon ECS service endpoint?

Choose 2 options.

- A. Create an Interface VPC Endpoint for ECS service and attach to VPC subnet's route table in which ECS instances are running. ✓
- ✓ B. ECS instances are launched with ECS-optimized AMI which contains an inbuilt mechanism to communicate with ECS service endpoints through AWS network. ✗
- ✓ C. Create a NAT Gateway and attach it to VPC subnet's route table in which ECS instances are running. ✓
- D. AWS service endpoints are accessible internally across VPCs. You need to enable IAM role access on the service which needs to be accessed.

Explanation:

Answer: A and C

The container agent runs on each infrastructure resource within an Amazon ECS cluster. It sends information about the resource's current running tasks and resource utilization to Amazon ECS, and starts and stops tasks whenever it receives a request from Amazon ECS.

- Container instances need external network access to communicate with the Amazon ECS service endpoint, so if your container instances do not have public IP addresses, then they must use network address translation (NAT) to provide this access. For more information, see [NAT Gateways](#) in the *Amazon VPC User Guide* and [HTTP Proxy Configuration](#) in this guide. For more information, see [Tutorial: Creating a VPC with Public and Private Subnets for Your Clusters](#).

https://docs.aws.amazon.com/AmazonECS/latest/developerguide/ECS_instances.html

Option A is correct. ECS supports interface VPC endpoints.

<https://docs.aws.amazon.com/AmazonECS/latest/developerguide/vpc-endpoints.html>

<https://aws.amazon.com/blogs/aws/aws-privatelink-update-vpc-endpoints-for-your-own-applications-services/>

Option B is not correct. Any network communication happening in/out of VPC must follow the rules defined on route tables, Network ACLs and Security Groups. Any external communication (internet facing or AWS service endpoints) must either go through Internet Gateway, NAT Gateway or VPC Endpoints (if applicable).

For more information on traffic between VPC and outside networks, refer documentation here.

<https://aws.amazon.com/premiumsupport/knowledge-center/connect-vpc/>

Option D is not a valid statement. Refer to above documentation.

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Question 5

Incorrect

Domain :Specify Secure Applications and Architectures

You have launched an ECS cluster with 5 EC2 instances with its task definitions. However, ECS is not getting any status information back from the container agent in each ECS instance. What could be the reason?



(choose 3 options)

✓ A. IAM role used to run ECS instance does not have ecs:Poll action in its policy



✓ B. Key-pair information is missing in ECS cluster.



- ✓ C. ECS Instance security groups' outbound rules are not allowing traffic to ECS service endpoint 
- D. Interface VPC endpoint is not configured for ECS service. 
- E. You are running ECS on t2.micro instance type which is not supported.

Explanation:

Answer: A, C, D

Option A is correct. The Amazon ECS container agent makes calls to the Amazon ECS API on your behalf. Container instances that run the agent require an IAM policy and role for the service to know that the agent belongs to you. Before you can launch container instances and register them into a cluster, you must create an IAM role for those container instances to use when they are launched. This requirement applies to container instances launched with the Amazon ECS-optimized AMI provided by Amazon, or with any other instances that you intend to run the agent on.

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Action": [
        "ecs:CreateCluster",
        "ecs:DeregisterContainerInstance",
        "ecs:DiscoverPollEndpoint",
        "ecs:Poll",
        "ecs:RegisterContainerInstance",
        "ecs:StartTelemetrySession",
        "ecs:Submit*",
        "ecr:GetAuthorizationToken",
        "ecr:BatchCheckLayerAvailability",
        "ecr:GetDownloadUrlForLayer",
        "ecr:BatchGetImage",
        "logs:CreateLogStream",
        "logs:PutLogEvents"
      ],
      "Resource": "*"
    }
  ]
}
```

Note

The `ecs:CreateCluster` line in the above policy is optional, provided that the cluster you intend to register your container instance into already exists. If the cluster does not already exist, the agent must have permission to create it, or you can create the cluster with the **create-cluster** command prior to launching your container instance.

If you omit the `ecs:CreateCluster` line, the Amazon ECS container agent can not create clusters, including the default cluster.

The `ecs:Poll` line in the above policy is used to grant the agent permission to connect with the Amazon ECS service to report status and get commands.

https://docs.aws.amazon.com/AmazonECS/latest/developerguide/instance_IAM_role.html

Option B is not correct. Amazon ECS container instance, has no password to use for SSH access; you use a key pair to log in to your instance securely. You specify the name of the key pair when you launch your container instance, then provide the private key when you log in using SSH.

<https://docs.aws.amazon.com/AmazonECS/latest/developerguide/get-set-up-for-amazon-ecs.html?shortFooter=true#create-a-key-pair>

Option C is correct. Security groups act as a firewall to ECS container instances. If outbound rules are not allowing any traffic to ECS service endpoints, container agent will not be able to report the status back to ECS.

For more information on Security Groups, refer documentation here.

<https://docs.aws.amazon.com/AmazonECS/latest/developerguide/get-set-up-for-amazon-ecs.html?shortFooter=true#create-a-base-security-group>

Option D is correct. ECS supports interface VPC endpoints.

<https://docs.aws.amazon.com/AmazonECS/latest/developerguide/vpc-endpoints.html>

<https://aws.amazon.com/blogs/aws/aws-privatelink-update-vpc-endpoints-for-your-own-applications-services/>

Option E is not correct. T2.micro is supported for container instance.

EC2 instance type*	m5.large	i
Number of instances*	r4.16xlarge	i
EC2 Ami Id*	t2.micro	i
EBS storage (GiB)*	t2.small	i
	t2.medium	
	t2.large	
	t2.xlarge	
	t2.2xlarge	
	22	i

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Question 6

Incorrect

Domain : Other

Which of the following can be used with Amazon ECS to run containers without having to manage servers or clusters of Amazon EC2 instances?

- A. AWSVPC
- B. FARGATE ✓
- ✓ C. AWS ECR ✗
- D. Docker

Explanation:

Answer: B

Amazon ECS Launch Types

An Amazon ECS launch type determines the type of infrastructure on which your tasks and services are hosted.

Fargate Launch Type

The Fargate launch type allows you to run your containerized applications without the need to provision and manage the backend infrastructure. Just register your task definition and Fargate launches the container for you.

EC2 Launch Type

The EC2 launch type allows you to run your containerized applications on a cluster of Amazon EC2 instances that you manage.

For detailed information on AWS ECS Launch types, refer documentation here.

https://docs.aws.amazon.com/AmazonECS/latest/developerguide/launch_types.html

For Option D, Docker is a container type, not launch type. Amazon ECS uses Docker images in task definitions to launch containers on EC2 instances in your clusters.

<https://docs.aws.amazon.com/AmazonECS/latest/developerguide/docker-basics.html>

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Question 7

Incorrect

Domain : Other

Which of the following are the parameters specified in task definition? (choose 3 options)

- A. The Docker images to use with the containers in your task. ✓
- ✓ B. EC2 instance types to be used as container instances. ✗
- ✓ C. How much CPU and memory to use with each container. ✓
- ✓ D. AWS VPC and subnets to launch containers in. ✗
- E. The command the container should run when it is started. ✓

Explanation:**Answer: A, C, E**

Following are the parameters used in task definition.

Amazon ECS Task Definitions

A task definition is required to run Docker containers in Amazon ECS. Some of the parameters you can specify in a task definition include:

- The Docker images to use with the containers in your task
- How much CPU and memory to use with each container
- The launch type to use, which determines the infrastructure on which your tasks are hosted
- Whether containers are linked together in a task
- The Docker networking mode to use for the containers in your task
- (Optional) The ports from the container to map to the host container instance
- Whether the task should continue to run if the container finishes or fails
- The command the container should run when it is started
- (Optional) The environment variables that should be passed to the container when it starts
- Any data volumes that should be used with the containers in the task
- (Optional) The IAM role that your tasks should use for permissions

https://docs.aws.amazon.com/AmazonECS/latest/developerguide/task_definitions.html

Option B and D are parameters specified in creating an ECS cluster.

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Question 8

Incorrect

Domain : Other

Which of the following are the parameters specified in Service Definition? (choose 3 options)

- A. Cluster on which to run your service ☒
- B. Full ARN of the task definition to run in your service. ☒
- ✓ C. Environment Variables that should be passed to the container when it starts. ☐
- ✓ D. Data Volumes that should be used with the containers in the task. ☐
- ✓ E. IAM role that allows Amazon ECS to make calls to your load balancer on your behalf. ☒

Explanation:

Answer: A, B, E

A service definition defines which task definition to use with your service, how many instantiations of that task to run, and which load balancers (if any) to associate with your tasks.

Following are the parameters defined in Service Definition.

```

{
  "cluster": "",
  "serviceName": "",
  "taskDefinition": "",
  "loadBalancers": [
    {
      "targetGroupArn": "",
      "loadBalancerName": "",
      "containerName": "",
      "containerPort": 0
    }
  ],
  "serviceRegistries": [
    {
      "registryArn": "",
      "port": 0,
      "containerName": "",
      "containerPort": 0
    }
  ],
  "desiredCount": 0,
  "clientToken": "",
  "launchType": "EC2",
  "platformVersion": "",
  "role": "",
  "deploymentConfiguration": {
    "maximumPercent": 0,
    "minimumHealthyPercent": 0
  },
  "placementConstraints": [
    {
      "type": "memberOf",
      "expression": ""
    }
  ],
  "networkConfiguration": {
    "awsVpcConfiguration": {
      "subnets": [
        ""
      ],
      "securityGroups": [
        ""
      ],
      "assignPublicIp": "ENABLED"
    }
  },
  "healthCheckGracePeriodSeconds": 0,
  "schedulingStrategy": "REPLICA"
}

```


Options C and D are parameters in task definition.

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Question 9

Incorrect

Domain : Other

You are launching AWS ECS instance. You would like to set ECS container agent configuration during ECS instance launch. What should you do?

- ✓ A. Set configuration in ECS metadata parameter during cluster creation. 
- B. Set configuration in user data parameter of ECS instance. 
- C. Define configuration in task definition.
- D. Define configuration in service definition.

Explanation:

Answer: B

When you launch an Amazon ECS container instance, you have the option of passing user data to the instance. The data can be used to perform common automated configuration tasks and even run scripts when the instance boots. For Amazon ECS, the most common use cases for user data are to pass configuration information to the Docker daemon and the Amazon ECS container agent.

Amazon ECS Container Agent

The Amazon ECS-optimized AMI looks for agent configuration data in the `/etc/ecs/ecs.config` file when the container agent starts. You can specify this configuration data at launch with Amazon EC2 user data. For more information about available Amazon ECS container agent configuration variables, see [Amazon ECS Container Agent Configuration](#).

To set only a single agent configuration variable, such as the cluster name, use **echo** to copy the variable to the configuration file:

```
#!/bin/bash
echo "ECS_CLUSTER=MyCluster" >> /etc/ecs/ecs.config
```

If you have multiple variables to write to `/etc/ecs/ecs.config`, use the following heredoc format. This format writes everything between the lines beginning with **cat** and EOF to the configuration file.

```
#!/bin/bash
cat <<'EOF' >> /etc/ecs/ecs.config
ECS_CLUSTER=MyCluster
ECS_ENGINE_AUTH_TYPE=docker
ECS_ENGINE_AUTH_DATA={"https://index.docker.io/v1/":{"username":"my_name","password":"my_password","email":"email@example.com"}}
ECS_LOGLEVEL=debug
EOF
```

https://docs.aws.amazon.com/AmazonECS/latest/developerguide/bootstrap_container_agent.html?shortFooter=true#bootstrap_container_agent

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Question 10

Incorrect

Domain : Other

You are working for an organization which is actively using AWS. They have noticed that few AWS ECS clusters are running and they do not know who and when the clusters are created. They tasked you to find out the logs regarding this. What will you do?

- ✓ A. Check CloudWatch event logs. ❌
- B. Check CloudTrail logs. ✅
- C. Check CloudWatch metrics dashboard.
- D. Check Trusted Advisor.

Explanation:

Answer: B

Amazon ECS is integrated with AWS CloudTrail, a service that provides a record of actions taken by a user, role, or an AWS service in Amazon ECS. CloudTrail captures all API calls for Amazon ECS as events, including calls from the Amazon ECS console and from code calls to the Amazon ECS APIs.

The following example shows a CloudTrail log entry that demonstrates the `CreateCluster` action.

```
{
  "eventVersion": "1.04",
  "userIdentity": {
    "type": "AssumedRole",
    "principalId": "AIDACKCEVSQ6C2EXAMPLE:account_name",
    "arn": "arn:aws:sts::123456789012:user/Mary_Major",
    "accountId": "123456789012",
    "accessKeyId": "AKIAIOSFODNN7EXAMPLE",
    "sessionContext": {
      "attributes": {
        "mfaAuthenticated": "false",
        "creationDate": "2018-06-20T18:32:25Z"
      },
      "sessionIssuer": {
        "type": "Role",
        "principalId": "AIDACKCEVSQ6C2EXAMPLE",
        "arn": "arn:aws:iam::123456789012:role/Admin",
        "accountId": "123456789012",
        "userName": "Mary_Major"
      }
    }
  },
  "eventTime": "2018-06-20T19:04:36Z",
  "eventSource": "ecs.amazonaws.com",
  "eventName": "CreateCluster",
  "awsRegion": "us-east-1",
  "sourceIPAddress": "203.0.113.12",
  "userAgent": "console.amazonaws.com",
  "requestParameters": {
    "clusterName": "default"
  },
  "responseElements": {
    "cluster": {
      "clusterArn": "arn:aws:ecs:us-east-1:123456789012:cluster/default",
      "pendingTasksCount": 0,
      "registeredContainerInstancesCount": 0,
      "status": "ACTIVE",
      "runningTasksCount": 0,
      "statistics": [],
      "clusterName": "default",
      "activeServicesCount": 0
    }
  },
  "requestID": "cb8c167e-EXAMPLE",
  "eventID": "e3c6f4ce-EXAMPLE",
  "eventType": "AwsApiCall",
  "recipientAccountId": "123456789012"
}
```

<https://docs.aws.amazon.com/AmazonECS/latest/developerguide/logging-using-cloudtrail.html#understanding-service-name-entries>

Options A and C are for monitoring the ECS resources, not for the API actions made on ECS. You can monitor your Amazon ECS resources using Amazon CloudWatch, which collects and processes raw data from Amazon ECS into readable, near real-time metrics.

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