

# Amazon EMR



# Amazon EMR: API Reference

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# Welcome

Amazon EMR is a web service that makes it easier to process large amounts of data efficiently. Amazon EMR uses Hadoop processing combined with several Amazon services to do tasks such as web indexing, data mining, log file analysis, machine learning, scientific simulation, and data warehouse management.

This document was last published on May 16, 2025.

# Actions

The following actions are supported:

- [AddInstanceFleet](#)
- [AddInstanceGroups](#)
- [AddJobFlowSteps](#)
- [AddTags](#)
- [CancelSteps](#)
- [CreateSecurityConfiguration](#)
- [CreateStudio](#)
- [CreateStudioSessionMapping](#)
- [DeleteSecurityConfiguration](#)
- [DeleteStudio](#)
- [DeleteStudioSessionMapping](#)
- [DescribeCluster](#)
- [DescribeJobFlows](#)
- [DescribeNotebookExecution](#)
- [DescribeReleaseLabel](#)
- [DescribeSecurityConfiguration](#)
- [DescribeStep](#)
- [DescribeStudio](#)
- [GetAutoTerminationPolicy](#)
- [GetBlockPublicAccessConfiguration](#)
- [GetClusterSessionCredentials](#)
- [GetManagedScalingPolicy](#)
- [GetStudioSessionMapping](#)
- [ListBootstrapActions](#)
- [ListClusters](#)
- [ListInstanceFleets](#)
- [ListInstanceGroups](#)



- [ListInstances](#)
- [ListNotebookExecutions](#)
- [ListReleaseLabels](#)
- [ListSecurityConfigurations](#)
- [ListSteps](#)
- [ListStudios](#)
- [ListStudioSessionMappings](#)
- [ListSupportedInstanceTypes](#)
- [ModifyCluster](#)
- [ModifyInstanceFleet](#)
- [ModifyInstanceGroups](#)
- [PutAutoScalingPolicy](#)
- [PutAutoTerminationPolicy](#)
- [PutBlockPublicAccessConfiguration](#)
- [PutManagedScalingPolicy](#)
- [RemoveAutoScalingPolicy](#)
- [RemoveAutoTerminationPolicy](#)
- [RemoveManagedScalingPolicy](#)
- [RemoveTags](#)
- [RunJobFlow](#)
- [SetKeepJobFlowAliveWhenNoSteps](#)
- [SetTerminationProtection](#)
- [SetUnhealthyNodeReplacement](#)
- [SetVisibleToAllUsers](#)
- [StartNotebookExecution](#)
- [StopNotebookExecution](#)
- [TerminateJobFlows](#)
- [UpdateStudio](#)
- [UpdateStudioSessionMapping](#)

# AddInstanceFleet

Adds an instance fleet to a running cluster.

## Note

The instance fleet configuration is available only in Amazon EMR releases 4.8.0 and later, excluding 5.0.x.

## Request Syntax

```
{
  "ClusterId": "string",
  "InstanceFleet": {
    "Context": "string",
    "InstanceFleetType": "string",
    "InstanceTypeConfigs": [
      {
        "BidPrice": "string",
        "BidPriceAsPercentageOfOnDemandPrice": number,
        "Configurations": [
          {
            "Classification": "string",
            "Configurations": [
              "Configuration"
            ],
            "Properties": {
              "string": "string"
            }
          }
        ],
        "CustomAmiId": "string",
        "EbsConfiguration": {
          "EbsBlockDeviceConfigs": [
            {
              "VolumeSpecification": {
                "Iops": number,
                "SizeInGB": number,
                "Throughput": number,
                "VolumeType": "string"
              }
            }
          ]
        }
      }
    ]
  }
}
```

```

        "VolumesPerInstance": number
      }
    ],
    "EbsOptimized": boolean
  },
  "InstanceType": "string",
  "Priority": number,
  "WeightedCapacity": number
}
],
"LaunchSpecifications": {
  "OnDemandSpecification": {
    "AllocationStrategy": "string",
    "CapacityReservationOptions": {
      "CapacityReservationPreference": "string",
      "CapacityReservationResourceGroupArn": "string",
      "UsageStrategy": "string"
    }
  },
  "SpotSpecification": {
    "AllocationStrategy": "string",
    "BlockDurationMinutes": number,
    "TimeoutAction": "string",
    "TimeoutDurationMinutes": number
  }
},
"Name": "string",
"ResizeSpecifications": {
  "OnDemandResizeSpecification": {
    "AllocationStrategy": "string",
    "CapacityReservationOptions": {
      "CapacityReservationPreference": "string",
      "CapacityReservationResourceGroupArn": "string",
      "UsageStrategy": "string"
    },
    "TimeoutDurationMinutes": number
  },
  "SpotResizeSpecification": {
    "AllocationStrategy": "string",
    "TimeoutDurationMinutes": number
  }
},
"TargetOnDemandCapacity": number,
"TargetSpotCapacity": number

```

```
}  
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### ClusterId

The unique identifier of the cluster.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\u007F\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

### InstanceFleet

Specifies the configuration of the instance fleet.

Type: [InstanceFleetConfig](#) object

Required: Yes

## Response Syntax

```
{  
  "ClusterArn": "string",  
  "ClusterId": "string",  
  "InstanceFleetId": "string"  
}
```

## Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

## ClusterArn

The Amazon Resource Name of the cluster.

Type: String

Length Constraints: Minimum length of 20. Maximum length of 2048.

## ClusterId

The unique identifier of the cluster.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

## InstanceFleetId

The unique identifier of the instance fleet.

Type: String

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### InternalServerErrorException

This exception occurs when there is an internal failure in the Amazon EMR service.

HTTP Status Code: 500

### InvalidRequestException

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# AddInstanceGroups

Adds one or more instance groups to a running cluster.

## Request Syntax

```
{
  "InstanceGroups": [
    {
      "AutoScalingPolicy": {
        "Constraints": {
          "MaxCapacity": number,
          "MinCapacity": number
        },
        "Rules": [
          {
            "Action": {
              "Market": "string",
              "SimpleScalingPolicyConfiguration": {
                "AdjustmentType": "string",
                "CoolDown": number,
                "ScalingAdjustment": number
              }
            },
            "Description": "string",
            "Name": "string",
            "Trigger": {
              "CloudWatchAlarmDefinition": {
                "ComparisonOperator": "string",
                "Dimensions": [
                  {
                    "Key": "string",
                    "Value": "string"
                  }
                ],
              },
            ],
            "EvaluationPeriods": number,
            "MetricName": "string",
            "Namespace": "string",
            "Period": number,
            "Statistic": "string",
            "Threshold": number,
            "Unit": "string"
          }
        ]
      }
    }
  ]
}
```

```
    }
  }
]
},
"BidPrice": "string",
"Configurations": [
  {
    "Classification": "string",
    "Configurations": [
      "Configuration"
    ],
    "Properties": {
      "string" : "string"
    }
  }
],
"CustomAmiId": "string",
"EbsConfiguration": {
  "EbsBlockDeviceConfigs": [
    {
      "VolumeSpecification": {
        "Iops": number,
        "SizeInGB": number,
        "Throughput": number,
        "VolumeType": "string"
      },
      "VolumesPerInstance": number
    }
  ],
  "EbsOptimized": boolean
},
"InstanceCount": number,
"InstanceRole": "string",
"InstanceType": "string",
"Market": "string",
"Name": "string"
}
],
"JobFlowId": "string"
}
```







## Sample Request

```
POST / HTTP/1.1
Content-Type: application/x-amz-json-1.1
X-Amz-Target: ElasticMapReduce.AddInstanceGroups
Content-Length: 168
User-Agent: aws-sdk-ruby/1.9.2 ruby/1.9.3 i386-mingw32
Host: us-east-1.elasticmapreduce.amazonaws.com
X-Amz-Date: 20130715T223346Z
X-Amz-Content-Sha256: ac5a7193b1283898dd822a4b16ca36963879bb010d2dbe57198439973ab2a7d3
Authorization: AWS4-HMAC-SHA256 Credential=AKIAIOSFODNN7EXAMPLE/20130715/us-east-1/elasticmapreduce/aws4_request, SignedHeaders=content-length;content-type;host;user-agent;x-amz-content-sha256;x-amz-date;x-amz-target, Signature=4c5e7eb762ea45f292a5cd1a1cc56ed60009e19a9dba3d6e5e4e67e96d43af11
Accept: */*
```

```
{
  "JobFlowId": "j-3U7TSX5GZFD8Y",
  "InstanceGroups": [{
    "Name": "Task Instance Group",
    "InstanceRole": "TASK",
    "InstanceCount": 2,
    "InstanceType": "m1.small",
    "Market": "ON_DEMAND"
  }]
}
```

## Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: 9da5a349-ed9e-11e2-90db-69a5154aeb8d
Content-Type: application/x-amz-json-1.1
Content-Length: 71
Date: Mon, 15 Jul 2013 22:33:47 GMT
```

```
{
  "InstanceGroupIds": ["ig-294A6A2KWT4WB"],
  "JobFlowId": "j-3U7TSX5GZFD8Y"
}
```

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# AddJobFlowSteps

AddJobFlowSteps adds new steps to a running cluster. A maximum of 256 steps are allowed in each job flow.

If your cluster is long-running (such as a Hive data warehouse) or complex, you may require more than 256 steps to process your data. You can bypass the 256-step limitation in various ways, including using SSH to connect to the master node and submitting queries directly to the software running on the master node, such as Hive and Hadoop.

A step specifies the location of a JAR file stored either on the master node of the cluster or in Amazon S3. Each step is performed by the main function of the main class of the JAR file. The main class can be specified either in the manifest of the JAR or by using the MainFunction parameter of the step.

Amazon EMR executes each step in the order listed. For a step to be considered complete, the main function must exit with a zero exit code and all Hadoop jobs started while the step was running must have completed and run successfully.

You can only add steps to a cluster that is in one of the following states: STARTING, BOOTSTRAPPING, RUNNING, or WAITING.

## Note

The string values passed into HadoopJarStep object cannot exceed a total of 10240 characters.

## Request Syntax

```
{
  "ExecutionRoleArn": "string",
  "JobFlowId": "string",
  "Steps": [
    {
      "ActionOnFailure": "string",
      "HadoopJarStep": {
        "Args": [ "string" ],
        "Jar": "string",
        "MainClass": "string",
```



Required: Yes

## Steps

A list of [StepConfig](#) to be executed by the job flow.

Type: Array of [StepConfig](#) objects

Required: Yes

## Response Syntax

```
{
  "StepIds": [ "string" ]
}
```

## Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

### [StepIds](#)

The identifiers of the list of steps added to the job flow.

Type: Array of strings

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\x\n\t]*`

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### InternalServerError

Indicates that an error occurred while processing the request and that the request was not completed.

HTTP Status Code: 400

# Examples

## Example

This example illustrates one usage of `AddJobFlowSteps`.

### Sample Request

```
POST / HTTP/1.1
Content-Type: application/x-amz-json-1.1
X-Amz-Target: ElasticMapReduce.AddJobFlowSteps
Content-Length: 426
User-Agent: aws-sdk-ruby/1.9.2 ruby/1.9.3 i386-mingw32
Host: us-east-1.elasticmapreduce.amazonaws.com
X-Amz-Date: 20130716T210948Z
X-Amz-Content-Sha256: 9e5ad0a93c22224947ce98eea94f766103d91b28fa82eb60d0cb8b6f9555a6b2
Authorization: AWS4-HMAC-SHA256 Credential=AKIAIOSFODNN7EXAMPLE/20130716/us-east-1/elasticmapreduce/aws4_request, SignedHeaders=content-length;content-type;host;user-agent;x-amz-content-sha256;x-amz-date;x-amz-target, Signature=2a2393390760ae85eb74ee3a539e1d758bfdd8815a1a6d6f14d4a2fbcfdcd5b7
Accept: */*

{
  "JobFlowId": "j-3TS00IY04NFN",
  "Steps": [{
    "Name": "Example Jar Step",
    "ActionOnFailure": "CANCEL_AND_WAIT",
    "HadoopJarStep": {
      "Jar": "s3n:\\\\elasticmapreduce\\\\samples\\\\cloudburst\\\\cloudburst.jar",
      "Args": [
        "s3n:\\\\elasticmapreduce\\\\samples\\\\cloudburst\\\\input\\\\s_suis.br",
        "s3n:\\\\elasticmapreduce\\\\samples\\\\cloudburst\\\\input\\\\100k.br",
        "s3n:\\\\examples-bucket\\\\cloudburst\\\\output",
        "36",
        "3",
        "0",
        "1",
        "240",
        "48",
        "24",
        "24",

```



```
        "128",
        "16"
    ]
}
}]
}
```

## Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: 6514261f-ee5b-11e2-9345-5332e9ab2e6d
Content-Type: application/x-amz-json-1.1
Content-Length: 0
Date: Tue, 16 Jul 2013 21:05:07 GMT

{
  "StepIds": [
    "s-1XXXXXXXXXXA"
  ]
}
```

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# AddTags

Adds tags to an Amazon EMR resource, such as a cluster or an Amazon EMR Studio. Tags make it easier to associate resources in various ways, such as grouping clusters to track your Amazon EMR resource allocation costs. For more information, see [Tag Clusters](#).

## Request Syntax

```
{
  "ResourceId": "string",
  "Tags": [
    {
      "Key": "string",
      "Value": "string"
    }
  ]
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### [ResourceId](#)

The Amazon EMR resource identifier to which tags will be added. For example, a cluster identifier or an Amazon EMR Studio ID.

Type: String

Required: Yes

### [Tags](#)

A list of tags to associate with a resource. Tags are user-defined key-value pairs that consist of a required key string with a maximum of 128 characters, and an optional value string with a maximum of 256 characters.

Type: Array of [Tag](#) objects

Required: Yes

## Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### InternalServerErrorException

This exception occurs when there is an internal failure in the Amazon EMR service.

HTTP Status Code: 500

### InvalidRequestException

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## Examples

### Example

This example illustrates one usage of AddTags.

### Sample Request

```
POST / HTTP/1.1

Content-Type: application/x-amz-json-1.1

X-Amz-Target: ElasticMapReduce.AddTags

AUTHPARAMS

{
```

```
"ResourceId": "j-3U7TSX5GZFD8Y",

"Tags": [{
  "Key": "stack",

  "Value": "Production"
},

{
  "Key": "hbase"
}]
}
```

## Sample Response

```
HTTP/1.1 200 OK

x-amzn-RequestId: 9da5a349-ed9e-11e2-90db-69a5154aeb8d

Content-Type: application/x-amz-json-1.1

Content-Length: 71

Date: Mon, 15 Jul 2013 22:33:47 GMT
```

```
{  
  
}
```

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# CancelSteps

Cancel a pending step or steps in a running cluster. Available only in Amazon EMR versions 4.8.0 and later, excluding version 5.0.0. A maximum of 256 steps are allowed in each CancelSteps request. CancelSteps is idempotent but asynchronous; it does not guarantee that a step will be canceled, even if the request is successfully submitted. When you use Amazon EMR releases 5.28.0 and later, you can cancel steps that are in a PENDING or RUNNING state. In earlier versions of Amazon EMR, you can only cancel steps that are in a PENDING state.

## Request Syntax

```
{
  "ClusterId": "string",
  "StepCancellationOption": "string",
  "StepIds": [ "string" ]
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### ClusterId

The CLUSTERID for the specified steps that will be canceled. Use [RunJobFlow](#) and [ListClusters](#) to get ClusterIDs.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

### StepCancellationOption

The option to choose to cancel RUNNING steps. By default, the value is SEND\_INTERRUPT.

Type: String

Valid Values: SEND\_INTERRUPT | TERMINATE\_PROCESS

Required: No

## StepIds

The list of StepIDs to cancel. Use [ListSteps](#) to get steps and their states for the specified cluster.

Type: Array of strings

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

## Response Syntax

```
{
  "CancelStepsInfoList": [
    {
      "Reason": "string",
      "Status": "string",
      "StepId": "string"
    }
  ]
}
```

## Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

### CancelStepsInfoList

A list of [CancelStepsInfo](#), which shows the status of specified cancel requests for each StepID specified.

Type: Array of [CancelStepsInfo](#) objects

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### InternalServerError

Indicates that an error occurred while processing the request and that the request was not completed.

HTTP Status Code: 400

### InvalidRequestException

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## Examples

### Example

This example illustrates one usage of `CancelSteps`.

### Sample Request

```
POST / HTTP/1.1
Content-Type: application/x-amz-json-1.1
X-Amz-Target: ElasticMapReduce.CancelSteps
User-Agent: aws-sdk-ruby/1.9.2 ruby/1.9.3 i386-mingw32
Host: us-east-1.elasticmapreduce.amazonaws.com
X-Amz-Date: 20160719T224800Z
X-Amz-Content-Sha256: 9e5ad0a93c22224947ce98eea94f766103d91b28fa82eb60d0cb8b6f9555a6b2
Authorization: AWS4-HMAC-SHA256 Credential=AKIAIOSFODNN7EXAMPLE/20160719/us-east-1/elasticmapreduce/aws4_request, SignedHeaders=content-length;content-type;host;user-agent;x-amz-content-sha256;x-amz-date;x-amz-target, Signature=2a2393390760ae85eb74ee3a539e1d758bfdd8815a1a6d6f14d4a2fbcfdcd5b7
Accept: */*

{
  "ClusterId": "j-2G7RS6DJZE39D",
  "StepIds":
  [
```



```
"s-11B5G7VIKHCZQ", "s-23PUT0NR3XF60", "s-2NUYMUZ3ADACC", "s-1005X05JUY90E", "s-
CS88G2XK4N7X", "s-2M366D3KU40TZ"
]
}
```

## Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: 84931a23-4e03-11e6-b2bd-0db72d19890a
Content-Type: application/x-amz-json-1.1
Date: Tue, 19 Jul 2016 15:31:01 GMT

{
  "CancelStepsInfoList":
  [
    {"Reason": "This step cannot be cancelled.",
      "Status": "FAILED",
      "StepId": "s-11B5G7VIKHCZQ"},
    {"Reason": "Cannot cancel the step. It is already COMPLETED.",
      "Status": "FAILED",
      "StepId": "s-23PUT0NR3XF60"},
    {"Reason": "Cannot cancel the step. It is already CANCELLED.",
      "Status": "FAILED",
      "StepId": "s-2NUYMUZ3ADACC"},
    {"Reason": "Cannot cancel the step. It is already RUNNING.",
      "Status": "FAILED",
      "StepId": "s-1005X05JUY90E"},
    {"Reason": "Cannot cancel the step. It is already FAILED.",
      "Status": "FAILED",
      "StepId": "s-CS88G2XK4N7X"},
    {"Reason": "",
      "Status": "SUBMITTED",
      "StepId": "s-2M366D3KU40TZ"}
  ]
}
```

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)





## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# CreateStudio

Creates a new Amazon EMR Studio.

## Request Syntax

```
{
  "AuthMode": "string",
  "DefaultS3Location": "string",
  "Description": "string",
  "EncryptionKeyArn": "string",
  "EngineSecurityGroupId": "string",
  "IdcInstanceArn": "string",
  "IdcUserAssignment": "string",
  "IdpAuthUrl": "string",
  "IdpRelayStateParameterName": "string",
  "Name": "string",
  "ServiceRole": "string",
  "SubnetIds": [ "string" ],
  "Tags": [
    {
      "Key": "string",
      "Value": "string"
    }
  ],
  "TrustedIdentityPropagationEnabled": boolean,
  "UserRole": "string",
  "VpcId": "string",
  "WorkspaceSecurityGroupId": "string"
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### AuthMode

Specifies whether the Studio authenticates users using IAM or IAM Identity Center.

Type: String

Valid Values: SSO | IAM

Required: Yes

### DefaultS3Location

The Amazon S3 location to back up Amazon EMR Studio Workspaces and notebook files.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

### Description

A detailed description of the Amazon EMR Studio.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### EncryptionKeyArn

The Amazon KMS key identifier (ARN) used to encrypt Amazon EMR Studio workspace and notebook files when backed up to Amazon S3.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### EngineSecurityGroupId

The ID of the Amazon EMR Studio Engine security group. The Engine security group allows inbound network traffic from the Workspace security group, and it must be in the same VPC specified by `VpcId`.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

### [IdcInstanceArn](#)

The ARN of the IAM Identity Center instance to create the Studio application.

Type: String

Length Constraints: Minimum length of 20. Maximum length of 2048.

Required: No

### [IdcUserAssignment](#)

Specifies whether IAM Identity Center user assignment is REQUIRED or OPTIONAL. If the value is set to REQUIRED, users must be explicitly assigned to the Studio application to access the Studio.

Type: String

Valid Values: REQUIRED | OPTIONAL

Required: No

### [IdpAuthUrl](#)

The authentication endpoint of your identity provider (IdP). Specify this value when you use IAM authentication and want to let federated users log in to a Studio with the Studio URL and credentials from your IdP. Amazon EMR Studio redirects users to this endpoint to enter credentials.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No



## IdpRelayStateParameterName

The name that your identity provider (IdP) uses for its RelayState parameter. For example, RelayState or TargetSource. Specify this value when you use IAM authentication and want to let federated users log in to a Studio using the Studio URL. The RelayState parameter differs by IdP.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

## Name

A descriptive name for the Amazon EMR Studio.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

## ServiceRole

The IAM role that the Amazon EMR Studio assumes. The service role provides a way for Amazon EMR Studio to interoperate with other Amazon services.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

## SubnetIds

A list of subnet IDs to associate with the Amazon EMR Studio. A Studio can have a maximum of 5 subnets. The subnets must belong to the VPC specified by VpcId. Studio users can create a Workspace in any of the specified subnets.

Type: Array of strings

Required: Yes

### Tags

A list of tags to associate with the Amazon EMR Studio. Tags are user-defined key-value pairs that consist of a required key string with a maximum of 128 characters, and an optional value string with a maximum of 256 characters.

Type: Array of [Tag](#) objects

Required: No

### TrustedIdentityPropagationEnabled

A Boolean indicating whether to enable Trusted identity propagation for the Studio. The default value is `false`.

Type: Boolean

Required: No

### UserRole

The IAM user role that users and groups assume when logged in to an Amazon EMR Studio. Only specify a `UserRole` when you use IAM Identity Center authentication. The permissions attached to the `UserRole` can be scoped down for each user or group using session policies.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### VpcId

The ID of the Amazon Virtual Private Cloud (Amazon VPC) to associate with the Studio.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

### WorkspaceSecurityGroupId

The ID of the Amazon EMR Studio Workspace security group. The Workspace security group allows outbound network traffic to resources in the Engine security group, and it must be in the same VPC specified by VpcId.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

## Response Syntax

```
{
  "StudioId": "string",
  "Url": "string"
}
```

## Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

### StudioId

The ID of the Amazon EMR Studio.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

### Url

The unique Studio access URL.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### InternalServerErrorException

This exception occurs when there is an internal failure in the Amazon EMR service.

HTTP Status Code: 500

### InvalidRequestException

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# CreateStudioSessionMapping

Maps a user or group to the Amazon EMR Studio specified by StudioId, and applies a session policy to refine Studio permissions for that user or group. Use CreateStudioSessionMapping to assign users to a Studio when you use IAM Identity Center authentication. For instructions on how to assign users to a Studio when you use IAM authentication, see [Assign a user or group to your EMR Studio](#).

## Request Syntax

```
{
  "IdentityId": "string",
  "IdentityName": "string",
  "IdentityType": "string",
  "SessionPolicyArn": "string",
  "StudioId": "string"
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### [IdentityId](#)

The globally unique identifier (GUID) of the user or group from the IAM Identity Center Identity Store. For more information, see [UserId](#) and [GroupId](#) in the *IAM Identity Center Identity Store API Reference*. Either IdentityName or IdentityId must be specified, but not both.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\u007F\u00E0-\u00FF\u0080-\u00FF\u00D8-\u00DC\u00DB-\u00FF\u00r\u00n\u00t]*`

Required: No

## IdentityName

The name of the user or group. For more information, see [UserName](#) and [DisplayName](#) in the *IAM Identity Center Identity Store API Reference*. Either IdentityName or IdentityId must be specified, but not both.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

## IdentityType

Specifies whether the identity to map to the Amazon EMR Studio is a user or a group.

Type: String

Valid Values: USER | GROUP

Required: Yes

## SessionPolicyArn

The Amazon Resource Name (ARN) for the session policy that will be applied to the user or group. You should specify the ARN for the session policy that you want to apply, not the ARN of your user role. For more information, see [Create an Amazon EMR Studio User Role with Session Policies](#).

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

## StudioId

The ID of the Amazon EMR Studio to which the user or group will be mapped.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

## Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### InternalServerError

Indicates that an error occurred while processing the request and that the request was not completed.

HTTP Status Code: 400

### InvalidRequestException

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)

- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)



# DeleteSecurityConfiguration

Deletes a security configuration.

## Request Syntax

```
{  
  "Name": "string"  
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### Name

The name of the security configuration.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

## Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### InternalServerErrorException

This exception occurs when there is an internal failure in the Amazon EMR service.

HTTP Status Code: 500

## InvalidRequestException

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# DeleteStudio

Removes an Amazon EMR Studio from the Studio metadata store.

## Request Syntax

```
{  
  "StudioId": "string"  
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### StudioId

The ID of the Amazon EMR Studio.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

## Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### **InternalServerErrorException**

This exception occurs when there is an internal failure in the Amazon EMR service.

HTTP Status Code: 500

## InvalidRequestException

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)



Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### IdentityType

Specifies whether the identity to delete from the Amazon EMR Studio is a user or a group.

Type: String

Valid Values: USER | GROUP

Required: Yes

### Studiold

The ID of the Amazon EMR Studio.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

## Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### **InternalServerError**

Indicates that an error occurred while processing the request and that the request was not completed.

HTTP Status Code: 400

### **InvalidRequestException**

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# DescribeCluster

Provides cluster-level details including status, hardware and software configuration, VPC settings, and so on.

## Request Syntax

```
{
  "ClusterId": "string"
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### ClusterId

The identifier of the cluster to describe.

Type: String

Required: Yes

## Response Syntax

```
{
  "Cluster": {
    "Applications": [
      {
        "AdditionalInfo": {
          "string" : "string"
        },
        "Args": [ "string" ],
        "Name": "string",
        "Version": "string"
      }
    ],
    "AutoScalingRole": "string",
    "AutoTerminate": boolean,

```



```

"ClusterArn": "string",
"Configurations": [
  {
    "Classification": "string",
    "Configurations": [
      "Configuration"
    ],
    "Properties": {
      "string": "string"
    }
  }
],
"CustomAmiId": "string",
"EbsRootVolumeIops": number,
"EbsRootVolumeSize": number,
"EbsRootVolumeThroughput": number,
"Ec2InstanceAttributes": {
  "AdditionalMasterSecurityGroups": [ "string" ],
  "AdditionalSlaveSecurityGroups": [ "string" ],
  "Ec2AvailabilityZone": "string",
  "Ec2KeyName": "string",
  "Ec2SubnetId": "string",
  "EmrManagedMasterSecurityGroup": "string",
  "EmrManagedSlaveSecurityGroup": "string",
  "IamInstanceProfile": "string",
  "RequestedEc2AvailabilityZones": [ "string" ],
  "RequestedEc2SubnetIds": [ "string" ],
  "ServiceAccessSecurityGroup": "string"
},
"Id": "string",
"InstanceCollectionType": "string",
"KerberosAttributes": {
  "ADDomainJoinPassword": "string",
  "ADDomainJoinUser": "string",
  "CrossRealmTrustPrincipalPassword": "string",
  "KdcAdminPassword": "string",
  "Realm": "string"
},
"LogEncryptionKmsKeyId": "string",
"LogUri": "string",
"MasterPublicDnsName": "string",
"Name": "string",
"NormalizedInstanceHours": number,
"OSReleaseLabel": "string",

```

```
"OutpostArn": "string",
"PlacementGroups": [
  {
    "InstanceRole": "string",
    "PlacementStrategy": "string"
  }
],
"ReleaseLabel": "string",
"RepoUpgradeOnBoot": "string",
"RequestedAmiVersion": "string",
"RunningAmiVersion": "string",
"ScaleDownBehavior": "string",
"SecurityConfiguration": "string",
"ServiceRole": "string",
"Status": {
  "ErrorDetails": [
    {
      "ErrorCode": "string",
      "ErrorData": [
        {
          "string": "string"
        }
      ],
      "ErrorMessage": "string"
    }
  ],
  "State": "string",
  "StateChangeReason": {
    "Code": "string",
    "Message": "string"
  },
  "Timeline": {
    "CreationDateTime": number,
    "EndDateTime": number,
    "ReadyDateTime": number
  }
},
"StepConcurrencyLevel": number,
"Tags": [
  {
    "Key": "string",
    "Value": "string"
  }
],
```

```
"TerminationProtected": boolean,  
"UnhealthyNodeReplacement": boolean,  
"VisibleToAllUsers": boolean  
}  
}
```

## Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

### Cluster

This output contains the details for the requested cluster.

Type: [Cluster](#) object

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### **InternalServerErrorException**

This exception occurs when there is an internal failure in the Amazon EMR service.

HTTP Status Code: 500

### **InvalidRequestException**

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)

- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

## DescribeJobFlows

This API is no longer supported and will eventually be removed. We recommend you use [ListClusters](#), [DescribeCluster](#), [ListSteps](#), [ListInstanceGroups](#) and [ListBootstrapActions](#) instead.

DescribeJobFlows returns a list of job flows that match all of the supplied parameters. The parameters can include a list of job flow IDs, job flow states, and restrictions on job flow creation date and time.

Regardless of supplied parameters, only job flows created within the last two months are returned.

If no parameters are supplied, then job flows matching either of the following criteria are returned:

- Job flows created and completed in the last two weeks
- Job flows created within the last two months that are in one of the following states: RUNNING, WAITING, SHUTTING\_DOWN, STARTING

Amazon EMR can return a maximum of 512 job flow descriptions.

## Request Syntax

```
{
  "CreatedAfter": number,
  "CreatedBefore": number,
  "JobFlowIds": [ "string" ],
  "JobFlowStates": [ "string" ]
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### [CreatedAfter](#)

Return only job flows created after this date and time.

Type: Timestamp

Required: No

## CreatedBefore

Return only job flows created before this date and time.

Type: Timestamp

Required: No

## JobFlowIds

Return only job flows whose job flow ID is contained in this list.

Type: Array of strings

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\u007F\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

## JobFlowStates

Return only job flows whose state is contained in this list.

Type: Array of strings

Valid Values: STARTING | BOOTSTRAPPING | RUNNING | WAITING | SHUTTING\_DOWN | TERMINATED | COMPLETED | FAILED

Required: No

## Response Syntax

```
{
  "JobFlows": [
    {
      "AmiVersion": "string",
      "AutoScalingRole": "string",
      "BootstrapActions": [
        {
          "BootstrapActionConfig": {
            "Name": "string",
            "ScriptBootstrapAction": {
              "Args": [ "string" ],
              "Path": "string"
            }
          }
        }
      ]
    }
  ]
}
```

```

    }
  }
}
],
"ExecutionStatusDetail": {
  "CreationDateTime": number,
  "EndDateTime": number,
  "LastStateChangeReason": "string",
  "ReadyDateTime": number,
  "StartDateTime": number,
  "State": "string"
},
"Instances": {
  "Ec2KeyName": "string",
  "Ec2SubnetId": "string",
  "HadoopVersion": "string",
  "InstanceCount": number,
  "InstanceGroups": [
    {
      "BidPrice": "string",
      "CreationDateTime": number,
      "CustomAmiId": "string",
      "EndDateTime": number,
      "InstanceGroupId": "string",
      "InstanceRequestCount": number,
      "InstanceRole": "string",
      "InstanceRunningCount": number,
      "InstanceType": "string",
      "LastStateChangeReason": "string",
      "Market": "string",
      "Name": "string",
      "ReadyDateTime": number,
      "StartDateTime": number,
      "State": "string"
    }
  ],
  "KeepJobFlowAliveWhenNoSteps": boolean,
  "MasterInstanceId": "string",
  "MasterInstanceType": "string",
  "MasterPublicDnsName": "string",
  "NormalizedInstanceHours": number,
  "Placement": {
    "AvailabilityZone": "string",
    "AvailabilityZones": [ "string" ]
  }
}

```

```

    },
    "SlaveInstanceType": "string",
    "TerminationProtected": boolean,
    "UnhealthyNodeReplacement": boolean
  },
  "JobFlowId": "string",
  "JobFlowRole": "string",
  "LogEncryptionKmsKeyId": "string",
  "LogUri": "string",
  "Name": "string",
  "ScaleDownBehavior": "string",
  "ServiceRole": "string",
  "Steps": [
    {
      "ExecutionStatusDetail": {
        "CreationDateTime": number,
        "EndDateTime": number,
        "LastStateChangeReason": "string",
        "StartDateTime": number,
        "State": "string"
      },
      "StepConfig": {
        "ActionOnFailure": "string",
        "HadoopJarStep": {
          "Args": [ "string" ],
          "Jar": "string",
          "MainClass": "string",
          "Properties": [
            {
              "Key": "string",
              "Value": "string"
            }
          ]
        },
        "Name": "string"
      }
    }
  ],
  "SupportedProducts": [ "string" ],
  "VisibleToAllUsers": boolean
}
]
}

```



## Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

### JobFlows

A list of job flows matching the parameters supplied.

Type: Array of [JobFlowDetail](#) objects

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### InternalServerError

Indicates that an error occurred while processing the request and that the request was not completed.

HTTP Status Code: 400

## Examples

### Example

This example illustrates one usage of DescribeJobFlows.

### Sample Request

```
POST / HTTP/1.1
Content-Type: application/x-amz-json-1.1
X-Amz-Target: ElasticMapReduce.DescribeJobFlows
Content-Length: 62
User-Agent: aws-sdk-ruby/1.9.2 ruby/1.9.3 i386-mingw32
Host: us-east-1.elasticmapreduce.amazonaws.com
X-Amz-Date: 20130715T220330Z
X-Amz-Content-Sha256: fce83af973f96f173512aca2845c56862b946feb1de0600326f1365b658a0e39
Authorization: AWS4-HMAC-SHA256 Credential=AKIAIOSFODNN7EXAMPLE/20130715/us-east-1/elasticmapreduce/aws4_request, SignedHeaders=content-length;content-
```

```

type;host;user-agent;x-amz-content-sha256;x-amz-date;x-amz-target,
  Signature=29F98a6f44e05ad54fe1e8b3d1a7101ab08dc3ad348995f89c533693cee2bb3b
Accept: */*

{
  "JobFlowIds": ["j-ZKIY4CKQRX72"],
  "DescriptionType": "EXTENDED"
}

```

## Sample Response

```

HTTP/1.1 200 OK
x-amzn-RequestId: 634d4142-ed9a-11e2-bbba-b56d7d016ec4
Content-Type: application/x-amz-json-1.1
Content-Length: 1624
Date: Mon, 15 Jul 2013 22:03:31 GMT

{"JobFlows": [{
  "AmiVersion": "2.3.6",
  "BootstrapActions": [],
  "ExecutionStatusDetail": {
    "CreationDateTime": 1.373923429E9,
    "EndDateTime": 1.373923995E9,
    "LastStateChangeReason": "Steps completed",
    "ReadyDateTime": 1.373923754E9,
    "StartDateTime": 1.373923754E9,
    "State": "COMPLETED"
  },
  "Instances": {
    "HadoopVersion": "1.0.3",
    "InstanceCount": 1,
    "InstanceGroups": [{
      "CreationDateTime": 1.373923429E9,
      "EndDateTime": 1.373923995E9,
      "InstanceGroupId": "ig-3SRUWV3E0NB7K",
      "InstanceRequestCount": 1,
      "InstanceRole": "MASTER",
      "InstanceRunningCount": 0,
      "InstanceType": "m1.small",
      "LastStateChangeReason": "Job flow terminated",
      "Market": "ON_DEMAND",
      "Name": "Master InstanceGroup",
      "ReadyDateTime": 1.373923754E9,

```

```

        "StartDateTime": 1.373923646E9,
        "State": "ENDED"
    }],
    "KeepJobFlowAliveWhenNoSteps": false,
    "MasterInstanceId": "i-8c4fbbef",
    "MasterInstanceType": "m1.small",
    "MasterPublicDnsName": "ec2-107-20-46-140.compute-1.amazonaws.com",
    "NormalizedInstanceHours": 1,
    "Placement": {"AvailabilityZone": "us-east-1a"},
    "TerminationProtected": false
},
"JobFlowId": "j-ZKIY4CKQRX72",
"Name": "Development Job Flow",
"Steps": [{
    "ExecutionStatusDetail": {
        "CreationDateTime": 1.373923429E9,
        "EndDateTime": 1.373923914E9,
        "StartDateTime": 1.373923754E9,
        "State": "COMPLETED"
    },
    "StepConfig": {
        "ActionOnFailure": "CANCEL_AND_WAIT",
        "HadoopJarStep": {
            "Args": [
                "-input",
                "s3://elasticmapreduce/samples/wordcount/input",
                "-output",
                "s3://examples-bucket/example-output",
                "-mapper",
                "s3://elasticmapreduce/samples/wordcount/wordSplitter.py",
                "-reducer",
                "aggregate"
            ],
            "Jar": "/home/hadoop/contrib/streaming/hadoop-streaming.jar",
            "Properties": []
        },
        "Name": "Example Streaming Step"
    }
}],
"SupportedProducts": []
}]}
```

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)



```

    "Type": "string"
  },
  "LastStateChangeReason": "string",
  "NotebookExecutionId": "string",
  "NotebookExecutionName": "string",
  "NotebookInstanceSecurityGroupId": "string",
  "NotebookParams": "string",
  "NotebookS3Location": {
    "Bucket": "string",
    "Key": "string"
  },
  "OutputNotebookFormat": "string",
  "OutputNotebookS3Location": {
    "Bucket": "string",
    "Key": "string"
  },
  "OutputNotebookURI": "string",
  "StartTime": number,
  "Status": "string",
  "Tags": [
    {
      "Key": "string",
      "Value": "string"
    }
  ]
}

```

## Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

### NotebookExecution

Properties of the notebook execution.

Type: [NotebookExecution](#) object

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

## InternalServerError

Indicates that an error occurred while processing the request and that the request was not completed.

HTTP Status Code: 400

## InvalidRequestException

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# DescribeReleaseLabel

Provides Amazon EMR release label details, such as the releases available the Region where the API request is run, and the available applications for a specific Amazon EMR release label. Can also list Amazon EMR releases that support a specified version of Spark.

## Request Syntax

```
{  
  "MaxResults": number,  
  "NextToken": "string",  
  "ReleaseLabel": "string"  
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### [MaxResults](#)

Reserved for future use. Currently set to null.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 100.

Required: No

### [NextToken](#)

The pagination token. Reserved for future use. Currently set to null.

Type: String

Required: No

### [ReleaseLabel](#)

The target release label to be described.

Type: String



Required: No

## Response Syntax

```
{
  "Applications": [
    {
      "Name": "string",
      "Version": "string"
    }
  ],
  "AvailableOSReleases": [
    {
      "Label": "string"
    }
  ],
  "NextToken": "string",
  "ReleaseLabel": "string"
}
```

## Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

### Applications

The list of applications available for the target release label. Name is the name of the application. Version is the concise version of the application.

Type: Array of [SimplifiedApplication](#) objects

### AvailableOSReleases

The list of available Amazon Linux release versions for an Amazon EMR release. Contains a Label field that is formatted as shown in [Amazon Linux 2 Release Notes](#). For example, [2.0.20220218.1](#).

Type: Array of [OSRelease](#) objects

### NextToken

The pagination token. Reserved for future use. Currently set to null.

Type: String

### [ReleaseLabel](#)

The target release label described in the response.

Type: String

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### InternalServerError

This exception occurs when there is an internal failure in the Amazon EMR service.

HTTP Status Code: 500

### InvalidRequestException

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)



# DescribeSecurityConfiguration

Provides the details of a security configuration by returning the configuration JSON.

## Request Syntax

```
{  
  "Name": "string"  
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### Name

The name of the security configuration.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

## Response Syntax

```
{  
  "CreationDateTime": number,  
  "Name": "string",  
  "SecurityConfiguration": "string"  
}
```

## Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

### CreationDateTime

The date and time the security configuration was created

Type: Timestamp

### Name

The name of the security configuration.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

### SecurityConfiguration

The security configuration details in JSON format.

Type: String

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### **InternalServerErrorException**

This exception occurs when there is an internal failure in the Amazon EMR service.

HTTP Status Code: 500

### **InvalidRequestException**

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# DescribeStep

Provides more detail about the cluster step.

## Request Syntax

```
{
  "ClusterId": "string",
  "StepId": "string"
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### ClusterId

The identifier of the cluster with steps to describe.

Type: String

Required: Yes

### StepId

The identifier of the step to describe.

Type: String

Required: Yes

## Response Syntax

```
{
  "Step": {
    "ActionOnFailure": "string",
    "Config": {
      "Args": [ "string" ],
      "Jar": "string",
      "MainClass": "string",

```

```

    "Properties": {
      "string": "string"
    },
    "ExecutionRoleArn": "string",
    "Id": "string",
    "Name": "string",
    "Status": {
      "FailureDetails": {
        "LogFile": "string",
        "Message": "string",
        "Reason": "string"
      },
      "State": "string",
      "StateChangeReason": {
        "Code": "string",
        "Message": "string"
      },
      "Timeline": {
        "CreationDateTime": number,
        "EndDateTime": number,
        "StartDateTime": number
      }
    }
  }
}

```

## Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

### Step

The step details for the requested step identifier.

Type: [Step](#) object

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).



## InternalServerErrorException

This exception occurs when there is an internal failure in the Amazon EMR service.

HTTP Status Code: 500

## InvalidRequestException

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# DescribeStudio

Returns details for the specified Amazon EMR Studio including ID, Name, VPC, Studio access URL, and so on.

## Request Syntax

```
{  
  "StudioId": "string"  
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### StudioId

The Amazon EMR Studio ID.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

## Response Syntax

```
{  
  "Studio": {  
    "AuthMode": "string",  
    "CreationTime": number,  
    "DefaultS3Location": "string",  
    "Description": "string",  
    "EncryptionKeyArn": "string",  
    "EngineSecurityGroupId": "string",  
    "IdcInstanceArn": "string",  
    "IdcUserAssignment": "string",
```

```
"IdpAuthUrl": "string",
"IdpRelayStateParameterName": "string",
"Name": "string",
"ServiceRole": "string",
"StudioArn": "string",
"StudioId": "string",
"SubnetIds": [ "string" ],
"Tags": [
  {
    "Key": "string",
    "Value": "string"
  }
],
"TrustedIdentityPropagationEnabled": boolean,
"Url": "string",
"UserRole": "string",
"VpcId": "string",
"WorkspaceSecurityGroupId": "string"
}
```

## Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

### Studio

The Amazon EMR Studio details.

Type: [Studio](#) object

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### InternalServerErrorException

This exception occurs when there is an internal failure in the Amazon EMR service.

HTTP Status Code: 500

## InvalidRequestException

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# GetAutoTerminationPolicy

Returns the auto-termination policy for an Amazon EMR cluster.

## Request Syntax

```
{  
  "ClusterId": "string"  
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### ClusterId

Specifies the ID of the Amazon EMR cluster for which the auto-termination policy will be fetched.

Type: String

Required: Yes

## Response Syntax

```
{  
  "AutoTerminationPolicy": {  
    "IdleTimeout": number  
  }  
}
```

## Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

## [AutoTerminationPolicy](#)

Specifies the auto-termination policy that is attached to an Amazon EMR cluster.

Type: [AutoTerminationPolicy](#) object

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# GetBlockPublicAccessConfiguration

Returns the Amazon EMR block public access configuration for your Amazon Web Services account in the current Region. For more information see [Configure Block Public Access for Amazon EMR](#) in the *Amazon EMR Management Guide*.

## Response Syntax

```
{
  "BlockPublicAccessConfiguration": {
    "BlockPublicSecurityGroupRules": boolean,
    "PermittedPublicSecurityGroupRuleRanges": [
      {
        "MaxRange": number,
        "MinRange": number
      }
    ]
  },
  "BlockPublicAccessConfigurationMetadata": {
    "CreatedByArn": "string",
    "CreationDateTime": number
  }
}
```

## Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

### BlockPublicAccessConfiguration

A configuration for Amazon EMR block public access. The configuration applies to all clusters created in your account for the current Region. The configuration specifies whether block public access is enabled. If block public access is enabled, security groups associated with the cluster cannot have rules that allow inbound traffic from 0.0.0.0/0 or ::/0 on a port, unless the port is specified as an exception using `PermittedPublicSecurityGroupRuleRanges` in the `BlockPublicAccessConfiguration`. By default, Port 22 (SSH) is an exception, and public access is allowed on this port. You can change this by updating the block public access configuration to remove the exception.

**Note**

For accounts that created clusters in a Region before November 25, 2019, block public access is disabled by default in that Region. To use this feature, you must manually enable and configure it. For accounts that did not create an Amazon EMR cluster in a Region before this date, block public access is enabled by default in that Region.

Type: [BlockPublicAccessConfiguration](#) object

**[BlockPublicAccessConfigurationMetadata](#)**

Properties that describe the Amazon principal that created the `BlockPublicAccessConfiguration` using the `PutBlockPublicAccessConfiguration` action as well as the date and time that the configuration was created. Each time a configuration for block public access is updated, Amazon EMR updates this metadata.

Type: [BlockPublicAccessConfigurationMetadata](#) object

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### InternalServerError

This exception occurs when there is an internal failure in the Amazon EMR service.

HTTP Status Code: 500

### InvalidRequestException

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)



- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)



Required: No

## Response Syntax

```
{  
  "Credentials": { ... },  
  "ExpiresAt": number  
}
```

## Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

### [Credentials](#)

The credentials that you can use to connect to cluster endpoints that support username and password authentication.

Type: [Credentials](#) object

**Note:** This object is a Union. Only one member of this object can be specified or returned.

### [ExpiresAt](#)

The time when the credentials that are returned by the `GetClusterSessionCredentials` API expire.

Type: Timestamp

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### InternalServerError

Indicates that an error occurred while processing the request and that the request was not completed.

HTTP Status Code: 400

## InvalidRequestException

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# GetManagedScalingPolicy

Fetches the attached managed scaling policy for an Amazon EMR cluster.

## Request Syntax

```
{
  "ClusterId": "string"
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### ClusterId

Specifies the ID of the cluster for which the managed scaling policy will be fetched.

Type: String

Required: Yes

## Response Syntax

```
{
  "ManagedScalingPolicy": {
    "ComputeLimits": {
      "MaximumCapacityUnits": number,
      "MaximumCoreCapacityUnits": number,
      "MaximumOnDemandCapacityUnits": number,
      "MinimumCapacityUnits": number,
      "UnitType": "string"
    },
    "ScalingStrategy": "string",
    "UtilizationPerformanceIndex": number
  }
}
```

## Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

### ManagedScalingPolicy

Specifies the managed scaling policy that is attached to an Amazon EMR cluster.

Type: [ManagedScalingPolicy](#) object

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)



Pattern: `[\\u0020-\\uD7FF\\uE000-\\uFFFF\\uD800\\uDC00-\\uDBFF\\uDFFF\\r\\n\\t]*`

Required: No

### IdentityType

Specifies whether the identity to fetch is a user or a group.

Type: String

Valid Values: USER | GROUP

Required: Yes

### StudioId

The ID of the Amazon EMR Studio.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\\u0020-\\uD7FF\\uE000-\\uFFFF\\uD800\\uDC00-\\uDBFF\\uDFFF\\r\\n\\t]*`

Required: Yes

## Response Syntax

```
{
  "SessionMapping": {
    "CreationTime": number,
    "IdentityId": "string",
    "IdentityName": "string",
    "IdentityType": "string",
    "LastModifiedTime": number,
    "SessionPolicyArn": "string",
    "StudioId": "string"
  }
}
```

## Response Elements

If the action is successful, the service sends back an HTTP 200 response.



The following data is returned in JSON format by the service.

## [SessionMapping](#)

The session mapping details for the specified Amazon EMR Studio and identity, including session policy ARN and creation time.

Type: [SessionMappingDetail](#) object

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### InternalServerError

Indicates that an error occurred while processing the request and that the request was not completed.

HTTP Status Code: 400

### InvalidRequestException

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)

- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# ListBootstrapActions

Provides information about the bootstrap actions associated with a cluster.

## Request Syntax

```
{
  "ClusterId": "string",
  "Marker": "string"
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### ClusterId

The cluster identifier for the bootstrap actions to list.

Type: String

Required: Yes

### Marker

The pagination token that indicates the next set of results to retrieve.

Type: String

Required: No

## Response Syntax

```
{
  "BootstrapActions": [
    {
      "Args": [ "string" ],
      "Name": "string",
      "ScriptPath": "string"
    }
  ]
}
```

```
  ],  
  "Marker": "string"  
}
```

## Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

### BootstrapActions

The bootstrap actions associated with the cluster.

Type: Array of [Command](#) objects

### Marker

The pagination token that indicates the next set of results to retrieve.

Type: String

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### **InternalServerErrorException**

This exception occurs when there is an internal failure in the Amazon EMR service.

HTTP Status Code: 500

### **InvalidRequestException**

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# ListClusters

Provides the status of all clusters visible to this Amazon Web Services account. Allows you to filter the list of clusters based on certain criteria; for example, filtering by cluster creation date and time or by status. This call returns a maximum of 50 clusters in unsorted order per call, but returns a marker to track the paging of the cluster list across multiple ListClusters calls.

## Request Syntax

```
{
  "ClusterStates": [ "string" ],
  "CreatedAfter": number,
  "CreatedBefore": number,
  "Marker": "string"
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### ClusterStates

The cluster state filters to apply when listing clusters. Clusters that change state while this action runs may be not be returned as expected in the list of clusters.

Type: Array of strings

Valid Values: STARTING | BOOTSTRAPPING | RUNNING | WAITING | TERMINATING | TERMINATED | TERMINATED\_WITH\_ERRORS

Required: No

### CreatedAfter

The creation date and time beginning value filter for listing clusters.

Type: Timestamp

Required: No

## CreatedBefore

The creation date and time end value filter for listing clusters.

Type: Timestamp

Required: No

## Marker

The pagination token that indicates the next set of results to retrieve.

Type: String

Required: No

## Response Syntax

```
{
  "Clusters": [
    {
      "ClusterArn": "string",
      "Id": "string",
      "Name": "string",
      "NormalizedInstanceHours": number,
      "OutpostArn": "string",
      "Status": {
        "ErrorDetails": [
          {
            "ErrorCode": "string",
            "ErrorData": [
              {
                "string" : "string"
              }
            ],
            "ErrorMessage": "string"
          }
        ],
        "State": "string",
        "StateChangeReason": {
          "Code": "string",
          "Message": "string"
        }
      }
    }
  ],
}
```

```
    "Timeline": {
      "CreationDateTime": number,
      "EndDateTime": number,
      "ReadyDateTime": number
    }
  }
],
"Marker": "string"
}
```

## Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

### Clusters

The list of clusters for the account based on the given filters.

Type: Array of [ClusterSummary](#) objects

### Marker

The pagination token that indicates the next set of results to retrieve.

Type: String

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### **InternalServerError**

This exception occurs when there is an internal failure in the Amazon EMR service.

HTTP Status Code: 500

### **InvalidRequestException**

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400



## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# ListInstanceFleets

Lists all available details about the instance fleets in a cluster.

## Note

The instance fleet configuration is available only in Amazon EMR releases 4.8.0 and later, excluding 5.0.x versions.

## Request Syntax

```
{  
  "ClusterId": "string",  
  "Marker": "string"  
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### ClusterId

The unique identifier of the cluster.

Type: String

Required: Yes

### Marker

The pagination token that indicates the next set of results to retrieve.

Type: String

Required: No

## Response Syntax

```
{
```

```

"InstanceFleets": [
  {
    "Context": "string",
    "Id": "string",
    "InstanceFleetType": "string",
    "InstanceTypeSpecifications": [
      {
        "BidPrice": "string",
        "BidPriceAsPercentageOfOnDemandPrice": number,
        "Configurations": [
          {
            "Classification": "string",
            "Configurations": [
              "Configuration"
            ],
            "Properties": {
              "string" : "string"
            }
          }
        ],
        "CustomAmiId": "string",
        "EbsBlockDevices": [
          {
            "Device": "string",
            "VolumeSpecification": {
              "Iops": number,
              "SizeInGB": number,
              "Throughput": number,
              "VolumeType": "string"
            }
          }
        ],
        "EbsOptimized": boolean,
        "InstanceType": "string",
        "Priority": number,
        "WeightedCapacity": number
      }
    ],
    "LaunchSpecifications": {
      "OnDemandSpecification": {
        "AllocationStrategy": "string",
        "CapacityReservationOptions": {
          "CapacityReservationPreference": "string",
          "CapacityReservationResourceGroupArn": "string",

```

```

        "UsageStrategy": "string"
    }
},
"SpotSpecification": {
    "AllocationStrategy": "string",
    "BlockDurationMinutes": number,
    "TimeoutAction": "string",
    "TimeoutDurationMinutes": number
}
},
"Name": "string",
"ProvisionedOnDemandCapacity": number,
"ProvisionedSpotCapacity": number,
"ResizeSpecifications": {
    "OnDemandResizeSpecification": {
        "AllocationStrategy": "string",
        "CapacityReservationOptions": {
            "CapacityReservationPreference": "string",
            "CapacityReservationResourceGroupArn": "string",
            "UsageStrategy": "string"
        },
        "TimeoutDurationMinutes": number
    },
    "SpotResizeSpecification": {
        "AllocationStrategy": "string",
        "TimeoutDurationMinutes": number
    }
}
},
"Status": {
    "State": "string",
    "StateChangeReason": {
        "Code": "string",
        "Message": "string"
    },
    "Timeline": {
        "CreationDateTime": number,
        "EndDateTime": number,
        "ReadyDateTime": number
    }
}
},
"TargetOnDemandCapacity": number,
"TargetSpotCapacity": number
}
],

```

```
"Marker": "string"  
}
```

## Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

### InstanceFleets

The list of instance fleets for the cluster and given filters.

Type: Array of [InstanceFleet](#) objects

### Marker

The pagination token that indicates the next set of results to retrieve.

Type: String

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### **InternalServerError**

This exception occurs when there is an internal failure in the Amazon EMR service.

HTTP Status Code: 500

### **InvalidRequestException**

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# ListInstanceGroups

Provides all available details about the instance groups in a cluster.

## Request Syntax

```
{
  "ClusterId": "string",
  "Marker": "string"
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### ClusterId

The identifier of the cluster for which to list the instance groups.

Type: String

Required: Yes

### Marker

The pagination token that indicates the next set of results to retrieve.

Type: String

Required: No

## Response Syntax

```
{
  "InstanceGroups": [
    {
      "AutoScalingPolicy": {
        "Constraints": {
          "MaxCapacity": number,
          "MinCapacity": number
        }
      }
    }
  ],
}
```

```

    "Rules": [
      {
        "Action": {
          "Market": "string",
          "SimpleScalingPolicyConfiguration": {
            "AdjustmentType": "string",
            "CoolDown": number,
            "ScalingAdjustment": number
          }
        },
        "Description": "string",
        "Name": "string",
        "Trigger": {
          "CloudWatchAlarmDefinition": {
            "ComparisonOperator": "string",
            "Dimensions": [
              {
                "Key": "string",
                "Value": "string"
              }
            ],
            "EvaluationPeriods": number,
            "MetricName": "string",
            "Namespace": "string",
            "Period": number,
            "Statistic": "string",
            "Threshold": number,
            "Unit": "string"
          }
        }
      }
    ],
    "Status": {
      "State": "string",
      "StateChangeReason": {
        "Code": "string",
        "Message": "string"
      }
    }
  },
  "BidPrice": "string",
  "Configurations": [
    {
      "Classification": "string",

```



```

    "Configurations": [
      "Configuration"
    ],
    "Properties": {
      "string" : "string"
    }
  }
],
"ConfigurationsVersion": number,
"CustomAmiId": "string",
"EbsBlockDevices": [
  {
    "Device": "string",
    "VolumeSpecification": {
      "Iops": number,
      "SizeInGB": number,
      "Throughput": number,
      "VolumeType": "string"
    }
  }
],
"EbsOptimized": boolean,
"Id": "string",
"InstanceGroupType": "string",
"InstanceType": "string",
"LastSuccessfullyAppliedConfigurations": [
  {
    "Classification": "string",
    "Configurations": [
      "Configuration"
    ],
    "Properties": {
      "string" : "string"
    }
  }
],
"LastSuccessfullyAppliedConfigurationsVersion": number,
"Market": "string",
"Name": "string",
"RequestedInstanceCount": number,
"RunningInstanceCount": number,
"ShrinkPolicy": {
  "DecommissionTimeout": number,
  "InstanceResizePolicy": {

```

```
        "InstancesToProtect": [ "string" ],
        "InstancesToTerminate": [ "string" ],
        "InstanceTerminationTimeout": number
    }
},
"Status": {
    "State": "string",
    "StateChangeReason": {
        "Code": "string",
        "Message": "string"
    },
    "Timeline": {
        "CreationDateTime": number,
        "EndDateTime": number,
        "ReadyDateTime": number
    }
}
},
],
"Marker": "string"
}
```

## Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

### InstanceGroups

The list of instance groups for the cluster and given filters.

Type: Array of [InstanceGroup](#) objects

### Marker

The pagination token that indicates the next set of results to retrieve.

Type: String

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

## InternalServerErrorException

This exception occurs when there is an internal failure in the Amazon EMR service.

HTTP Status Code: 500

## InvalidRequestException

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# ListInstances

Provides information for all active Amazon EC2 instances and Amazon EC2 instances terminated in the last 30 days, up to a maximum of 2,000. Amazon EC2 instances in any of the following states are considered active: `AWAITING_FULFILLMENT`, `PROVISIONING`, `BOOTSTRAPPING`, `RUNNING`.

## Request Syntax

```
{
  "ClusterId": "string",
  "InstanceFleetId": "string",
  "InstanceFleetType": "string",
  "InstanceGroupId": "string",
  "InstanceGroupTypes": [ "string" ],
  "InstanceStates": [ "string" ],
  "Marker": "string"
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### ClusterId

The identifier of the cluster for which to list the instances.

Type: String

Required: Yes

### InstanceFleetId

The unique identifier of the instance fleet.

Type: String

Required: No

### InstanceFleetType

The node type of the instance fleet. For example `MASTER`, `CORE`, or `TASK`.

Type: String

Valid Values: MASTER | CORE | TASK

Required: No

### InstanceGroupId

The identifier of the instance group for which to list the instances.

Type: String

Required: No

### InstanceGroupTypes

The type of instance group for which to list the instances.

Type: Array of strings

Valid Values: MASTER | CORE | TASK

Required: No

### InstanceStates

A list of instance states that will filter the instances returned with this request.

Type: Array of strings

Valid Values: AWAITING\_FULFILLMENT | PROVISIONING | BOOTSTRAPPING | RUNNING  
| TERMINATED

Required: No

### Marker

The pagination token that indicates the next set of results to retrieve.

Type: String

Required: No

## Response Syntax

```
{  
  "Instances": [  
    ...  
  ]  
}
```

```

{
  "EbsVolumes": [
    {
      "Device": "string",
      "VolumeId": "string"
    }
  ],
  "Ec2InstanceId": "string",
  "Id": "string",
  "InstanceFleetId": "string",
  "InstanceGroupId": "string",
  "InstanceType": "string",
  "Market": "string",
  "PrivateDnsName": "string",
  "PrivateIpAddress": "string",
  "PublicDnsName": "string",
  "PublicIpAddress": "string",
  "Status": {
    "State": "string",
    "StateChangeReason": {
      "Code": "string",
      "Message": "string"
    },
    "Timeline": {
      "CreationDateTime": number,
      "EndDateTime": number,
      "ReadyDateTime": number
    }
  }
}
],
"Marker": "string"
}

```

## Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

### Instances

The list of instances for the cluster and given filters.

Type: Array of [Instance](#) objects

### [Marker](#)

The pagination token that indicates the next set of results to retrieve.

Type: String

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### **InternalServerError**

This exception occurs when there is an internal failure in the Amazon EMR service.

HTTP Status Code: 500

### **InvalidRequestException**

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)





# ListNotebookExecutions

Provides summaries of all notebook executions. You can filter the list based on multiple criteria such as status, time range, and editor id. Returns a maximum of 50 notebook executions and a marker to track the paging of a longer notebook execution list across multiple ListNotebookExecutions calls.

## Request Syntax

```
{
  "EditorId": "string",
  "ExecutionEngineId": "string",
  "From": number,
  "Marker": "string",
  "Status": "string",
  "To": number
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### EditorId

The unique ID of the editor associated with the notebook execution.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### ExecutionEngineId

The unique ID of the execution engine.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### From

The beginning of time range filter for listing notebook executions. The default is the timestamp of 30 days ago.

Type: Timestamp

Required: No

### Marker

The pagination token, returned by a previous `ListNotebookExecutions` call, that indicates the start of the list for this `ListNotebookExecutions` call.

Type: String

Required: No

### Status

The status filter for listing notebook executions.

- `START_PENDING` indicates that the cluster has received the execution request but execution has not begun.
- `STARTING` indicates that the execution is starting on the cluster.
- `RUNNING` indicates that the execution is being processed by the cluster.
- `FINISHING` indicates that execution processing is in the final stages.
- `FINISHED` indicates that the execution has completed without error.
- `FAILING` indicates that the execution is failing and will not finish successfully.
- `FAILED` indicates that the execution failed.
- `STOP_PENDING` indicates that the cluster has received a `StopNotebookExecution` request and the stop is pending.
- `STOPPING` indicates that the cluster is in the process of stopping the execution as a result of a `StopNotebookExecution` request.
- `STOPPED` indicates that the execution stopped because of a `StopNotebookExecution` request.

Type: String

Valid Values: START\_PENDING | STARTING | RUNNING | FINISHING | FINISHED | FAILING | FAILED | STOP\_PENDING | STOPPING | STOPPED

Required: No

## To

The end of time range filter for listing notebook executions. The default is the current timestamp.

Type: Timestamp

Required: No

## Response Syntax

```
{
  "Marker": "string",
  "NotebookExecutions": [
    {
      "EditorId": "string",
      "EndTime": number,
      "ExecutionEngineId": "string",
      "NotebookExecutionId": "string",
      "NotebookExecutionName": "string",
      "NotebookS3Location": {
        "Bucket": "string",
        "Key": "string"
      },
      "StartTime": number,
      "Status": "string"
    }
  ]
}
```

## Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

## **Marker**

A pagination token that a subsequent `ListNotebookExecutions` can use to determine the next set of results to retrieve.

Type: String

## **NotebookExecutions**

A list of notebook executions.

Type: Array of [NotebookExecutionSummary](#) objects

## **Errors**

For information about the errors that are common to all actions, see [Common Errors](#).

### **InternalServerError**

Indicates that an error occurred while processing the request and that the request was not completed.

HTTP Status Code: 400

### **InvalidRequestException**

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## **See Also**

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)

- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# ListReleaseLabels

Retrieves release labels of Amazon EMR services in the Region where the API is called.

## Request Syntax

```
{
  "Filters": {
    "Application": "string",
    "Prefix": "string"
  },
  "MaxResults": number,
  "NextToken": "string"
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### Filters

Filters the results of the request. `Prefix` specifies the prefix of release labels to return. `Application` specifies the application (with/without version) of release labels to return.

Type: [ReleaseLabelFilter](#) object

Required: No

### MaxResults

Defines the maximum number of release labels to return in a single response. The default is 100.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 100.

Required: No

## NextToken

Specifies the next page of results. If `NextToken` is not specified, which is usually the case for the first request of `ListReleaseLabels`, the first page of results are determined by other filtering parameters or by the latest version. The `ListReleaseLabels` request fails if the identity (Amazon Web Services account ID) and all filtering parameters are different from the original request, or if the `NextToken` is expired or tampered with.

Type: String

Required: No

## Response Syntax

```
{
  "NextToken": "string",
  "ReleaseLabels": [ "string" ]
}
```

## Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

### NextToken

Used to paginate the next page of results if specified in the next `ListReleaseLabels` request.

Type: String

### ReleaseLabels

The returned release labels.

Type: Array of strings

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

## InternalServerErrorException

This exception occurs when there is an internal failure in the Amazon EMR service.

HTTP Status Code: 500

## InvalidRequestException

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)



# ListSecurityConfigurations

Lists all the security configurations visible to this account, providing their creation dates and times, and their names. This call returns a maximum of 50 clusters per call, but returns a marker to track the paging of the cluster list across multiple ListSecurityConfigurations calls.

## Request Syntax

```
{  
  "Marker": "string"  
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### Marker

The pagination token that indicates the set of results to retrieve.

Type: String

Required: No

## Response Syntax

```
{  
  "Marker": "string",  
  "SecurityConfigurations": [  
    {  
      "CreationDateTime": number,  
      "Name": "string"  
    }  
  ]  
}
```

## Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

### Marker

A pagination token that indicates the next set of results to retrieve. Include the marker in the next `ListSecurityConfiguration` call to retrieve the next page of results, if required.

Type: String

### SecurityConfigurations

The creation date and time, and name, of each security configuration.

Type: Array of [SecurityConfigurationSummary](#) objects

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### **InternalServerErrorException**

This exception occurs when there is an internal failure in the Amazon EMR service.

HTTP Status Code: 500

### **InvalidRequestException**

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)

- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# ListSteps

Provides a list of steps for the cluster in reverse order unless you specify `stepIds` with the request or filter by `StepStates`. You can specify a maximum of 10 `stepIDs`. The Amazon CLI automatically paginates results to return a list greater than 50 steps. To return more than 50 steps using the Amazon CLI, specify a `Marker`, which is a pagination token that indicates the next set of steps to retrieve.

## Request Syntax

```
{
  "ClusterId": "string",
  "Marker": "string",
  "StepIds": [ "string" ],
  "StepStates": [ "string" ]
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### ClusterId

The identifier of the cluster for which to list the steps.

Type: String

Required: Yes

### Marker

The maximum number of steps that a single `ListSteps` action returns is 50. To return a longer list of steps, use multiple `ListSteps` actions along with the `Marker` parameter, which is a pagination token that indicates the next set of results to retrieve.

Type: String

Required: No

## StepIds

The filter to limit the step list based on the identifier of the steps. You can specify a maximum of ten Step IDs. The character constraint applies to the overall length of the array.

Type: Array of strings

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\u007F\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

## StepStates

The filter to limit the step list based on certain states.

Type: Array of strings

Valid Values: PENDING | CANCEL\_PENDING | RUNNING | COMPLETED | CANCELLED | FAILED | INTERRUPTED

Required: No

## Response Syntax

```
{
  "Marker": "string",
  "Steps": [
    {
      "ActionOnFailure": "string",
      "Config": {
        "Args": [ "string" ],
        "Jar": "string",
        "MainClass": "string",
        "Properties": {
          "string": "string"
        }
      },
      "Id": "string",
      "Name": "string",
      "Status": {
        "FailureDetails": {
```

```

        "LogFile": "string",
        "Message": "string",
        "Reason": "string"
    },
    "State": "string",
    "StateChangeReason": {
        "Code": "string",
        "Message": "string"
    },
    "Timeline": {
        "CreationDateTime": number,
        "EndDateTime": number,
        "StartDateTime": number
    }
}
}
]
}

```

## Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

### Marker

The maximum number of steps that a single `ListSteps` action returns is 50. To return a longer list of steps, use multiple `ListSteps` actions along with the `Marker` parameter, which is a pagination token that indicates the next set of results to retrieve.

Type: String

### Steps

The filtered list of steps for the cluster.

Type: Array of [StepSummary](#) objects

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

## InternalServerErrorException

This exception occurs when there is an internal failure in the Amazon EMR service.

HTTP Status Code: 500

## InvalidRequestException

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# ListStudios

Returns a list of all Amazon EMR Studios associated with the Amazon Web Services account. The list includes details such as ID, Studio Access URL, and creation time for each Studio.

## Request Syntax

```
{
  "Marker": "string"
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### Marker

The pagination token that indicates the set of results to retrieve.

Type: String

Required: No

## Response Syntax

```
{
  "Marker": "string",
  "Studios": [
    {
      "AuthMode": "string",
      "CreationTime": number,
      "Description": "string",
      "Name": "string",
      "StudioId": "string",
      "Url": "string",
      "VpcId": "string"
    }
  ]
}
```



```
}
```

## Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

### Marker

The pagination token that indicates the next set of results to retrieve.

Type: String

### Studios

The list of Studio summary objects.

Type: Array of [StudioSummary](#) objects

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### **InternalServerError**

This exception occurs when there is an internal failure in the Amazon EMR service.

HTTP Status Code: 500

### **InvalidRequestException**

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)

- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# ListStudioSessionMappings

Returns a list of all user or group session mappings for the Amazon EMR Studio specified by StudioId.

## Request Syntax

```
{  
  "IdentityType": "string",  
  "Marker": "string",  
  "StudioId": "string"  
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### IdentityType

Specifies whether to return session mappings for users or groups. If not specified, the results include session mapping details for both users and groups.

Type: String

Valid Values: USER | GROUP

Required: No

### Marker

The pagination token that indicates the set of results to retrieve.

Type: String

Required: No

### StudioId

The ID of the Amazon EMR Studio.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

## Response Syntax

```
{
  "Marker": "string",
  "SessionMappings": [
    {
      "CreationTime": number,
      "IdentityId": "string",
      "IdentityName": "string",
      "IdentityType": "string",
      "SessionPolicyArn": "string",
      "StudioId": "string"
    }
  ]
}
```

## Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

### Marker

The pagination token that indicates the next set of results to retrieve.

Type: String

### SessionMappings

A list of session mapping summary objects. Each object includes session mapping details such as creation time, identity type (user or group), and Amazon EMR Studio ID.

Type: Array of [SessionMappingSummary](#) objects

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### InternalServerError

Indicates that an error occurred while processing the request and that the request was not completed.

HTTP Status Code: 400

### InvalidRequestException

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# ListSupportedInstanceTypes

A list of the instance types that Amazon EMR supports. You can filter the list by Amazon Region and Amazon EMR release.

## Request Syntax

```
{  
  "Marker": "string",  
  "ReleaseLabel": "string"  
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### Marker

The pagination token that marks the next set of results to retrieve.

Type: String

Required: No

### ReleaseLabel

The Amazon EMR release label determines the [versions of open-source application packages](#) that Amazon EMR has installed on the cluster. Release labels are in the format `emr-x.x.x`, where `x.x.x` is an Amazon EMR release number such as `emr-6.10.0`. For more information about Amazon EMR releases and their included application versions and features, see the [Amazon EMR Release Guide](#).

Type: String

Required: Yes

## Response Syntax

```
{  
  "Marker": "string",
```

```
"SupportedInstanceTypes": [  
  {  
    "Architecture": "string",  
    "EbsOptimizedAvailable": boolean,  
    "EbsOptimizedByDefault": boolean,  
    "EbsStorageOnly": boolean,  
    "InstanceFamilyId": "string",  
    "Is64BitsOnly": boolean,  
    "MemoryGB": number,  
    "NumberOfDisks": number,  
    "StorageGB": number,  
    "Type": "string",  
    "VCPU": number  
  }  
]
```

## Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

### Marker

The pagination token that marks the next set of results to retrieve.

Type: String

### SupportedInstanceTypes

The list of instance types that the release specified in `ListSupportedInstanceTypesInput` `$ReleaseLabel` supports, filtered by Amazon Region.

Type: Array of [SupportedInstanceType](#) objects

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### **InternalServerErrorException**

This exception occurs when there is an internal failure in the Amazon EMR service.

HTTP Status Code: 500

## **InvalidRequestException**

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## **See Also**

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)



# ModifyCluster

Modifies the number of steps that can be executed concurrently for the cluster specified using ClusterID.

## Request Syntax

```
{
  "ClusterId": "string",
  "StepConcurrencyLevel": number
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### ClusterId

The unique identifier of the cluster.

Type: String

Required: Yes

### StepConcurrencyLevel

The number of steps that can be executed concurrently. You can specify a minimum of 1 step and a maximum of 256 steps. We recommend that you do not change this parameter while steps are running or the `ActionOnFailure` setting may not behave as expected. For more information see [Step:ActionOnFailure](#).

Type: Integer

Required: No

## Response Syntax

```
{
```

```
"StepConcurrencyLevel": number
}
```

## Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

### [StepConcurrencyLevel](#)

The number of steps that can be executed concurrently.

Type: Integer

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### **InternalServerError**

Indicates that an error occurred while processing the request and that the request was not completed.

HTTP Status Code: 400

### **InvalidRequestException**

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)

- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# ModifyInstanceFleet

Modifies the target On-Demand and target Spot capacities for the instance fleet with the specified InstanceFleetID within the cluster specified using ClusterID. The call either succeeds or fails atomically.

## Note

The instance fleet configuration is available only in Amazon EMR releases 4.8.0 and later, excluding 5.0.x versions.

## Request Syntax

```
{
  "ClusterId": "string",
  "InstanceFleet": {
    "Context": "string",
    "InstanceFleetId": "string",
    "InstanceTypeConfigs": [
      {
        "BidPrice": "string",
        "BidPriceAsPercentageOfOnDemandPrice": number,
        "Configurations": [
          {
            "Classification": "string",
            "Configurations": [
              "Configuration"
            ],
            "Properties": {
              "string": "string"
            }
          }
        ],
        "CustomAmiId": "string",
        "EbsConfiguration": {
          "EbsBlockDeviceConfigs": [
            {
              "VolumeSpecification": {
                "Iops": number,
                "SizeInGB": number,

```

```

        "Throughput": number,
        "VolumeType": "string"
    },
    "VolumesPerInstance": number
}
],
"EbsOptimized": boolean
},
"InstanceType": "string",
"Priority": number,
"WeightedCapacity": number
}
],
"ResizeSpecifications": {
    "OnDemandResizeSpecification": {
        "AllocationStrategy": "string",
        "CapacityReservationOptions": {
            "CapacityReservationPreference": "string",
            "CapacityReservationResourceGroupArn": "string",
            "UsageStrategy": "string"
        },
        "TimeoutDurationMinutes": number
    },
    "SpotResizeSpecification": {
        "AllocationStrategy": "string",
        "TimeoutDurationMinutes": number
    }
},
"TargetOnDemandCapacity": number,
"TargetSpotCapacity": number
}
}

```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### ClusterId

The unique identifier of the cluster.

Type: String

Required: Yes

## **InstanceFleet**

The configuration parameters of the instance fleet.

Type: [InstanceFleetModifyConfig](#) object

Required: Yes

## **Response Elements**

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

## **Errors**

For information about the errors that are common to all actions, see [Common Errors](#).

### **InternalServerErrorException**

This exception occurs when there is an internal failure in the Amazon EMR service.

HTTP Status Code: 500

### **InvalidRequestException**

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## **See Also**

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)

- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# ModifyInstanceGroups

ModifyInstanceGroups modifies the number of nodes and configuration settings of an instance group. The input parameters include the new target instance count for the group and the instance group ID. The call will either succeed or fail atomically.

## Request Syntax

```
{
  "ClusterId": "string",
  "InstanceGroups": [
    {
      "Configurations": [
        {
          "Classification": "string",
          "Configurations": [
            "Configuration"
          ],
          "Properties": {
            "string" : "string"
          }
        }
      ],
      "EC2InstanceIdsToTerminate": [ "string" ],
      "InstanceCount": number,
      "InstanceGroupId": "string",
      "ReconfigurationType": "string",
      "ShrinkPolicy": {
        "DecommissionTimeout": number,
        "InstanceResizePolicy": {
          "InstancesToProtect": [ "string" ],
          "InstancesToTerminate": [ "string" ],
          "InstanceTerminationTimeout": number
        }
      }
    }
  ]
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).



The request accepts the following data in JSON format.

### ClusterId

The ID of the cluster to which the instance group belongs.

Type: String

Required: No

### InstanceGroups

Instance groups to change.

Type: Array of [InstanceGroupModifyConfig](#) objects

Required: No

## Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### **InternalServerError**

Indicates that an error occurred while processing the request and that the request was not completed.

HTTP Status Code: 400

## Examples

### **Example**

This example illustrates one usage of `ModifyInstanceGroups`.

### **Sample Request**

```
POST / HTTP/1.1
```

```
Content-Type: application/x-amz-json-1.1
X-Amz-Target: ElasticMapReduce.ModifyInstanceGroups
Content-Length: 77
User-Agent: aws-sdk-ruby/1.9.2 ruby/1.9.3 i386-mingw32
Host: us-east-1.elasticmapreduce.amazonaws.com
X-Amz-Date: 20130716T205843Z
X-Amz-Content-Sha256: bb1af3d0c6c6a1a09f21ccd7f04a0e2e6c9ce5b5810b0f6777560fe4f81bda8c
Authorization: AWS4-HMAC-SHA256 Credential=AKIAIOSFODNN7EXAMPLE/20130716/us-east-1/elasticmapreduce/aws4_request, SignedHeaders=content-length;content-type;host;user-agent;x-amz-content-sha256;x-amz-date;x-amz-target,
  Signature=17bbbb4448a1f47a14d5657445e9de5cadf16bed58b850585f80865882133b33
Accept: */*

{"InstanceGroups": [{
  "InstanceGroupId": "ig-1S8NWT31S20VG",
  "InstanceCount": 5
}]}
```

## Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: 80a74808-ee5a-11e2-90db-69a5154aeb8d
Content-Type: application/x-amz-json-1.1
Content-Length: 0
Date: Tue, 16 Jul 2013 20:58:44 GMT
```

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)

- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# PutAutoScalingPolicy

Creates or updates an automatic scaling policy for a core instance group or task instance group in an Amazon EMR cluster. The automatic scaling policy defines how an instance group dynamically adds and terminates Amazon EC2 instances in response to the value of a CloudWatch metric.

## Request Syntax

```
{
  "AutoScalingPolicy": {
    "Constraints": {
      "MaxCapacity": number,
      "MinCapacity": number
    },
    "Rules": [
      {
        "Action": {
          "Market": "string",
          "SimpleScalingPolicyConfiguration": {
            "AdjustmentType": "string",
            "CoolDown": number,
            "ScalingAdjustment": number
          }
        },
        "Description": "string",
        "Name": "string",
        "Trigger": {
          "CloudWatchAlarmDefinition": {
            "ComparisonOperator": "string",
            "Dimensions": [
              {
                "Key": "string",
                "Value": "string"
              }
            ],
            "EvaluationPeriods": number,
            "MetricName": "string",
            "Namespace": "string",
            "Period": number,
            "Statistic": "string",
            "Threshold": number,
            "Unit": "string"
          }
        }
      }
    ]
  }
}
```

```
    }
  }
]
},
"ClusterId": "string",
"InstanceGroupId": "string"
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### AutoScalingPolicy

Specifies the definition of the automatic scaling policy.

Type: [AutoScalingPolicy](#) object

Required: Yes

### ClusterId

Specifies the ID of a cluster. The instance group to which the automatic scaling policy is applied is within this cluster.

Type: String

Required: Yes

### InstanceGroupId

Specifies the ID of the instance group to which the automatic scaling policy is applied.

Type: String

Required: Yes

## Response Syntax

```
{
  "AutoScalingPolicy": {
```

```

    "Constraints": {
      "MaxCapacity": number,
      "MinCapacity": number
    },
    "Rules": [
      {
        "Action": {
          "Market": "string",
          "SimpleScalingPolicyConfiguration": {
            "AdjustmentType": "string",
            "CoolDown": number,
            "ScalingAdjustment": number
          }
        },
        "Description": "string",
        "Name": "string",
        "Trigger": {
          "CloudWatchAlarmDefinition": {
            "ComparisonOperator": "string",
            "Dimensions": [
              {
                "Key": "string",
                "Value": "string"
              }
            ],
            "EvaluationPeriods": number,
            "MetricName": "string",
            "Namespace": "string",
            "Period": number,
            "Statistic": "string",
            "Threshold": number,
            "Unit": "string"
          }
        }
      }
    ],
    "Status": {
      "State": "string",
      "StateChangeReason": {
        "Code": "string",
        "Message": "string"
      }
    }
  },

```

```
"ClusterArn": "string",  
"ClusterId": "string",  
"InstanceGroupId": "string"  
}
```

## Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

### AutoScalingPolicy

The automatic scaling policy definition.

Type: [AutoScalingPolicyDescription](#) object

### ClusterArn

The Amazon Resource Name (ARN) of the cluster.

Type: String

Length Constraints: Minimum length of 20. Maximum length of 2048.

### ClusterId

Specifies the ID of a cluster. The instance group to which the automatic scaling policy is applied is within this cluster.

Type: String

### InstanceGroupId

Specifies the ID of the instance group to which the scaling policy is applied.

Type: String

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)



# PutAutoTerminationPolicy

## Note

Auto-termination is supported in Amazon EMR releases 5.30.0 and 6.1.0 and later. For more information, see [Using an auto-termination policy](#).

Creates or updates an auto-termination policy for an Amazon EMR cluster. An auto-termination policy defines the amount of idle time in seconds after which a cluster automatically terminates. For alternative cluster termination options, see [Control cluster termination](#).

## Request Syntax

```
{
  "AutoTerminationPolicy": {
    "IdleTimeout": number
  },
  "ClusterId": "string"
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### [AutoTerminationPolicy](#)

Specifies the auto-termination policy to attach to the cluster.

Type: [AutoTerminationPolicy](#) object

Required: No

### [ClusterId](#)

Specifies the ID of the Amazon EMR cluster to which the auto-termination policy will be attached.

Type: String

Required: Yes

## Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# PutBlockPublicAccessConfiguration

Creates or updates an Amazon EMR block public access configuration for your Amazon Web Services account in the current Region. For more information see [Configure Block Public Access for Amazon EMR](#) in the *Amazon EMR Management Guide*.

## Request Syntax

```
{
  "BlockPublicAccessConfiguration": {
    "BlockPublicSecurityGroupRules": boolean,
    "PermittedPublicSecurityGroupRuleRanges": [
      {
        "MaxRange": number,
        "MinRange": number
      }
    ]
  }
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### [BlockPublicAccessConfiguration](#)

A configuration for Amazon EMR block public access. The configuration applies to all clusters created in your account for the current Region. The configuration specifies whether block public access is enabled. If block public access is enabled, security groups associated with the cluster cannot have rules that allow inbound traffic from 0.0.0.0/0 or ::/0 on a port, unless the port is specified as an exception using `PermittedPublicSecurityGroupRuleRanges` in the `BlockPublicAccessConfiguration`. By default, Port 22 (SSH) is an exception, and public access is allowed on this port. You can change this by updating `BlockPublicSecurityGroupRules` to remove the exception.

**Note**

For accounts that created clusters in a Region before November 25, 2019, block public access is disabled by default in that Region. To use this feature, you must manually enable and configure it. For accounts that did not create an Amazon EMR cluster in a Region before this date, block public access is enabled by default in that Region.

Type: [BlockPublicAccessConfiguration](#) object

Required: Yes

## Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### InternalServerErrorException

This exception occurs when there is an internal failure in the Amazon EMR service.

HTTP Status Code: 500

### InvalidRequestException

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)

- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# PutManagedScalingPolicy

Creates or updates a managed scaling policy for an Amazon EMR cluster. The managed scaling policy defines the limits for resources, such as Amazon EC2 instances that can be added or terminated from a cluster. The policy only applies to the core and task nodes. The master node cannot be scaled after initial configuration.

## Request Syntax

```
{
  "ClusterId": "string",
  "ManagedScalingPolicy": {
    "ComputeLimits": {
      "MaximumCapacityUnits": number,
      "MaximumCoreCapacityUnits": number,
      "MaximumOnDemandCapacityUnits": number,
      "MinimumCapacityUnits": number,
      "UnitType": "string"
    },
    "ScalingStrategy": "string",
    "UtilizationPerformanceIndex": number
  }
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### ClusterId

Specifies the ID of an Amazon EMR cluster where the managed scaling policy is attached.

Type: String

Required: Yes

### ManagedScalingPolicy

Specifies the constraints for the managed scaling policy.

Type: [ManagedScalingPolicy](#) object

Required: Yes

## Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# RemoveAutoScalingPolicy

Removes an automatic scaling policy from a specified instance group within an Amazon EMR cluster.

## Request Syntax

```
{  
  "ClusterId": "string",  
  "InstanceGroupId": "string"  
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### ClusterId

Specifies the ID of a cluster. The instance group to which the automatic scaling policy is applied is within this cluster.

Type: String

Required: Yes

### InstanceGroupId

Specifies the ID of the instance group to which the scaling policy is applied.

Type: String

Required: Yes

## Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).



## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# RemoveAutoTerminationPolicy

Removes an auto-termination policy from an Amazon EMR cluster.

## Request Syntax

```
{  
  "ClusterId": "string"  
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### ClusterId

Specifies the ID of the Amazon EMR cluster from which the auto-termination policy will be removed.

Type: String

Required: Yes

## Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)

- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# RemoveManagedScalingPolicy

Removes a managed scaling policy from a specified Amazon EMR cluster.

## Request Syntax

```
{  
  "ClusterId": "string"  
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### ClusterId

Specifies the ID of the cluster from which the managed scaling policy will be removed.

Type: String

Required: Yes

## Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)

- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# RemoveTags

Removes tags from an Amazon EMR resource, such as a cluster or Amazon EMR Studio. Tags make it easier to associate resources in various ways, such as grouping clusters to track your Amazon EMR resource allocation costs. For more information, see [Tag Clusters](#).

The following example removes the stack tag with value Prod from a cluster:

## Request Syntax

```
{
  "ResourceId": "string",
  "TagKeys": [ "string" ]
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### [ResourceId](#)

The Amazon EMR resource identifier from which tags will be removed. For example, a cluster identifier or an Amazon EMR Studio ID.

Type: String

Required: Yes

### [TagKeys](#)

A list of tag keys to remove from the resource.

Type: Array of strings

Required: Yes

## Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### InternalServerError

This exception occurs when there is an internal failure in the Amazon EMR service.

HTTP Status Code: 500

### InvalidRequestException

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## Examples

### Example

This example illustrates one usage of `RemoveTags`.

### Sample Request

```
POST / HTTP/1.1

Content-Type: application/x-amz-json-1.1

X-Amz-Target: ElasticMapReduce.RemoveTags

AUTHPARAMS

{

  "ResourceId": "j-3U7TSX5GZFD8Y",

  "Tags": [{
```

```
    "Key": "stack",  
  
    "Value": "Prod"  
  
  }  
  
}
```

## Sample Response

```
HTTP/1.1 200 OK  
  
x-amzn-RequestId: 9da5a349-ed9e-11e2-90db-69a5154aeb8d  
  
Content-Type: application/x-amz-json-1.1  
  
Content-Length: 71  
  
Date: Mon, 15 Jul 2013 22:33:47 GMT  
  
{  
  
}
```

## Example

The following example removes the stack and hbase tags from a cluster:



## Sample Request

```
POST / HTTP/1.1
```

```
Content-Type: application/x-amz-json-1.1
```

```
X-Amz-Target: ElasticMapReduce.RemoveTags
```

```
AUTHPARAMS
```

```
{  
  
  "ResourceId": "j-3U7TSX5GZFD8Y",  
  
  "Tags": [{  
  
    "Key": "stack"  
  
  },  
  
  {  
  
    "Key": "hbase"  
  
  }]  
  
}
```

## Sample Response

```
HTTP/1.1 200 OK

x-amzn-RequestId: 9da5a349-ed9e-11e2-90db-69a5154aeb8d

Content-Type: application/x-amz-json-1.1

Content-Length: 71

Date: Mon, 15 Jul 2013 22:33:47 GMT

{

}
```

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)



# RunJobFlow

RunJobFlow creates and starts running a new cluster (job flow). The cluster runs the steps specified. After the steps complete, the cluster stops and the HDFS partition is lost. To prevent loss of data, configure the last step of the job flow to store results in Amazon S3. If the [JobFlowInstancesConfig](#) `KeepJobFlowAliveWhenNoSteps` parameter is set to `TRUE`, the cluster transitions to the `WAITING` state rather than shutting down after the steps have completed.

For additional protection, you can set the [JobFlowInstancesConfig](#) `TerminationProtected` parameter to `TRUE` to lock the cluster and prevent it from being terminated by API call, user intervention, or in the event of a job flow error.

A maximum of 256 steps are allowed in each job flow.

If your cluster is long-running (such as a Hive data warehouse) or complex, you may require more than 256 steps to process your data. You can bypass the 256-step limitation in various ways, including using the SSH shell to connect to the master node and submitting queries directly to the software running on the master node, such as Hive and Hadoop.

For long-running clusters, we recommend that you periodically store your results.

## Note

The instance fleets configuration is available only in Amazon EMR releases 4.8.0 and later, excluding 5.0.x versions. The RunJobFlow request can contain InstanceFleets parameters or InstanceGroups parameters, but not both.

## Request Syntax

```
{
  "AdditionalInfo": "string",
  "AmiVersion": "string",
  "Applications": [
    {
      "AdditionalInfo": {
        "string": "string"
      },
      "Args": [ "string" ],
      "Name": "string",
```

```

    "Version": "string"
  }
],
"AutoScalingRole": "string",
"AutoTerminationPolicy": {
  "IdleTimeout": number
},
"BootstrapActions": [
  {
    "Name": "string",
    "ScriptBootstrapAction": {
      "Args": [ "string" ],
      "Path": "string"
    }
  }
],
"Configurations": [
  {
    "Classification": "string",
    "Configurations": [
      "Configuration"
    ],
    "Properties": {
      "string" : "string"
    }
  }
],
"CustomAmiId": "string",
"EbsRootVolumeIops": number,
"EbsRootVolumeSize": number,
"EbsRootVolumeThroughput": number,
"Instances": {
  "AdditionalMasterSecurityGroups": [ "string" ],
  "AdditionalSlaveSecurityGroups": [ "string" ],
  "Ec2KeyName": "string",
  "Ec2SubnetId": "string",
  "Ec2SubnetIds": [ "string" ],
  "EmrManagedMasterSecurityGroup": "string",
  "EmrManagedSlaveSecurityGroup": "string",
  "HadoopVersion": "string",
  "InstanceCount": number,
  "InstanceFleets": [
    {
      "Context": "string",

```

```

"InstanceFleetType": "string",
"InstanceTypeConfigs": [
  {
    "BidPrice": "string",
    "BidPriceAsPercentageOfOnDemandPrice": number,
    "Configurations": [
      {
        "Classification": "string",
        "Configurations": [
          "Configuration"
        ],
        "Properties": {
          "string": "string"
        }
      }
    ],
    "CustomAmiId": "string",
    "EbsConfiguration": {
      "EbsBlockDeviceConfigs": [
        {
          "VolumeSpecification": {
            "Iops": number,
            "SizeInGB": number,
            "Throughput": number,
            "VolumeType": "string"
          },
          "VolumesPerInstance": number
        }
      ],
      "EbsOptimized": boolean
    },
    "InstanceType": "string",
    "Priority": number,
    "WeightedCapacity": number
  }
],
"LaunchSpecifications": {
  "OnDemandSpecification": {
    "AllocationStrategy": "string",
    "CapacityReservationOptions": {
      "CapacityReservationPreference": "string",
      "CapacityReservationResourceGroupArn": "string",
      "UsageStrategy": "string"
    }
  }
}

```

```

    },
    "SpotSpecification": {
      "AllocationStrategy": "string",
      "BlockDurationMinutes": number,
      "TimeoutAction": "string",
      "TimeoutDurationMinutes": number
    }
  },
  "Name": "string",
  "ResizeSpecifications": {
    "OnDemandResizeSpecification": {
      "AllocationStrategy": "string",
      "CapacityReservationOptions": {
        "CapacityReservationPreference": "string",
        "CapacityReservationResourceGroupArn": "string",
        "UsageStrategy": "string"
      },
      "TimeoutDurationMinutes": number
    },
    "SpotResizeSpecification": {
      "AllocationStrategy": "string",
      "TimeoutDurationMinutes": number
    }
  },
  "TargetOnDemandCapacity": number,
  "TargetSpotCapacity": number
}
],
"InstanceGroups": [
  {
    "AutoScalingPolicy": {
      "Constraints": {
        "MaxCapacity": number,
        "MinCapacity": number
      },
      "Rules": [
        {
          "Action": {
            "Market": "string",
            "SimpleScalingPolicyConfiguration": {
              "AdjustmentType": "string",
              "CoolDown": number,
              "ScalingAdjustment": number
            }
          }
        }
      ]
    }
  }
]

```

```

    },
    "Description": "string",
    "Name": "string",
    "Trigger": {
      "CloudWatchAlarmDefinition": {
        "ComparisonOperator": "string",
        "Dimensions": [
          {
            "Key": "string",
            "Value": "string"
          }
        ],
        "EvaluationPeriods": number,
        "MetricName": "string",
        "Namespace": "string",
        "Period": number,
        "Statistic": "string",
        "Threshold": number,
        "Unit": "string"
      }
    }
  ]
},
"BidPrice": "string",
"Configurations": [
  {
    "Classification": "string",
    "Configurations": [
      "Configuration"
    ],
    "Properties": {
      "string": "string"
    }
  }
],
"CustomAmiId": "string",
"EbsConfiguration": {
  "EbsBlockDeviceConfigs": [
    {
      "VolumeSpecification": {
        "Iops": number,
        "SizeInGB": number,
        "Throughput": number,

```



```

        "VolumeType": "string"
      },
      "VolumesPerInstance": number
    }
  ],
  "EbsOptimized": boolean
},
"InstanceCount": number,
"InstanceRole": "string",
"InstanceType": "string",
"Market": "string",
"Name": "string"
}
],
"KeepJobFlowAliveWhenNoSteps": boolean,
"MasterInstanceType": "string",
"Placement": {
  "AvailabilityZone": "string",
  "AvailabilityZones": [ "string" ]
},
"ServiceAccessSecurityGroup": "string",
"SlaveInstanceType": "string",
"TerminationProtected": boolean,
"UnhealthyNodeReplacement": boolean
},
"JobFlowRole": "string",
"KerberosAttributes": {
  "ADDomainJoinPassword": "string",
  "ADDomainJoinUser": "string",
  "CrossRealmTrustPrincipalPassword": "string",
  "KdcAdminPassword": "string",
  "Realm": "string"
},
"LogEncryptionKmsKeyId": "string",
"LogUri": "string",
"ManagedScalingPolicy": {
  "ComputeLimits": {
    "MaximumCapacityUnits": number,
    "MaximumCoreCapacityUnits": number,
    "MaximumOnDemandCapacityUnits": number,
    "MinimumCapacityUnits": number,
    "UnitType": "string"
  },
  "ScalingStrategy": "string",

```

```
    "UtilizationPerformanceIndex": number
  },
  "Name": "string",
  "NewSupportedProducts": [
    {
      "Args": [ "string" ],
      "Name": "string"
    }
  ],
  "OSReleaseLabel": "string",
  "PlacementGroupConfigs": [
    {
      "InstanceRole": "string",
      "PlacementStrategy": "string"
    }
  ],
  "ReleaseLabel": "string",
  "RepoUpgradeOnBoot": "string",
  "ScaleDownBehavior": "string",
  "SecurityConfiguration": "string",
  "ServiceRole": "string",
  "StepConcurrencyLevel": number,
  "Steps": [
    {
      "ActionOnFailure": "string",
      "HadoopJarStep": {
        "Args": [ "string" ],
        "Jar": "string",
        "MainClass": "string",
        "Properties": [
          {
            "Key": "string",
            "Value": "string"
          }
        ]
      }
    },
    {
      "Name": "string"
    }
  ],
  "SupportedProducts": [ "string" ],
  "Tags": [
    {
      "Key": "string",
      "Value": "string"
    }
  ]
}
```

```
    }  
  ],  
  "VisibleToAllUsers": boolean  
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### AdditionalInfo

A JSON string for selecting additional features.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### AmiVersion

Applies only to Amazon EMR AMI versions 3.x and 2.x. For Amazon EMR releases 4.0 and later, `ReleaseLabel` is used. To specify a custom AMI, use `CustomAmiID`.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### Applications

Applies to Amazon EMR releases 4.0 and later. A case-insensitive list of applications for Amazon EMR to install and configure when launching the cluster. For a list of applications available for each Amazon EMR release version, see the [Amazon EMRRelease Guide](#).

Type: Array of [Application](#) objects

Required: No

## AutoScalingRole

An IAM role for automatic scaling policies. The default role is `EMR_AutoScaling_DefaultRole`. The IAM role provides permissions that the automatic scaling feature requires to launch and terminate Amazon EC2 instances in an instance group.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\x\n\t]*`

Required: No

## AutoTerminationPolicy

An auto-termination policy for an Amazon EMR cluster. An auto-termination policy defines the amount of idle time in seconds after which a cluster automatically terminates. For alternative cluster termination options, see [Control cluster termination](#).

Type: [AutoTerminationPolicy](#) object

Required: No

## BootstrapActions

A list of bootstrap actions to run before Hadoop starts on the cluster nodes.

Type: Array of [BootstrapActionConfig](#) objects

Required: No

## Configurations

For Amazon EMR releases 4.0 and later. The list of configurations supplied for the Amazon EMR cluster that you are creating.

Type: Array of [Configuration](#) objects

Required: No

## CustomAmild

Available only in Amazon EMR releases 5.7.0 and later. The ID of a custom Amazon EBS-backed Linux AMI. If specified, Amazon EMR uses this AMI when it launches cluster Amazon EC2 instances. For more information about custom AMIs in Amazon EMR, see [Using a Custom AMI](#)

in the *Amazon EMR Management Guide*. If omitted, the cluster uses the base Linux AMI for the `ReleaseLabel` specified. For Amazon EMR releases 2.x and 3.x, use `AmiVersion` instead.

For information about creating a custom AMI, see [Creating an Amazon EBS-Backed Linux AMI](#) in the *Amazon Elastic Compute Cloud User Guide for Linux Instances*. For information about finding an AMI ID, see [Finding a Linux AMI](#).

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### [EbsRootVolumeIops](#)

The IOPS, of the Amazon EBS root device volume of the Linux AMI that is used for each Amazon EC2 instance. Available in Amazon EMR releases 6.15.0 and later.

Type: Integer

Required: No

### [EbsRootVolumeSize](#)

The size, in GiB, of the Amazon EBS root device volume of the Linux AMI that is used for each Amazon EC2 instance. Available in Amazon EMR releases 4.x and later.

Type: Integer

Required: No

### [EbsRootVolumeThroughput](#)

The throughput, in MiB/s, of the Amazon EBS root device volume of the Linux AMI that is used for each Amazon EC2 instance. Available in Amazon EMR releases 6.15.0 and later.

Type: Integer

Required: No

### [Instances](#)

A specification of the number and type of Amazon EC2 instances.

Type: [JobFlowInstancesConfig](#) object

Required: Yes

### JobFlowRole

Also called instance profile and Amazon EC2 role. An IAM role for an Amazon EMR cluster. The Amazon EC2 instances of the cluster assume this role. The default role is `EMR_EC2_DefaultRole`. In order to use the default role, you must have already created it using the Amazon CLI or console.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### KerberosAttributes

Attributes for Kerberos configuration when Kerberos authentication is enabled using a security configuration. For more information see [Use Kerberos Authentication](#) in the *Amazon EMR Management Guide*.

Type: [KerberosAttributes](#) object

Required: No

### LogEncryptionKmsKeyId

The Amazon KMS key used for encrypting log files. If a value is not provided, the logs remain encrypted by AES-256. This attribute is only available with Amazon EMR releases 5.30.0 and later, excluding Amazon EMR 6.0.0.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### LogUri

The location in Amazon S3 to write the log files of the job flow. If a value is not provided, logs are not created.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### ManagedScalingPolicy

The specified managed scaling policy for an Amazon EMR cluster.

Type: [ManagedScalingPolicy](#) object

Required: No

### Name

The name of the job flow.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

### NewSupportedProducts

#### Note

For Amazon EMR releases 3.x and 2.x. For Amazon EMR releases 4.x and later, use Applications.

A list of strings that indicates third-party software to use with the job flow that accepts a user argument list. Amazon EMR accepts and forwards the argument list to the corresponding installation script as bootstrap action arguments. For more information, see "Launch a Job Flow on the MapR Distribution for Hadoop" in the [Amazon EMR Developer Guide](#). Supported values are:

- "mapr-m3" - launch the cluster using MapR M3 Edition.
- "mapr-m5" - launch the cluster using MapR M5 Edition.

- "mapr" with the user arguments specifying "--edition,m3" or "--edition,m5" - launch the job flow using MapR M3 or M5 Edition respectively.
- "mapr-m7" - launch the cluster using MapR M7 Edition.
- "hunk" - launch the cluster with the Hunk Big Data Analytics Platform.
- "hue"- launch the cluster with Hue installed.
- "spark" - launch the cluster with Apache Spark installed.
- "ganglia" - launch the cluster with the Ganglia Monitoring System installed.

Type: Array of [SupportedProductConfig](#) objects

Required: No

### [OSReleaseLabel](#)

Specifies a particular Amazon Linux release for all nodes in a cluster launch RunJobFlow request. If a release is not specified, Amazon EMR uses the latest validated Amazon Linux release for cluster launch.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### [PlacementGroupConfigs](#)

The specified placement group configuration for an Amazon EMR cluster.

Type: Array of [PlacementGroupConfig](#) objects

Required: No

### [ReleaseLabel](#)

The Amazon EMR release label, which determines the version of open-source application packages installed on the cluster. Release labels are in the form `emr-x.x.x`, where `x.x.x` is an Amazon EMR release version such as `emr-5.14.0`. For more information about Amazon EMR release versions and included application versions and features, see <https://docs.amazonaws.cn/emr/latest/ReleaseGuide/>. The release label applies only to Amazon EMR releases version 4.0 and later. Earlier versions use `AmiVersion`.



Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### RepoUpgradeOnBoot

Applies only when `CustomAmiID` is used. Specifies which updates from the Amazon Linux AMI package repositories to apply automatically when the instance boots using the AMI. If omitted, the default is `SECURITY`, which indicates that only security updates are applied. If `NONE` is specified, no updates are applied, and all updates must be applied manually.

Type: String

Valid Values: `SECURITY` | `NONE`

Required: No

### ScaleDownBehavior

Specifies the way that individual Amazon EC2 instances terminate when an automatic scale-in activity occurs or an instance group is resized. `TERMINATE_AT_INSTANCE_HOUR` indicates that Amazon EMR terminates nodes at the instance-hour boundary, regardless of when the request to terminate the instance was submitted. This option is only available with Amazon EMR 5.1.0 and later and is the default for clusters created using that version. `TERMINATE_AT_TASK_COMPLETION` indicates that Amazon EMR adds nodes to a deny list and drains tasks from nodes before terminating the Amazon EC2 instances, regardless of the instance-hour boundary. With either behavior, Amazon EMR removes the least active nodes first and blocks instance termination if it could lead to HDFS corruption. `TERMINATE_AT_TASK_COMPLETION` available only in Amazon EMR releases 4.1.0 and later, and is the default for releases of Amazon EMR earlier than 5.1.0.

Type: String

Valid Values: `TERMINATE_AT_INSTANCE_HOUR` | `TERMINATE_AT_TASK_COMPLETION`

Required: No

### SecurityConfiguration

The name of a security configuration to apply to the cluster.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### ServiceRole

The IAM role that Amazon EMR assumes in order to access Amazon resources on your behalf. If you've created a custom service role path, you must specify it for the service role when you launch your cluster.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### StepConcurrencyLevel

Specifies the number of steps that can be executed concurrently. The default value is 1. The maximum value is 256.

Type: Integer

Required: No

### Steps

A list of steps to run.

Type: Array of [StepConfig](#) objects

Required: No

### SupportedProducts

#### Note

For Amazon EMR releases 3.x and 2.x. For Amazon EMR releases 4.x and later, use Applications.

A list of strings that indicates third-party software to use. For more information, see the [Amazon EMR Developer Guide](#). Currently supported values are:

- "mapr-m3" - launch the job flow using MapR M3 Edition.
- "mapr-m5" - launch the job flow using MapR M5 Edition.

Type: Array of strings

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

## Tags

A list of tags to associate with a cluster and propagate to Amazon EC2 instances.

Type: Array of [Tag](#) objects

Required: No

## VisibleToAllUsers

### Important

The `VisibleToAllUsers` parameter is no longer supported. By default, the value is set to `true`. Setting it to `false` now has no effect.

Set this value to `true` so that IAM principals in the Amazon Web Services account associated with the cluster can perform Amazon EMR actions on the cluster that their IAM policies allow. This value defaults to `true` for clusters created using the Amazon EMR API or the Amazon CLI [create-cluster](#) command.

When set to `false`, only the IAM principal that created the cluster and the Amazon Web Services account root user can perform Amazon EMR actions for the cluster, regardless of the IAM permissions policies attached to other IAM principals. For more information, see [Understanding the Amazon EMR cluster VisibleToAllUsers setting](#) in the *Amazon EMR Management Guide*.

Type: Boolean



HTTP Status Code: 400

## Examples

### Example 1

This example illustrates one usage of RunJobFlow.

#### Sample Request

```
POST / HTTP/1.1
Content-Type: application/x-amz-json-1.1
X-Amz-Target: ElasticMapReduce.RunJobFlow
Content-Length: 734
User-Agent: aws-sdk-ruby/1.9.2 ruby/1.9.3 i386-mingw32
Host: us-east-1.elasticmapreduce.amazonaws.com
X-Amz-Date: 20130715T210803Z
X-Amz-Content-Sha256: 8676d21986e4628a89fb1232a1344063778d4ffc23d10be02b437e0d53a24db3
Authorization: AWS4-HMAC-SHA256 Credential=AKIAIOSFODNN7EXAMPLE/20130715/us-east-1/elasticmapreduce/aws4_request, SignedHeaders=content-length;content-type;host;user-agent;x-amz-content-sha256;x-amz-date;x-amz-target, Signature=71f79725c4dbe77c0e842718485f0b37fe6df69e1153c80f7748ebd9617ca2f3
Accept: */*
```

```
{
  "Name": "Development Job Flow",
  "Instances": {
    "KeepJobFlowAliveWhenNoSteps": "false",
    "TerminationProtected": "false",
    "InstanceGroups": [{
      "Name": "Master Instance Group",
      "InstanceRole": "MASTER",
      "InstanceCount": 1,
      "InstanceType": "m1.small",
      "Market": "ON_DEMAND"
    }]
  },
  "Steps": [{
    "Name": "Example Streaming Step",
    "ActionOnFailure": "CANCEL_AND_WAIT",
    "HadoopJarStep": {
      "Jar": "/home/hadoop/contrib/streaming/hadoop-streaming.jar",
```

```
        "Args": [
            "-input",
            "s3://elasticmapreduce/samples/wordcount/input",
            "-output",
            "s3://examples-bucket/example-output",
            "-mapper",
            "s3://elasticmapreduce/samples/wordcount/wordSplitter.py",
            "-reducer",
            "aggregate"
        ]
    },
    "BootstrapActions": [],
    "NewSupportedProduct": [],
    "AmiVersion": "3.8.0"
}
```

## Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: a4406d6b-ed92-11e2-9787-192218ecb460
Content-Type: application/x-amz-json-1.1
Content-Length: 31
Date: Mon, 15 Jul 2013 21:08:05 GMT

{"JobFlowId": "j-ZKIY4CKQRX72"}
```

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)

- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# SetKeepJobFlowAliveWhenNoSteps

You can use the `SetKeepJobFlowAliveWhenNoSteps` to configure a cluster (job flow) to terminate after the step execution, i.e., all your steps are executed. If you want a transient cluster that shuts down after the last of the current executing steps are completed, you can configure `SetKeepJobFlowAliveWhenNoSteps` to false. If you want a long running cluster, configure `SetKeepJobFlowAliveWhenNoSteps` to true.

For more information, see [Managing Cluster Termination](#) in the *Amazon EMR Management Guide*.

## Request Syntax

```
{
  "JobFlowIds": [ "string" ],
  "KeepJobFlowAliveWhenNoSteps": boolean
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### JobFlowIds

A list of strings that uniquely identify the clusters to protect. This identifier is returned by [RunJobFlow](#) and can also be obtained from [DescribeJobFlows](#).

Type: Array of strings

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

### KeepJobFlowAliveWhenNoSteps

A Boolean that indicates whether to terminate the cluster after all steps are executed.

Type: Boolean



Required: Yes

## Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### InternalServerError

Indicates that an error occurred while processing the request and that the request was not completed.

HTTP Status Code: 400

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# SetTerminationProtection

SetTerminationProtection locks a cluster (job flow) so the Amazon EC2 instances in the cluster cannot be terminated by user intervention, an API call, or in the event of a job-flow error. The cluster still terminates upon successful completion of the job flow. Calling SetTerminationProtection on a cluster is similar to calling the Amazon EC2 DisableAPITermination API on all Amazon EC2 instances in a cluster.

SetTerminationProtection is used to prevent accidental termination of a cluster and to ensure that in the event of an error, the instances persist so that you can recover any data stored in their ephemeral instance storage.

To terminate a cluster that has been locked by setting SetTerminationProtection to true, you must first unlock the job flow by a subsequent call to SetTerminationProtection in which you set the value to false.

For more information, see [Managing Cluster Termination](#) in the *Amazon EMR Management Guide*.

## Request Syntax

```
{
  "JobFlowIds": [ "string" ],
  "TerminationProtected": boolean
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### JobFlowIds

A list of strings that uniquely identify the clusters to protect. This identifier is returned by [RunJobFlow](#) and can also be obtained from [DescribeJobFlows](#).

Type: Array of strings

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\u007F\u00E0-\u00FF\u0080-\u00FF\u00D8-\u00DC\u00DB-\u00FF\u00r\u00n\u00t]*`

Required: Yes

## TerminationProtected

A Boolean that indicates whether to protect the cluster and prevent the Amazon EC2 instances in the cluster from shutting down due to API calls, user intervention, or job-flow error.

Type: Boolean

Required: Yes

## Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### InternalServerError

Indicates that an error occurred while processing the request and that the request was not completed.

HTTP Status Code: 400

## Examples

### Example

This example illustrates one usage of SetTerminationProtection.

### Sample Request

```
POST / HTTP/1.1
Content-Type: application/x-amz-json-1.1
X-Amz-Target: ElasticMapReduce.SetTerminationProtection
Content-Length: 61
User-Agent: aws-sdk-ruby/1.9.2 ruby/1.9.3 i386-mingw32
Host: us-east-1.elasticmapreduce.amazonaws.com
X-Amz-Date: 20130716T211420Z
```

```
X-Amz-Content-Sha256: c362fadae0fce377aa63f04388aeb90c53cedb17a8bfbb8cffcb10c2378137f9
Authorization: AWS4-HMAC-SHA256 Credential=AKIAIOSFODNN7EXAMPLE/20130716/us-
east-1/elasticmapreduce/aws4_request, SignedHeaders=content-length;content-
type;host;user-agent;x-amz-content-sha256;x-amz-date;x-amz-target,
Signature=764b6aa1a38733cadff35a2e884887e9f1208a422266bc83ac77e8d0b80bd4cf
Accept: */*

{
  "JobFlowIds": ["j-3TS00IY04NFN"],
  "TerminationProtected": true
}
```

## Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: af23b1db-ee5c-11e2-9787-192218ecb460
Content-Type: application/x-amz-json-1.1
Content-Length: 0
Date: Tue, 16 Jul 2013 21:14:21 GMT
```

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)



## UnhealthyNodeReplacement

Indicates whether to turn on or turn off graceful unhealthy node replacement.

Type: Boolean

Required: Yes

## Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### InternalServerError

Indicates that an error occurred while processing the request and that the request was not completed.

HTTP Status Code: 400

## Examples

### Example

This example illustrates one usage of SetUnhealthyNodeReplacement.

### Sample Request

```
POST / HTTP/1.1
Content-Type: application/x-amz-json-1.1
X-Amz-Target: ElasticMapReduce.SetUnhealthyNodeReplacement
Content-Length: 61
User-Agent: aws-sdk-ruby/1.9.2 ruby/1.9.3 i386-mingw32
Host: us-east-1.elasticmapreduce.amazonaws.com
X-Amz-Date: 20130716T211420Z
X-Amz-Content-Sha256: c362fadae0fce377aa63f04388aeb90c53cedb17a8bfbb8cffcb10c2378137f9
Authorization: AWS4-HMAC-SHA256 Credential=AKIAIOSFODNN7EXAMPLE/20130716/us-east-1/elasticmapreduce/aws4_request, SignedHeaders=content-length;content-
```

```
type;host;user-agent;x-amz-content-sha256;x-amz-date;x-amz-target,  
Signature=764b6aa1a38733cadff35a2e884887e9f1208a422266bc83ac77e8d0b80bd4cf  
Accept: */*  
  
{  
  "JobFlowIds": ["j-3TS00IY04NFN"],  
  "SetUnhealthyNodeReplacement": true  
}
```

## Sample Response

```
HTTP/1.1 200 OK  
x-amzn-RequestId: af23b1db-ee5c-11e2-9787-192218ecb460  
Content-Type: application/x-amz-json-1.1  
Content-Length: 0  
Date: Tue, 16 Jul 2013 21:14:21 GMT
```

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# SetVisibleToAllUsers

## Important

The `SetVisibleToAllUsers` parameter is no longer supported. Your cluster may be visible to all users in your account. To restrict cluster access using an IAM policy, see [Identity and Access Management for Amazon EMR](#).

Sets the [Cluster:VisibleToAllUsers](#) value for an Amazon EMR cluster. When `true`, IAM principals in the Amazon Web Services account can perform Amazon EMR cluster actions that their IAM policies allow. When `false`, only the IAM principal that created the cluster and the Amazon Web Services account root user can perform Amazon EMR actions on the cluster, regardless of IAM permissions policies attached to other IAM principals.

This action works on running clusters. When you create a cluster, use the [RunJobFlow:VisibleToAllUsers](#) parameter.

For more information, see [Understanding the Amazon EMR Cluster VisibleToAllUsers Setting](#) in the *Amazon EMR Management Guide*.

## Request Syntax

```
{
  "JobFlowIds": [ "string" ],
  "VisibleToAllUsers": boolean
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### JobFlowIds

The unique identifier of the job flow (cluster).

Type: Array of strings



Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

### VisibleToAllUsers

A value of `true` indicates that an IAM principal in the Amazon Web Services account can perform Amazon EMR actions on the cluster that the IAM policies attached to the principal allow. A value of `false` indicates that only the IAM principal that created the cluster and the Amazon root user can perform Amazon EMR actions on the cluster.

Type: Boolean

Required: Yes

## Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### InternalServerError

Indicates that an error occurred while processing the request and that the request was not completed.

HTTP Status Code: 400

## Examples

### Example

This example illustrates one usage of `SetVisibleToAllUsers`.

### Sample Request

```
POST / HTTP/1.1
```

```
Content-Type: application/x-amz-json-1.1
X-Amz-Target: ElasticMapReduce.SetVisibleToAllUsers
Content-Length: 58
User-Agent: aws-sdk-ruby/1.9.2 ruby/1.9.3 i386-mingw32
Host: us-east-1.elasticmapreduce.amazonaws.com
X-Amz-Date: 20130715T221616Z
X-Amz-Content-Sha256: 2ff32d11eab2383d764ffcb97571454e798689ecd09a7b1bb2327e22b0b930d4
Authorization: AWS4-HMAC-SHA256 Credential=AKIAIOSFODNN7EXAMPLE/20130715/us-
east-1/elasticmapreduce/aws4_request, SignedHeaders=content-length;content-
type;host;user-agent;x-amz-content-sha256;x-amz-date;x-amz-target,
Signature=e1a00b37787d9ccc43c9de32f1f0a73813b0bd6643d4db7762b62a7092d51997
Accept: */*

{
  "JobFlowIds": ["j-ZKIY4CKQRX72"],
  "VisibleToAllUsers": true
}
```

## Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: 2be9cde9-ed9c-11e2-82b6-2351cde3f33f
Content-Type: application/x-amz-json-1.1
Content-Length: 0
Date: Mon, 15 Jul 2013 22:16:18 GMT
```

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)

- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# StartNotebookExecution

Starts a notebook execution.

## Request Syntax

```
{
  "EditorId": "string",
  "EnvironmentVariables": {
    "string" : "string"
  },
  "ExecutionEngine": {
    "ExecutionRoleArn": "string",
    "Id": "string",
    "MasterInstanceSecurityGroupId": "string",
    "Type": "string"
  },
  "NotebookExecutionName": "string",
  "NotebookInstanceSecurityGroupId": "string",
  "NotebookParams": "string",
  "NotebookS3Location": {
    "Bucket": "string",
    "Key": "string"
  },
  "OutputNotebookFormat": "string",
  "OutputNotebookS3Location": {
    "Bucket": "string",
    "Key": "string"
  },
  "RelativePath": "string",
  "ServiceRole": "string",
  "Tags": [
    {
      "Key": "string",
      "Value": "string"
    }
  ]
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### EditorId

The unique identifier of the Amazon EMR Notebook to use for notebook execution.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### EnvironmentVariables

The environment variables associated with the notebook execution.

Type: String to string map

Key Length Constraints: Minimum length of 0. Maximum length of 256.

Key Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Value Length Constraints: Minimum length of 0. Maximum length of 10280.

Value Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### ExecutionEngine

Specifies the execution engine (cluster) that runs the notebook execution.

Type: [ExecutionEngineConfig](#) object

Required: Yes

### NotebookExecutionName

An optional name for the notebook execution.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### NotebookInstanceSecurityGroupId

The unique identifier of the Amazon EC2 security group to associate with the Amazon EMR Notebook for this notebook execution.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### NotebookParams

Input parameters in JSON format passed to the Amazon EMR Notebook at runtime for execution.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### NotebookS3Location

The Amazon S3 location for the notebook execution input.

Type: [NotebookS3LocationFromInput](#) object

Required: No

### OutputNotebookFormat

The output format for the notebook execution.

Type: String

Valid Values: HTML

Required: No



Type: Array of [Tag](#) objects

Required: No

## Response Syntax

```
{  
  "NotebookExecutionId": "string"  
}
```

## Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

### [NotebookExecutionId](#)

The unique identifier of the notebook execution.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### **InternalServerErrorException**

This exception occurs when there is an internal failure in the Amazon EMR service.

HTTP Status Code: 500

### **InvalidRequestException**

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400



## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# StopNotebookExecution

Stops a notebook execution.

## Request Syntax

```
{  
  "NotebookExecutionId": "string"  
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### [NotebookExecutionId](#)

The unique identifier of the notebook execution.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

## Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### InternalServerError

Indicates that an error occurred while processing the request and that the request was not completed.

HTTP Status Code: 400

## **InvalidRequestException**

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## **See Also**

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# TerminateJobFlows

TerminateJobFlows shuts a list of clusters (job flows) down. When a job flow is shut down, any step not yet completed is canceled and the Amazon EC2 instances on which the cluster is running are stopped. Any log files not already saved are uploaded to Amazon S3 if a LogUri was specified when the cluster was created.

The maximum number of clusters allowed is 10. The call to TerminateJobFlows is asynchronous. Depending on the configuration of the cluster, it may take up to 1-5 minutes for the cluster to completely terminate and release allocated resources, such as Amazon EC2 instances.

## Request Syntax

```
{
  "JobFlowIds": [ "string" ]
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### JobFlowIds

A list of job flows to be shut down.

Type: Array of strings

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

## Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### InternalServerError

Indicates that an error occurred while processing the request and that the request was not completed.

HTTP Status Code: 400

## Examples

### Example

This example illustrates one usage of `TerminateJobFlows`.

### Sample Request

```
POST / HTTP/1.1
Content-Type: application/x-amz-json-1.1
X-Amz-Target: ElasticMapReduce.TerminateJobFlows
Content-Length: 33
User-Agent: aws-sdk-ruby/1.9.2 ruby/1.9.3 i386-mingw32
Host: us-east-1.elasticmapreduce.amazonaws.com
X-Amz-Date: 20130716T211858Z
X-Amz-Content-Sha256: ab64713f61e066e80a6083844b9249b6c6362d34a7ae7393047aa46d38b9e315
Authorization: AWS4-HMAC-SHA256 Credential=AKIAIOSFODNN7EXAMPLE/20130716/us-east-1/elasticmapreduce/aws4_request, SignedHeaders=content-length;content-type;host;user-agent;x-amz-content-sha256;x-amz-date;x-amz-target, Signature=9791416eaf09f36aa753a324b0de27ff5cc7084b8548cc748487a2bcb3439d58
Accept: */*

{"JobFlowIds": ["j-3TS00IY04NFN"]}
```

### Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: 5551a7c9-ee5d-11e2-9542-25296c300ff0
Content-Type: application/x-amz-json-1.1
Content-Length: 0
```

Date: Tue, 16 Jul 2013 21:18:59 GMT

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# UpdateStudio

Updates an Amazon EMR Studio configuration, including attributes such as name, description, and subnets.

## Request Syntax

```
{
  "DefaultS3Location": "string",
  "Description": "string",
  "EncryptionKeyArn": "string",
  "Name": "string",
  "StudioId": "string",
  "SubnetIds": [ "string" ]
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#).

The request accepts the following data in JSON format.

### [DefaultS3Location](#)

The Amazon S3 location to back up Workspaces and notebook files for the Amazon EMR Studio.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### [Description](#)

A detailed description to assign to the Amazon EMR Studio.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### EncryptionKeyArn

The Amazon KMS key identifier (ARN) used to encrypt Amazon EMR Studio workspace and notebook files when backed up to Amazon S3.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### Name

A descriptive name for the Amazon EMR Studio.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### StudioId

The ID of the Amazon EMR Studio to update.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

### SubnetIds

A list of subnet IDs to associate with the Amazon EMR Studio. The list can include new subnet IDs, but must also include all of the subnet IDs previously associated with the Studio. The list order does not matter. A Studio can have a maximum of 5 subnets. The subnets must belong to the same VPC as the Studio.



Type: Array of strings

Required: No

## Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### InternalServerErrorException

This exception occurs when there is an internal failure in the Amazon EMR service.

HTTP Status Code: 500

### InvalidRequestException

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)

- [Amazon SDK for Ruby V3](#)



Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### IdentityType

Specifies whether the identity to update is a user or a group.

Type: String

Valid Values: USER | GROUP

Required: Yes

### SessionPolicyArn

The Amazon Resource Name (ARN) of the session policy to associate with the specified user or group.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

### StudioId

The ID of the Amazon EMR Studio.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

## Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

## Errors

For information about the errors that are common to all actions, see [Common Errors](#).

### InternalServerError

Indicates that an error occurred while processing the request and that the request was not completed.

HTTP Status Code: 400

### InvalidRequestException

This exception occurs when there is something wrong with user input.

HTTP Status Code: 400

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon Command Line Interface](#)
- [Amazon SDK for .NET](#)
- [Amazon SDK for C++](#)
- [Amazon SDK for Go v2](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for JavaScript V3](#)
- [Amazon SDK for Kotlin](#)
- [Amazon SDK for PHP V3](#)
- [Amazon SDK for Python](#)
- [Amazon SDK for Ruby V3](#)

# Data Types

The Amazon EMR API contains several data types that various actions use. This section describes each data type in detail.

## Note

The order of each element in a data type structure is not guaranteed. Applications should not assume a particular order.

The following data types are supported:

- [Application](#)
- [AutoScalingPolicy](#)
- [AutoScalingPolicyDescription](#)
- [AutoScalingPolicyStateChangeReason](#)
- [AutoScalingPolicyStatus](#)
- [AutoTerminationPolicy](#)
- [BlockPublicAccessConfiguration](#)
- [BlockPublicAccessConfigurationMetadata](#)
- [BootstrapActionConfig](#)
- [BootstrapActionDetail](#)
- [CancelStepsInfo](#)
- [CloudWatchAlarmDefinition](#)
- [Cluster](#)
- [ClusterStateChangeReason](#)
- [ClusterStatus](#)
- [ClusterSummary](#)
- [ClusterTimeline](#)
- [Command](#)
- [ComputeLimits](#)
- [Configuration](#)

- [Credentials](#)
- [EbsBlockDevice](#)
- [EbsBlockDeviceConfig](#)
- [EbsConfiguration](#)
- [EbsVolume](#)
- [Ec2InstanceAttributes](#)
- [ErrorDetail](#)
- [ExecutionEngineConfig](#)
- [FailureDetails](#)
- [HadoopJarStepConfig](#)
- [HadoopStepConfig](#)
- [Instance](#)
- [InstanceFleet](#)
- [InstanceFleetConfig](#)
- [InstanceFleetModifyConfig](#)
- [InstanceFleetProvisioningSpecifications](#)
- [InstanceFleetResizingSpecifications](#)
- [InstanceFleetStateChangeReason](#)
- [InstanceFleetStatus](#)
- [InstanceFleetTimeline](#)
- [InstanceGroup](#)
- [InstanceGroupConfig](#)
- [InstanceGroupDetail](#)
- [InstanceGroupModifyConfig](#)
- [InstanceGroupStateChangeReason](#)
- [InstanceGroupStatus](#)
- [InstanceGroupTimeline](#)
- [InstanceResizePolicy](#)
- [InstanceStateChangeReason](#)
- [InstanceStatus](#)

- [InstanceTimeline](#)
- [InstanceTypeConfig](#)
- [InstanceTypeSpecification](#)
- [JobFlowDetail](#)
- [JobFlowExecutionStatusDetail](#)
- [JobFlowInstancesConfig](#)
- [JobFlowInstancesDetail](#)
- [KerberosAttributes](#)
- [KeyValue](#)
- [ManagedScalingPolicy](#)
- [MetricDimension](#)
- [NotebookExecution](#)
- [NotebookExecutionSummary](#)
- [NotebookS3LocationForOutput](#)
- [NotebookS3LocationFromInput](#)
- [OnDemandCapacityReservationOptions](#)
- [OnDemandProvisioningSpecification](#)
- [OnDemandResizingSpecification](#)
- [OSRelease](#)
- [OutputNotebookS3LocationForOutput](#)
- [OutputNotebookS3LocationFromInput](#)
- [PlacementGroupConfig](#)
- [PlacementType](#)
- [PortRange](#)
- [ReleaseLabelFilter](#)
- [ScalingAction](#)
- [ScalingConstraints](#)
- [ScalingRule](#)
- [ScalingTrigger](#)
- [ScriptBootstrapActionConfig](#)



- [SecurityConfigurationSummary](#)
- [SessionMappingDetail](#)
- [SessionMappingSummary](#)
- [ShrinkPolicy](#)
- [SimpleScalingPolicyConfiguration](#)
- [SimplifiedApplication](#)
- [SpotProvisioningSpecification](#)
- [SpotResizingSpecification](#)
- [Step](#)
- [StepConfig](#)
- [StepDetail](#)
- [StepExecutionStatusDetail](#)
- [StepStateChangeReason](#)
- [StepStatus](#)
- [StepSummary](#)
- [StepTimeline](#)
- [Studio](#)
- [StudioSummary](#)
- [SupportedInstanceType](#)
- [SupportedProductConfig](#)
- [Tag](#)
- [UsernamePassword](#)
- [VolumeSpecification](#)

# Application

With Amazon EMR release version 4.0 and later, the only accepted parameter is the application name. To pass arguments to applications, you use configuration classifications specified using configuration JSON objects. For more information, see [Configuring Applications](#).

With earlier Amazon EMR releases, the application is any Amazon or third-party software that you can add to the cluster. This structure contains a list of strings that indicates the software to use with the cluster and accepts a user argument list. Amazon EMR accepts and forwards the argument list to the corresponding installation script as bootstrap action argument.

## Contents

### AdditionalInfo

This option is for advanced users only. This is meta information about third-party applications that third-party vendors use for testing purposes.

Type: String to string map

Required: No

### Args

Arguments for Amazon EMR to pass to the application.

Type: Array of strings

Required: No

### Name

The name of the application.

Type: String

Required: No

### Version

The version of the application.

Type: String

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# AutoScalingPolicy

An automatic scaling policy for a core instance group or task instance group in an Amazon EMR cluster. An automatic scaling policy defines how an instance group dynamically adds and terminates Amazon EC2 instances in response to the value of a CloudWatch metric. See [PutAutoScalingPolicy](#).

## Contents

### Constraints

The upper and lower Amazon EC2 instance limits for an automatic scaling policy. Automatic scaling activity will not cause an instance group to grow above or below these limits.

Type: [ScalingConstraints](#) object

Required: Yes

### Rules

The scale-in and scale-out rules that comprise the automatic scaling policy.

Type: Array of [ScalingRule](#) objects

Required: Yes

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# AutoScalingPolicyDescription

An automatic scaling policy for a core instance group or task instance group in an Amazon EMR cluster. The automatic scaling policy defines how an instance group dynamically adds and terminates Amazon EC2 instances in response to the value of a CloudWatch metric. See [PutAutoScalingPolicy](#).

## Contents

### Constraints

The upper and lower Amazon EC2 instance limits for an automatic scaling policy. Automatic scaling activity will not cause an instance group to grow above or below these limits.

Type: [ScalingConstraints](#) object

Required: No

### Rules

The scale-in and scale-out rules that comprise the automatic scaling policy.

Type: Array of [ScalingRule](#) objects

Required: No

### Status

The status of an automatic scaling policy.

Type: [AutoScalingPolicyStatus](#) object

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)

- [Amazon SDK for Ruby V3](#)

# AutoScalingPolicyStateChangeReason

The reason for an [AutoScalingPolicyStatus](#) change.

## Contents

### Code

The code indicating the reason for the change in status. `USER_REQUEST` indicates that the scaling policy status was changed by a user. `PROVISION_FAILURE` indicates that the status change was because the policy failed to provision. `CLEANUP_FAILURE` indicates an error.

Type: String

Valid Values: `USER_REQUEST` | `PROVISION_FAILURE` | `CLEANUP_FAILURE`

Required: No

### Message

A friendly, more verbose message that accompanies an automatic scaling policy state change.

Type: String

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# AutoScalingPolicyStatus

The status of an automatic scaling policy.

## Contents

### State

Indicates the status of the automatic scaling policy.

Type: String

Valid Values: PENDING | ATTACHING | ATTACHED | DETACHING | DETACHED | FAILED

Required: No

### StateChangeReason

The reason for a change in status.

Type: [AutoScalingPolicyStateChangeReason](#) object

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)



# AutoTerminationPolicy

An auto-termination policy for an Amazon EMR cluster. An auto-termination policy defines the amount of idle time in seconds after which a cluster automatically terminates. For alternative cluster termination options, see [Control cluster termination](#).

## Contents

### IdleTimeout

Specifies the amount of idle time in seconds after which the cluster automatically terminates. You can specify a minimum of 60 seconds and a maximum of 604800 seconds (seven days).

Type: Long

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# BlockPublicAccessConfiguration

A configuration for Amazon EMR block public access. When `BlockPublicSecurityGroupRules` is set to `true`, Amazon EMR prevents cluster creation if one of the cluster's security groups has a rule that allows inbound traffic from `0.0.0.0/0` or `::/0` on a port, unless the port is specified as an exception using `PermittedPublicSecurityGroupRuleRanges`.

## Contents

### BlockPublicSecurityGroupRules

Indicates whether Amazon EMR block public access is enabled (`true`) or disabled (`false`). By default, the value is `false` for accounts that have created Amazon EMR clusters before July 2019. For accounts created after this, the default is `true`.

Type: Boolean

Required: Yes

### PermittedPublicSecurityGroupRuleRanges

Specifies ports and port ranges that are permitted to have security group rules that allow inbound traffic from all public sources. For example, if Port 23 (Telnet) is specified for `PermittedPublicSecurityGroupRuleRanges`, Amazon EMR allows cluster creation if a security group associated with the cluster has a rule that allows inbound traffic on Port 23 from IPv4 `0.0.0.0/0` or IPv6 port `::/0` as the source.

By default, Port 22, which is used for SSH access to the cluster Amazon EC2 instances, is in the list of `PermittedPublicSecurityGroupRuleRanges`.

Type: Array of [PortRange](#) objects

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)

- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# BlockPublicAccessConfigurationMetadata

Properties that describe the Amazon principal that created the `BlockPublicAccessConfiguration` using the `PutBlockPublicAccessConfiguration` action as well as the date and time that the configuration was created. Each time a configuration for block public access is updated, Amazon EMR updates this metadata.

## Contents

### CreatedByArn

The Amazon Resource Name that created or last modified the configuration.

Type: String

Length Constraints: Minimum length of 20. Maximum length of 2048.

Required: Yes

### CreationDateTime

The date and time that the configuration was created.

Type: Timestamp

Required: Yes

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# BootstrapActionConfig

Configuration of a bootstrap action.

## Contents

### Name

The name of the bootstrap action.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\u\u0000-\u001F\u0020-\u007F\u0080-\u00FF\u0100-\u017F\u0180-\u01FF\u0200-\u02FF\u0300-\u037F\u0380-\u03FF\u0400-\u047F\u0480-\u04FF\u0500-\u057F\u0580-\u05FF\u0600-\u06FF\u0700-\u077F\u0780-\u07FF\u0800-\u087F\u0880-\u08FF\u0900-\u097F\u0980-\u09FF\u0A00-\u0A7F\u0A80-\u0AFF\u0B00-\u0B7F\u0B80-\u0BFF\u0C00-\u0C7F\u0C80-\u0CFF\u0D00-\u0D7F\u0D80-\u0DBF\u0E00-\u0E7F\u0E80-\u0EBF\u0F00-\u0F7F\u0F80-\u0FBF\u1000-\u107F\u1080-\u10FF\u1100-\u117F\u1180-\u11FF\u1200-\u127F\u1280-\u12FF\u1300-\u137F\u1380-\u13FF\u1400-\u147F\u1480-\u14FF\u1500-\u157F\u1580-\u15FF\u1600-\u167F\u1680-\u16FF\u1700-\u177F\u1780-\u17FF\u1800-\u187F\u1880-\u18FF\u1900-\u197F\u1980-\u19FF\u1A00-\u1A7F\u1A80-\u1AFF\u1B00-\u1B7F\u1B80-\u1BBF\u1C00-\u1C7F\u1C80-\u1CBF\u1D00-\u1D7F\u1D80-\u1DBF\u1E00-\u1E7F\u1E80-\u1EBF\u1F00-\u1F7F\u1F80-\u1FBF\u2000-\u207F\u2080-\u20FF\u2100-\u217F\u2180-\u21FF\u2200-\u227F\u2280-\u22FF\u2300-\u237F\u2380-\u23FF\u2400-\u247F\u2480-\u24FF\u2500-\u257F\u2580-\u25FF\u2600-\u267F\u2680-\u26FF\u2700-\u277F\u2780-\u27FF\u2800-\u287F\u2880-\u28FF\u2900-\u297F\u2980-\u29FF\u2A00-\u2A7F\u2A80-\u2AFF\u2B00-\u2B7F\u2B80-\u2BBF\u2C00-\u2C7F\u2C80-\u2CBF\u2D00-\u2D7F\u2D80-\u2DBF\u2E00-\u2E7F\u2E80-\u2EBF\u2F00-\u2F7F\u2F80-\u2FBF\u3000-\u307F\u3080-\u30FF\u3100-\u317F\u3180-\u31FF\u3200-\u327F\u3280-\u32FF\u3300-\u337F\u3380-\u33FF\u3400-\u347F\u3480-\u34FF\u3500-\u357F\u3580-\u35FF\u3600-\u367F\u3680-\u36FF\u3700-\u377F\u3780-\u37FF\u3800-\u387F\u3880-\u38FF\u3900-\u397F\u3980-\u39FF\u3A00-\u3A7F\u3A80-\u3AFF\u3B00-\u3B7F\u3B80-\u3BBF\u3C00-\u3C7F\u3C80-\u3CBF\u3D00-\u3D7F\u3D80-\u3DBF\u3E00-\u3E7F\u3E80-\u3EBF\u3F00-\u3F7F\u3F80-\u3FBF\u4000-\u407F\u4080-\u40FF\u4100-\u417F\u4180-\u41FF\u4200-\u427F\u4280-\u42FF\u4300-\u437F\u4380-\u43FF\u4400-\u447F\u4480-\u44FF\u4500-\u457F\u4580-\u45FF\u4600-\u467F\u4680-\u46FF\u4700-\u477F\u4780-\u47FF\u4800-\u487F\u4880-\u48FF\u4900-\u497F\u4980-\u49FF\u4A00-\u4A7F\u4A80-\u4AFF\u4B00-\u4B7F\u4B80-\u4BBF\u4C00-\u4C7F\u4C80-\u4CBF\u4D00-\u4D7F\u4D80-\u4DBF\u4E00-\u4E7F\u4E80-\u4EBF\u4F00-\u4F7F\u4F80-\u4FBF\u5000-\u507F\u5080-\u50FF\u5100-\u517F\u5180-\u51FF\u5200-\u527F\u5280-\u52FF\u5300-\u537F\u5380-\u53FF\u5400-\u547F\u5480-\u54FF\u5500-\u557F\u5580-\u55FF\u5600-\u567F\u5680-\u56FF\u5700-\u577F\u5780-\u57FF\u5800-\u587F\u5880-\u58FF\u5900-\u597F\u5980-\u59FF\u5A00-\u5A7F\u5A80-\u5AFF\u5B00-\u5B7F\u5B80-\u5BBF\u5C00-\u5C7F\u5C80-\u5CBF\u5D00-\u5D7F\u5D80-\u5DBF\u5E00-\u5E7F\u5E80-\u5EBF\u5F00-\u5F7F\u5F80-\u5FBF\u6000-\u607F\u6080-\u60FF\u6100-\u617F\u6180-\u61FF\u6200-\u627F\u6280-\u62FF\u6300-\u637F\u6380-\u63FF\u6400-\u647F\u6480-\u64FF\u6500-\u657F\u6580-\u65FF\u6600-\u667F\u6680-\u66FF\u6700-\u677F\u6780-\u67FF\u6800-\u687F\u6880-\u68FF\u6900-\u697F\u6980-\u69FF\u6A00-\u6A7F\u6A80-\u6AFF\u6B00-\u6B7F\u6B80-\u6BBF\u6C00-\u6C7F\u6C80-\u6CBF\u6D00-\u6D7F\u6D80-\u6DBF\u6E00-\u6E7F\u6E80-\u6EBF\u6F00-\u6F7F\u6F80-\u6FBF\u7000-\u707F\u7080-\u70FF\u7100-\u717F\u7180-\u71FF\u7200-\u727F\u7280-\u72FF\u7300-\u737F\u7380-\u73FF\u7400-\u747F\u7480-\u74FF\u7500-\u757F\u7580-\u75FF\u7600-\u767F\u7680-\u76FF\u7700-\u777F\u7780-\u77FF\u7800-\u787F\u7880-\u78FF\u7900-\u797F\u7980-\u79FF\u7A00-\u7A7F\u7A80-\u7AFF\u7B00-\u7B7F\u7B80-\u7BBF\u7C00-\u7C7F\u7C80-\u7CBF\u7D00-\u7D7F\u7D80-\u7DBF\u7E00-\u7E7F\u7E80-\u7EBF\u7F00-\u7F7F\u7F80-\u7FBF\u8000-\u807F\u8080-\u80FF\u8100-\u817F\u8180-\u81FF\u8200-\u827F\u8280-\u82FF\u8300-\u837F\u8380-\u83FF\u8400-\u847F\u8480-\u84FF\u8500-\u857F\u8580-\u85FF\u8600-\u867F\u8680-\u86FF\u8700-\u877F\u8780-\u87FF\u8800-\u887F\u8880-\u88FF\u8900-\u897F\u8980-\u89FF\u8A00-\u8A7F\u8A80-\u8AFF\u8B00-\u8B7F\u8B80-\u8BBF\u8C00-\u8C7F\u8C80-\u8CBF\u8D00-\u8D7F\u8D80-\u8DBF\u8E00-\u8E7F\u8E80-\u8EBF\u8F00-\u8F7F\u8F80-\u8FBF\u9000-\u907F\u9080-\u90FF\u9100-\u917F\u9180-\u91FF\u9200-\u927F\u9280-\u92FF\u9300-\u937F\u9380-\u93FF\u9400-\u947F\u9480-\u94FF\u9500-\u957F\u9580-\u95FF\u9600-\u967F\u9680-\u96FF\u9700-\u977F\u9780-\u97FF\u9800-\u987F\u9880-\u98FF\u9900-\u997F\u9980-\u99FF\u9A00-\u9A7F\u9A80-\u9AFF\u9B00-\u9B7F\u9B80-\u9BBF\u9C00-\u9C7F\u9C80-\u9CBF\u9D00-\u9D7F\u9D80-\u9DBF\u9E00-\u9E7F\u9E80-\u9EBF\u9F00-\u9F7F\u9F80-\u9FBF\uA000-\uA07F\uA080-\uA0FF\uA100-\uA17F\uA180-\uA1FF\uA200-\uA27F\uA280-\uA2FF\uA300-\uA37F\uA380-\uA3FF\uA400-\uA47F\uA480-\uA4FF\uA500-\uA57F\uA580-\uA5FF\uA600-\uA67F\uA680-\uA6FF\uA700-\uA77F\uA780-\uA7FF\uA800-\uA87F\uA880-\uA8FF\uA900-\uA97F\uA980-\uA9FF\uAA00-\uAA7F\uAA80-\uAAFF\uAB00-\uAB7F\uAB80-\uABBF\uAC00-\uAC7F\uAC80-\uACBF\uAD00-\uAD7F\uAD80-\uADBF\uAE00-\uAE7F\uAE80-\uAEBF\uAF00-\uAF7F\uAF80-\uAFBF\uB000-\uB07F\uB080-\uB0FF\uB100-\uB17F\uB180-\uB1FF\uB200-\uB27F\uB280-\uB2FF\uB300-\uB37F\uB380-\uB3FF\uB400-\uB47F\uB480-\uB4FF\uB500-\uB57F\uB580-\uB5FF\uB600-\uB67F\uB680-\uB6FF\uB700-\uB77F\uB780-\uB7FF\uB800-\uB87F\uB880-\uB8FF\uB900-\uB97F\uB980-\uB9FF\uBA00-\uBA7F\uBA80-\uBAFF\uBB00-\uBB7F\uBB80-\uBBBF\uBC00-\uBC7F\uBC80-\uBCBF\uBD00-\uBD7F\uBD80-\uBDBF\uBE00-\uBE7F\uBE80-\uBEBF\uBF00-\uBF7F\uBF80-\uBFBF\uC000-\uC07F\uC080-\uC0FF\uC100-\uC17F\uC180-\uC1FF\uC200-\uC27F\uC280-\uC2FF\uC300-\uC37F\uC380-\uC3FF\uC400-\uC47F\uC480-\uC4FF\uC500-\uC57F\uC580-\uC5FF\uC600-\uC67F\uC680-\uC6FF\uC700-\uC77F\uC780-\uC7FF\uC800-\uC87F\uC880-\uC8FF\uC900-\uC97F\uC980-\uC9FF\uCA00-\uCA7F\uCA80-\uCAFF\uCB00-\uCB7F\uCB80-\uCBBF\uCC00-\uCC7F\uCC80-\uCCBF\uCD00-\uCD7F\uCD80-\uCDBF\uCE00-\uCE7F\uCE80-\uCEBF\uCF00-\uCF7F\uCF80-\uCFBF\uD000-\uD07F\uD080-\uD0FF\uD100-\uD17F\uD180-\uD1FF\uD200-\uD27F\uD280-\uD2FF\uD300-\uD37F\uD380-\uD3FF\uD400-\uD47F\uD480-\uD4FF\uD500-\uD57F\uD580-\uD5FF\uD600-\uD67F\uD680-\uD6FF\uD700-\uDD7F\uDD80-\uDDFF\uE000-\uE07F\uE080-\uE0FF\uE100-\uE17F\uE180-\uE1FF\uE200-\uE27F\uE280-\uE2FF\uE300-\uE37F\uE380-\uE3FF\uE400-\uE47F\uE480-\uE4FF\uE500-\uE57F\uE580-\uE5FF\uE600-\uE67F\uE680-\uE6FF\uE700-\uE77F\uE780-\uE7FF\uE800-\uE87F\uE880-\uE8FF\uE900-\uE97F\uE980-\uE9FF\uEA00-\uEA7F\uEA80-\uEAFF\uEB00-\uEB7F\uEB80-\uEBBF\uEC00-\uEC7F\uEC80-\uECBF\uED00-\uED7F\uED80-\uEDBF\uEE00-\uEE7F\uEE80-\uEEBF\uEF00-\uEF7F\uEF80-\uEFBF\uF000-\uF07F\uF080-\uF0FF\uF100-\uF17F\uF180-\uF1FF\uF200-\uF27F\uF280-\uF2FF\uF300-\uF37F\uF380-\uF3FF\uF400-\uF47F\uF480-\uF4FF\uF500-\uF57F\uF580-\uF5FF\uF600-\uF67F\uF680-\uF6FF\uF700-\uF77F\uF780-\uF7FF\uF800-\uF87F\uF880-\uF8FF\uF900-\uF97F\uF980-\uF9FF\uFA00-\uFA7F\uFA80-\uFAFF\uFB00-\uFB7F\uFB80-\uFBBF\uFC00-\uFC7F\uFC80-\uFCBF\uFD00-\uFD7F\uFD80-\uFDBF\uFE00-\uFE7F\uFE80-\uFEBF\uFF00-\uFF7F\uFF80-\uFFBF]`\*

Required: Yes

### ScriptBootstrapAction

The script run by the bootstrap action.

Type: [ScriptBootstrapActionConfig](#) object

Required: Yes

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# BootstrapActionDetail

Reports the configuration of a bootstrap action in a cluster (job flow).

## Contents

### BootstrapActionConfig

A description of the bootstrap action.

Type: [BootstrapActionConfig](#) object

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# CancelStepsInfo

Specification of the status of a CancelSteps request. Available only in Amazon EMR version 4.8.0 and later, excluding version 5.0.0.

## Contents

### Reason

The reason for the failure if the CancelSteps request fails.

Type: String

Required: No

### Status

The status of a CancelSteps Request. The value may be SUBMITTED or FAILED.

Type: String

Valid Values: SUBMITTED | FAILED

Required: No

### StepId

The encrypted StepId of a step.

Type: String

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)





# CloudWatchAlarmDefinition

The definition of a CloudWatch metric alarm, which determines when an automatic scaling activity is triggered. When the defined alarm conditions are satisfied, scaling activity begins.

## Contents

### ComparisonOperator

Determines how the metric specified by `MetricName` is compared to the value specified by `Threshold`.

Type: String

Valid Values: `GREATER_THAN_OR_EQUAL` | `GREATER_THAN` | `LESS_THAN` | `LESS_THAN_OR_EQUAL`

Required: Yes

### MetricName

The name of the CloudWatch metric that is watched to determine an alarm condition.

Type: String

Required: Yes

### Period

The period, in seconds, over which the statistic is applied. CloudWatch metrics for Amazon EMR are emitted every five minutes (300 seconds), so if you specify a CloudWatch metric, specify `300`.

Type: Integer

Required: Yes

### Threshold

The value against which the specified statistic is compared.

Type: Double

Valid Range: Minimum value of 0.0.

Required: Yes

## Dimensions

A CloudWatch metric dimension.

Type: Array of [MetricDimension](#) objects

Required: No

## EvaluationPeriods

The number of periods, in five-minute increments, during which the alarm condition must exist before the alarm triggers automatic scaling activity. The default value is 1.

Type: Integer

Required: No

## Namespace

The namespace for the CloudWatch metric. The default is AWS/ElasticMapReduce.

Type: String

Required: No

## Statistic

The statistic to apply to the metric associated with the alarm. The default is AVERAGE.

Type: String

Valid Values: SAMPLE\_COUNT | AVERAGE | SUM | MINIMUM | MAXIMUM

Required: No

## Unit

The unit of measure associated with the CloudWatch metric being watched. The value specified for Unit must correspond to the units specified in the CloudWatch metric.

Type: String

Valid Values: NONE | SECONDS | MICRO\_SECONDS | MILLI\_SECONDS | BYTES | KILO\_BYTES | MEGA\_BYTES | GIGA\_BYTES | TERA\_BYTES | BITS | KILO\_BITS |

MEGA\_BITS | GIGA\_BITS | TERA\_BITS | PERCENT | COUNT | BYTES\_PER\_SECOND  
| KILO\_BYTES\_PER\_SECOND | MEGA\_BYTES\_PER\_SECOND | GIGA\_BYTES\_PER\_SECOND  
| TERA\_BYTES\_PER\_SECOND | BITS\_PER\_SECOND | KILO\_BITS\_PER\_SECOND |  
MEGA\_BITS\_PER\_SECOND | GIGA\_BITS\_PER\_SECOND | TERA\_BITS\_PER\_SECOND |  
COUNT\_PER\_SECOND

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# Cluster

The detailed description of the cluster.

## Contents

### Applications

The applications installed on this cluster.

Type: Array of [Application](#) objects

Required: No

### AutoScalingRole

An IAM role for automatic scaling policies. The default role is `EMR_AutoScaling_DefaultRole`. The IAM role provides permissions that the automatic scaling feature requires to launch and terminate Amazon EC2 instances in an instance group.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### AutoTerminate

Specifies whether the cluster should terminate after completing all steps.

Type: Boolean

Required: No

### ClusterArn

The Amazon Resource Name of the cluster.

Type: String

Length Constraints: Minimum length of 20. Maximum length of 2048.

Required: No

## Configurations

Applies only to Amazon EMR releases 4.x and later. The list of configurations that are supplied to the Amazon EMR cluster.

Type: Array of [Configuration](#) objects

Required: No

## CustomAmild

Available only in Amazon EMR releases 5.7.0 and later. The ID of a custom Amazon EBS-backed Linux AMI if the cluster uses a custom AMI.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

## EbsRootVolumelops

The IOPS, of the Amazon EBS root device volume of the Linux AMI that is used for each Amazon EC2 instance. Available in Amazon EMR releases 6.15.0 and later.

Type: Integer

Required: No

## EbsRootVolumeSize

The size, in GiB, of the Amazon EBS root device volume of the Linux AMI that is used for each Amazon EC2 instance. Available in Amazon EMR releases 4.x and later.

Type: Integer

Required: No

## EbsRootVolumeThroughput

The throughput, in MiB/s, of the Amazon EBS root device volume of the Linux AMI that is used for each Amazon EC2 instance. Available in Amazon EMR releases 6.15.0 and later.

Type: Integer

Required: No

### **Ec2InstanceAttributes**

Provides information about the Amazon EC2 instances in a cluster grouped by category. For example, key name, subnet ID, IAM instance profile, and so on.

Type: [Ec2InstanceAttributes](#) object

Required: No

### **Id**

The unique identifier for the cluster.

Type: String

Required: No

### **InstanceCollectionType**

#### **Note**

The instance fleet configuration is available only in Amazon EMR releases 4.8.0 and later, excluding 5.0.x versions.

The instance group configuration of the cluster. A value of `INSTANCE_GROUP` indicates a uniform instance group configuration. A value of `INSTANCE_FLEET` indicates an instance fleets configuration.

Type: String

Valid Values: `INSTANCE_FLEET` | `INSTANCE_GROUP`

Required: No

### **KerberosAttributes**

Attributes for Kerberos configuration when Kerberos authentication is enabled using a security configuration. For more information see [Use Kerberos Authentication](#) in the *Amazon EMR Management Guide*.

Type: [KerberosAttributes](#) object

Required: No

### **LogEncryptionKmsKeyId**

The Amazon KMS key used for encrypting log files. This attribute is only available with Amazon EMR 5.30.0 and later, excluding Amazon EMR 6.0.0.

Type: String

Required: No

### **LogUri**

The path to the Amazon S3 location where logs for this cluster are stored.

Type: String

Required: No

### **MasterPublicDnsName**

The DNS name of the master node. If the cluster is on a private subnet, this is the private DNS name. On a public subnet, this is the public DNS name.

Type: String

Required: No

### **Name**

The name of the cluster. This parameter can't contain the characters <, >, \$, |, or ` (backtick).

Type: String

Required: No

### **NormalizedInstanceHours**

An approximation of the cost of the cluster, represented in m1.small/hours. This value is incremented one time for every hour an m1.small instance runs. Larger instances are weighted more, so an Amazon EC2 instance that is roughly four times more expensive would result in the normalized instance hours being incremented by four. This result is only an approximation and does not reflect the actual billing rate.

Type: Integer

Required: No

### **OSReleaseLabel**

The Amazon Linux release specified in a cluster launch RunJobFlow request. If no Amazon Linux release was specified, the default Amazon Linux release is shown in the response.

Type: String

Required: No

### **OutpostArn**

The Amazon Resource Name (ARN) of the Outpost where the cluster is launched.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 2048.

Required: No

### **PlacementGroups**

Placement group configured for an Amazon EMR cluster.

Type: Array of [PlacementGroupConfig](#) objects

Required: No

### **ReleaseLabel**

The Amazon EMR release label, which determines the version of open-source application packages installed on the cluster. Release labels are in the form `emr-x.x.x`, where `x.x.x` is an Amazon EMR release version such as `emr-5.14.0`. For more information about Amazon EMR release versions and included application versions and features, see <https://docs.amazonaws.cn/emr/latest/ReleaseGuide/>. The release label applies only to Amazon EMR releases version 4.0 and later. Earlier versions use `AmiVersion`.

Type: String

Required: No

### **RepoUpgradeOnBoot**

Applies only when `CustomAmiID` is used. Specifies the type of updates that the Amazon Linux AMI package repositories apply when an instance boots using the AMI.



Type: String

Valid Values: SECURITY | NONE

Required: No

### **RequestedAmiVersion**

The AMI version requested for this cluster.

Type: String

Required: No

### **RunningAmiVersion**

The AMI version running on this cluster.

Type: String

Required: No

### **ScaleDownBehavior**

The way that individual Amazon EC2 instances terminate when an automatic scale-in activity occurs or an instance group is resized. `TERMINATE_AT_INSTANCE_HOUR` indicates that Amazon EMR terminates nodes at the instance-hour boundary, regardless of when the request to terminate the instance was submitted. This option is only available with Amazon EMR 5.1.0 and later and is the default for clusters created using that version. `TERMINATE_AT_TASK_COMPLETION` indicates that Amazon EMR adds nodes to a deny list and drains tasks from nodes before terminating the Amazon EC2 instances, regardless of the instance-hour boundary. With either behavior, Amazon EMR removes the least active nodes first and blocks instance termination if it could lead to HDFS corruption. `TERMINATE_AT_TASK_COMPLETION` is available only in Amazon EMR releases 4.1.0 and later, and is the default for versions of Amazon EMR earlier than 5.1.0.

Type: String

Valid Values: `TERMINATE_AT_INSTANCE_HOUR` | `TERMINATE_AT_TASK_COMPLETION`

Required: No

### **SecurityConfiguration**

The name of the security configuration applied to the cluster.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **ServiceRole**

The IAM role that Amazon EMR assumes in order to access Amazon resources on your behalf.

Type: String

Required: No

### **Status**

The current status details about the cluster.

Type: [ClusterStatus](#) object

Required: No

### **StepConcurrencyLevel**

Specifies the number of steps that can be executed concurrently.

Type: Integer

Required: No

### **Tags**

A list of tags associated with a cluster.

Type: Array of [Tag](#) objects

Required: No

### **TerminationProtected**

Indicates whether Amazon EMR will lock the cluster to prevent the Amazon EC2 instances from being terminated by an API call or user intervention, or in the event of a cluster error.

Type: Boolean

Required: No

### **UnhealthyNodeReplacement**

Indicates whether Amazon EMR should gracefully replace Amazon EC2 core instances that have degraded within the cluster.

Type: Boolean

Required: No

### **VisibleToAllUsers**

Indicates whether the cluster is visible to IAM principals in the Amazon Web Services account associated with the cluster. When `true`, IAM principals in the Amazon Web Services account can perform Amazon EMR cluster actions on the cluster that their IAM policies allow. When `false`, only the IAM principal that created the cluster and the Amazon Web Services account root user can perform Amazon EMR actions, regardless of IAM permissions policies attached to other IAM principals.

The default value is `true` if a value is not provided when creating a cluster using the Amazon EMR API [RunJobFlow](#) command, the Amazon CLI [create-cluster](#) command, or the Amazon Web Services Management Console.

Type: Boolean

Required: No

## **See Also**

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# ClusterStateChangeReason

The reason that the cluster changed to its current state.

## Contents

### Code

The programmatic code for the state change reason.

Type: String

Valid Values: INTERNAL\_ERROR | VALIDATION\_ERROR | INSTANCE\_FAILURE |  
INSTANCE\_FLEET\_TIMEOUT | BOOTSTRAP\_FAILURE | USER\_REQUEST | STEP\_FAILURE  
| ALL\_STEPS\_COMPLETED

Required: No

### Message

The descriptive message for the state change reason.

Type: String

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# ClusterStatus

The detailed status of the cluster.

## Contents

### ErrorDetails

A list of tuples that provides information about the errors that caused a cluster to terminate. This structure can contain up to 10 different `ErrorDetail` tuples.

Type: Array of [ErrorDetail](#) objects

Required: No

### State

The current state of the cluster.

Type: String

Valid Values: STARTING | BOOTSTRAPPING | RUNNING | WAITING | TERMINATING | TERMINATED | TERMINATED\_WITH\_ERRORS

Required: No

### StateChangeReason

The reason for the cluster status change.

Type: [ClusterStateChangeReason](#) object

Required: No

### Timeline

A timeline that represents the status of a cluster over the lifetime of the cluster.

Type: [ClusterTimeline](#) object

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# ClusterSummary

The summary description of the cluster.

## Contents

### ClusterArn

The Amazon Resource Name of the cluster.

Type: String

Length Constraints: Minimum length of 20. Maximum length of 2048.

Required: No

### Id

The unique identifier for the cluster.

Type: String

Required: No

### Name

The name of the cluster.

Type: String

Required: No

### NormalizedInstanceHours

An approximation of the cost of the cluster, represented in m1.small/hours. This value is incremented one time for every hour an m1.small instance runs. Larger instances are weighted more, so an Amazon EC2 instance that is roughly four times more expensive would result in the normalized instance hours being incremented by four. This result is only an approximation and does not reflect the actual billing rate.

Type: Integer

Required: No

## OutpostArn

The Amazon Resource Name (ARN) of the Outpost where the cluster is launched.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 2048.

Required: No

## Status

The details about the current status of the cluster.

Type: [ClusterStatus](#) object

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)



# ClusterTimeline

Represents the timeline of the cluster's lifecycle.

## Contents

### CreationDateTime

The creation date and time of the cluster.

Type: Timestamp

Required: No

### EndDateTime

The date and time when the cluster was terminated.

Type: Timestamp

Required: No

### ReadyDateTime

The date and time when the cluster was ready to run steps.

Type: Timestamp

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# Command

An entity describing an executable that runs on a cluster.

## Contents

### Args

Arguments for Amazon EMR to pass to the command for execution.

Type: Array of strings

Required: No

### Name

The name of the command.

Type: String

Required: No

### ScriptPath

The Amazon S3 location of the command script.

Type: String

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# ComputeLimits

The Amazon EC2 unit limits for a managed scaling policy. The managed scaling activity of a cluster can not be above or below these limits. The limit only applies to the core and task nodes. The master node cannot be scaled after initial configuration.

## Contents

### MaximumCapacityUnits

The upper boundary of Amazon EC2 units. It is measured through vCPU cores or instances for instance groups and measured through units for instance fleets. Managed scaling activities are not allowed beyond this boundary. The limit only applies to the core and task nodes. The master node cannot be scaled after initial configuration.

Type: Integer

Required: Yes

### MinimumCapacityUnits

The lower boundary of Amazon EC2 units. It is measured through vCPU cores or instances for instance groups and measured through units for instance fleets. Managed scaling activities are not allowed beyond this boundary. The limit only applies to the core and task nodes. The master node cannot be scaled after initial configuration.

Type: Integer

Required: Yes

### UnitType

The unit type used for specifying a managed scaling policy.

Type: String

Valid Values: InstanceFleetUnits | Instances | VCPU

Required: Yes

### MaximumCoreCapacityUnits

The upper boundary of Amazon EC2 units for core node type in a cluster. It is measured through vCPU cores or instances for instance groups and measured through units for instance fleets.

The core units are not allowed to scale beyond this boundary. The parameter is used to split capacity allocation between core and task nodes.

Type: Integer

Required: No

### **MaximumOnDemandCapacityUnits**

The upper boundary of On-Demand Amazon EC2 units. It is measured through vCPU cores or instances for instance groups and measured through units for instance fleets. The On-Demand units are not allowed to scale beyond this boundary. The parameter is used to split capacity allocation between On-Demand and Spot Instances.

Type: Integer

Required: No

## **See Also**

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# Configuration

## Note

Amazon EMR releases 4.x or later.

An optional configuration specification to be used when provisioning cluster instances, which can include configurations for applications and software bundled with Amazon EMR. A configuration consists of a classification, properties, and optional nested configurations. A classification refers to an application-specific configuration file. Properties are the settings you want to change in that file. For more information, see [Configuring Applications](#).

## Contents

### Classification

The classification within a configuration.

Type: String

Required: No

### Configurations

A list of additional configurations to apply within a configuration object.

Type: Array of [Configuration](#) objects

Required: No

### Properties

A set of properties specified within a configuration classification.

Type: String to string map

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# Credentials

The credentials that you can use to connect to cluster endpoints. Credentials consist of a username and a password.

## Contents

### Important

This data type is a UNION, so only one of the following members can be specified when used or returned.

### UsernamePassword

The username and password that you use to connect to cluster endpoints.

Type: [UsernamePassword](#) object

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# EbsBlockDevice

Configuration of requested EBS block device associated with the instance group.

## Contents

### Device

The device name that is exposed to the instance, such as `/dev/sdh`.

Type: String

Required: No

### VolumeSpecification

EBS volume specifications such as volume type, IOPS, size (GiB) and throughput (MiB/s) that are requested for the EBS volume attached to an Amazon EC2 instance in the cluster.

Type: [VolumeSpecification](#) object

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)



# EbsBlockDeviceConfig

Configuration of requested EBS block device associated with the instance group with count of volumes that are associated to every instance.

## Contents

### VolumeSpecification

EBS volume specifications such as volume type, IOPS, size (GiB) and throughput (MiB/s) that are requested for the EBS volume attached to an Amazon EC2 instance in the cluster.

Type: [VolumeSpecification](#) object

Required: Yes

### VolumesPerInstance

Number of EBS volumes with a specific volume configuration that are associated with every instance in the instance group

Type: Integer

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# EbsConfiguration

The Amazon EBS configuration of a cluster instance.

## Contents

### EbsBlockDeviceConfigs

An array of Amazon EBS volume specifications attached to a cluster instance.

Type: Array of [EbsBlockDeviceConfig](#) objects

Required: No

### EbsOptimized

Indicates whether an Amazon EBS volume is EBS-optimized. The default is false. You should explicitly set this value to true to enable the Amazon EBS-optimized setting for an EC2 instance.

Type: Boolean

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# EbsVolume

EBS block device that's attached to an Amazon EC2 instance.

## Contents

### Device

The device name that is exposed to the instance, such as `/dev/sdh`.

Type: String

Required: No

### Volumeld

The volume identifier of the EBS volume.

Type: String

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# Ec2InstanceAttributes

Provides information about the Amazon EC2 instances in a cluster grouped by category. For example, key name, subnet ID, IAM instance profile, and so on.

## Contents

### AdditionalMasterSecurityGroups

A list of additional Amazon EC2 security group IDs for the master node.

Type: Array of strings

Required: No

### AdditionalSlaveSecurityGroups

A list of additional Amazon EC2 security group IDs for the core and task nodes.

Type: Array of strings

Required: No

### Ec2AvailabilityZone

The Availability Zone in which the cluster will run.

Type: String

Required: No

### Ec2KeyName

The name of the Amazon EC2 key pair to use when connecting with SSH into the master node as a user named "hadoop".

Type: String

Required: No

### Ec2SubnetId

Set this parameter to the identifier of the Amazon VPC subnet where you want the cluster to launch. If you do not specify this value, and your account supports EC2-Classic, the cluster launches in EC2-Classic.

Type: String

Required: No

### **EmrManagedMasterSecurityGroup**

The identifier of the Amazon EC2 security group for the master node.

Type: String

Required: No

### **EmrManagedSlaveSecurityGroup**

The identifier of the Amazon EC2 security group for the core and task nodes.

Type: String

Required: No

### **IamInstanceProfile**

The IAM role that was specified when the cluster was launched. The Amazon EC2 instances of the cluster assume this role.

Type: String

Required: No

### **RequestedEc2AvailabilityZones**

Applies to clusters configured with the instance fleets option. Specifies one or more Availability Zones in which to launch Amazon EC2 cluster instances when the EC2-Classical network configuration is supported. Amazon EMR chooses the Availability Zone with the best fit from among the list of RequestedEc2AvailabilityZones, and then launches all cluster instances within that Availability Zone. If you do not specify this value, Amazon EMR chooses the Availability Zone for you. RequestedEc2SubnetIDs and RequestedEc2AvailabilityZones cannot be specified together.

Type: Array of strings

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

## RequestedEc2SubnetIds

Applies to clusters configured with the instance fleets option. Specifies the unique identifier of one or more Amazon EC2 subnets in which to launch Amazon EC2 cluster instances. Subnets must exist within the same VPC. Amazon EMR chooses the Amazon EC2 subnet with the best fit from among the list of RequestedEc2SubnetIds, and then launches all cluster instances within that Subnet. If this value is not specified, and the account and Region support EC2-Classic networks, the cluster launches instances in the EC2-Classic network and uses RequestedEc2AvailabilityZones instead of this setting. If EC2-Classic is not supported, and no Subnet is specified, Amazon EMR chooses the subnet for you. RequestedEc2SubnetIDs and RequestedEc2AvailabilityZones cannot be specified together.

Type: Array of strings

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

## ServiceAccessSecurityGroup

The identifier of the Amazon EC2 security group for the Amazon EMR service to access clusters in VPC private subnets.

Type: String

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# ErrorDetail

A tuple that provides information about an error that caused a cluster to terminate.

## Contents

### ErrorCode

The name or code associated with the error.

Type: String

Required: No

### ErrorData

A list of key value pairs that provides contextual information about why an error occurred.

Type: Array of string to string maps

Required: No

### ErrorMessage

A message that describes the error.

Type: String

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# ExecutionEngineConfig

Specifies the execution engine (cluster) to run the notebook and perform the notebook execution, for example, an Amazon EMR cluster.

## Contents

### Id

The unique identifier of the execution engine. For an Amazon EMR cluster, this is the cluster ID.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\u007F\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

### ExecutionRoleArn

The execution role ARN required for the notebook execution.

Type: String

Length Constraints: Minimum length of 20. Maximum length of 2048.

Pattern: `^arn:(aws[a-zA-Z0-9-]*):iam:((\d{12})?:(role((\u002F)|(\u002F[\u0021-\u007F]+\u002F))[\w+=,.\e-]+))$`

Required: No

### MasterInstanceSecurityGroupId

An optional unique ID of an Amazon EC2 security group to associate with the master instance of the Amazon EMR cluster for this notebook execution. For more information see [Specifying Amazon EC2 Security Groups for Amazon EMR Notebooks](#) in the *EMR Management Guide*.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\u007F\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`



Required: No

## Type

The type of execution engine. A value of EMR specifies an Amazon EMR cluster.

Type: String

Valid Values: EMR

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# FailureDetails

The details of the step failure. The service attempts to detect the root cause for many common failures.

## Contents

### LogFile

The path to the log file where the step failure root cause was originally recorded.

Type: String

Required: No

### Message

The descriptive message including the error the Amazon EMR service has identified as the cause of step failure. This is text from an error log that describes the root cause of the failure.

Type: String

Required: No

### Reason

The reason for the step failure. In the case where the service cannot successfully determine the root cause of the failure, it returns "Unknown Error" as a reason.

Type: String

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)



# HadoopJarStepConfig

A job flow step consisting of a JAR file whose main function will be executed. The main function submits a job for Hadoop to execute and waits for the job to finish or fail.

## Contents

### Jar

A path to a JAR file run during the step.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

### Args

A list of command line arguments passed to the JAR file's main function when executed.

Type: Array of strings

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### MainClass

The name of the main class in the specified Java file. If not specified, the JAR file should specify a Main-Class in its manifest file.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

## Properties

A list of Java properties that are set when the step runs. You can use these properties to pass key-value pairs to your main function.

Type: Array of [KeyValue](#) objects

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# HadoopStepConfig

A cluster step consisting of a JAR file whose main function will be executed. The main function submits a job for Hadoop to execute and waits for the job to finish or fail.

## Contents

### Args

The list of command line arguments to pass to the JAR file's main function for execution.

Type: Array of strings

Required: No

### Jar

The path to the JAR file that runs during the step.

Type: String

Required: No

### MainClass

The name of the main class in the specified Java file. If not specified, the JAR file should specify a main class in its manifest file.

Type: String

Required: No

### Properties

The list of Java properties that are set when the step runs. You can use these properties to pass key-value pairs to your main function.

Type: String to string map

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# Instance

Represents an Amazon EC2 instance provisioned as part of cluster.

## Contents

### EbsVolumes

The list of Amazon EBS volumes that are attached to this instance.

Type: Array of [EbsVolume](#) objects

Required: No

### Ec2InstanceId

The unique identifier of the instance in Amazon EC2.

Type: String

Required: No

### Id

The unique identifier for the instance in Amazon EMR.

Type: String

Required: No

### InstanceFleetId

The unique identifier of the instance fleet to which an Amazon EC2 instance belongs.

Type: String

Required: No

### InstanceGroupId

The identifier of the instance group to which this instance belongs.

Type: String

Required: No



## InstanceType

The Amazon EC2 instance type, for example `m3.xlarge`.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

## Market

The instance purchasing option. Valid values are `ON_DEMAND` or `SPOT`.

Type: String

Valid Values: `ON_DEMAND` | `SPOT`

Required: No

## PrivateDnsName

The private DNS name of the instance.

Type: String

Required: No

## PrivateIpAddress

The private IP address of the instance.

Type: String

Required: No

## PublicDnsName

The public DNS name of the instance.

Type: String

Required: No

## PublicIpAddress

The public IP address of the instance.

Type: String

Required: No

## Status

The current status of the instance.

Type: [InstanceStatus](#) object

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# InstanceFleet

Describes an instance fleet, which is a group of Amazon EC2 instances that host a particular node type (master, core, or task) in an Amazon EMR cluster. Instance fleets can consist of a mix of instance types and On-Demand and Spot Instances, which are provisioned to meet a defined target capacity.

## Note

The instance fleet configuration is available only in Amazon EMR releases 4.8.0 and later, excluding 5.0.x versions.

## Contents

### Context

Reserved.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### Id

The unique identifier of the instance fleet.

Type: String

Required: No

### InstanceFleetType

The node type that the instance fleet hosts. Valid values are MASTER, CORE, or TASK.

Type: String

Valid Values: MASTER | CORE | TASK

Required: No

### **InstanceTypeSpecifications**

An array of specifications for the instance types that comprise an instance fleet.

Type: Array of [InstanceTypeSpecification](#) objects

Required: No

### **LaunchSpecifications**

Describes the launch specification for an instance fleet.

Type: [InstanceFleetProvisioningSpecifications](#) object

Required: No

### **Name**

A friendly name for the instance fleet.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **ProvisionedOnDemandCapacity**

The number of On-Demand units that have been provisioned for the instance fleet to fulfill `TargetOnDemandCapacity`. This provisioned capacity might be less than or greater than `TargetOnDemandCapacity`.

Type: Integer

Valid Range: Minimum value of 0.

Required: No

### **ProvisionedSpotCapacity**

The number of Spot units that have been provisioned for this instance fleet to fulfill `TargetSpotCapacity`. This provisioned capacity might be less than or greater than `TargetSpotCapacity`.

Type: Integer

Valid Range: Minimum value of 0.

Required: No

## ResizeSpecifications

The resize specification for the instance fleet.

Type: [InstanceFleetResizingSpecifications](#) object

Required: No

## Status

The current status of the instance fleet.

Type: [InstanceFleetStatus](#) object

Required: No

## TargetOnDemandCapacity

The target capacity of On-Demand units for the instance fleet, which determines how many On-Demand Instances to provision. When the instance fleet launches, Amazon EMR tries to provision On-Demand Instances as specified by [InstanceTypeConfig](#). Each instance configuration has a specified `WeightedCapacity`. When an On-Demand Instance is provisioned, the `WeightedCapacity` units count toward the target capacity. Amazon EMR provisions instances until the target capacity is totally fulfilled, even if this results in an overage. For example, if there are 2 units remaining to fulfill capacity, and Amazon EMR can only provision an instance with a `WeightedCapacity` of 5 units, the instance is provisioned, and the target capacity is exceeded by 3 units. You can use [InstanceFleet:ProvisionedOnDemandCapacity](#) to determine the Spot capacity units that have been provisioned for the instance fleet.

### Note

If not specified or set to 0, only Spot Instances are provisioned for the instance fleet using `TargetSpotCapacity`. At least one of `TargetSpotCapacity` and `TargetOnDemandCapacity` should be greater than 0. For a master instance fleet, only one of `TargetSpotCapacity` and `TargetOnDemandCapacity` can be specified, and its value must be 1.

Type: Integer

Valid Range: Minimum value of 0.

Required: No

## TargetSpotCapacity

The target capacity of Spot units for the instance fleet, which determines how many Spot Instances to provision. When the instance fleet launches, Amazon EMR tries to provision Spot Instances as specified by [InstanceTypeConfig](#). Each instance configuration has a specified `WeightedCapacity`. When a Spot instance is provisioned, the `WeightedCapacity` units count toward the target capacity. Amazon EMR provisions instances until the target capacity is totally fulfilled, even if this results in an overage. For example, if there are 2 units remaining to fulfill capacity, and Amazon EMR can only provision an instance with a `WeightedCapacity` of 5 units, the instance is provisioned, and the target capacity is exceeded by 3 units. You can use [InstanceFleet:ProvisionedSpotCapacity](#) to determine the Spot capacity units that have been provisioned for the instance fleet.

### Note

If not specified or set to 0, only On-Demand Instances are provisioned for the instance fleet. At least one of `TargetSpotCapacity` and `TargetOnDemandCapacity` should be greater than 0. For a master instance fleet, only one of `TargetSpotCapacity` and `TargetOnDemandCapacity` can be specified, and its value must be 1.

Type: Integer

Valid Range: Minimum value of 0.

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)

- [Amazon SDK for Ruby V3](#)

# InstanceFleetConfig

The configuration that defines an instance fleet.

## Note

The instance fleet configuration is available only in Amazon EMR releases 4.8.0 and later, excluding 5.0.x versions.

## Contents

### InstanceFleetType

The node type that the instance fleet hosts. Valid values are MASTER, CORE, and TASK.

Type: String

Valid Values: MASTER | CORE | TASK

Required: Yes

### Context

Reserved.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### InstanceTypeConfigs

The instance type configurations that define the Amazon EC2 instances in the instance fleet.

Type: Array of [InstanceTypeConfig](#) objects

Required: No

### LaunchSpecifications

The launch specification for the instance fleet.



Type: [InstanceFleetProvisioningSpecifications](#) object

Required: No

### Name

The friendly name of the instance fleet.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### ResizeSpecifications

The resize specification for the instance fleet.

Type: [InstanceFleetResizingSpecifications](#) object

Required: No

### TargetOnDemandCapacity

The target capacity of On-Demand units for the instance fleet, which determines how many On-Demand Instances to provision. When the instance fleet launches, Amazon EMR tries to provision On-Demand Instances as specified by [InstanceTypeConfig](#). Each instance configuration has a specified `WeightedCapacity`. When an On-Demand Instance is provisioned, the `WeightedCapacity` units count toward the target capacity. Amazon EMR provisions instances until the target capacity is totally fulfilled, even if this results in an overage. For example, if there are 2 units remaining to fulfill capacity, and Amazon EMR can only provision an instance with a `WeightedCapacity` of 5 units, the instance is provisioned, and the target capacity is exceeded by 3 units.

#### Note

If not specified or set to 0, only Spot Instances are provisioned for the instance fleet using `TargetSpotCapacity`. At least one of `TargetSpotCapacity` and `TargetOnDemandCapacity` should be greater than 0. For a master instance fleet, only one of `TargetSpotCapacity` and `TargetOnDemandCapacity` can be specified, and its value must be 1.

Type: Integer

Valid Range: Minimum value of 0.

Required: No

### TargetSpotCapacity

The target capacity of Spot units for the instance fleet, which determines how many Spot Instances to provision. When the instance fleet launches, Amazon EMR tries to provision Spot Instances as specified by [InstanceTypeConfig](#). Each instance configuration has a specified `WeightedCapacity`. When a Spot Instance is provisioned, the `WeightedCapacity` units count toward the target capacity. Amazon EMR provisions instances until the target capacity is totally fulfilled, even if this results in an overage. For example, if there are 2 units remaining to fulfill capacity, and Amazon EMR can only provision an instance with a `WeightedCapacity` of 5 units, the instance is provisioned, and the target capacity is exceeded by 3 units.

#### Note

If not specified or set to 0, only On-Demand Instances are provisioned for the instance fleet. At least one of `TargetSpotCapacity` and `TargetOnDemandCapacity` should be greater than 0. For a master instance fleet, only one of `TargetSpotCapacity` and `TargetOnDemandCapacity` can be specified, and its value must be 1.

Type: Integer

Valid Range: Minimum value of 0.

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)



# InstanceFleetModifyConfig

Configuration parameters for an instance fleet modification request.

## Note

The instance fleet configuration is available only in Amazon EMR releases 4.8.0 and later, excluding 5.0.x versions.

## Contents

### InstanceFleetId

A unique identifier for the instance fleet.

Type: String

Required: Yes

### Context

Reserved.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### InstanceTypeConfigs

An array of InstanceTypeConfig objects that specify how Amazon EMR provisions Amazon EC2 instances when it fulfills On-Demand and Spot capacities. For more information, see [InstanceTypeConfig](#).

Type: Array of [InstanceTypeConfig](#) objects

Required: No

## ResizeSpecifications

The resize specification for the instance fleet.

Type: [InstanceFleetResizingSpecifications](#) object

Required: No

## TargetOnDemandCapacity

The target capacity of On-Demand units for the instance fleet. For more information see [InstanceFleetConfig:TargetOnDemandCapacity](#).

Type: Integer

Valid Range: Minimum value of 0.

Required: No

## TargetSpotCapacity

The target capacity of Spot units for the instance fleet. For more information, see [InstanceFleetConfig:TargetSpotCapacity](#).

Type: Integer

Valid Range: Minimum value of 0.

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# InstanceFleetProvisioningSpecifications

The launch specification for On-Demand and Spot Instances in the fleet.

## Note

The instance fleet configuration is available only in Amazon EMR releases 4.8.0 and later, excluding 5.0.x versions. On-Demand and Spot instance allocation strategies are available in Amazon EMR releases 5.12.1 and later.

## Contents

### OnDemandSpecification

The launch specification for On-Demand Instances in the instance fleet, which determines the allocation strategy and capacity reservation options.

## Note

The instance fleet configuration is available only in Amazon EMR releases 4.8.0 and later, excluding 5.0.x versions. On-Demand Instances allocation strategy is available in Amazon EMR releases 5.12.1 and later.

Type: [OnDemandProvisioningSpecification](#) object

Required: No

### SpotSpecification

The launch specification for Spot instances in the fleet, which determines the allocation strategy, defined duration, and provisioning timeout behavior.

Type: [SpotProvisioningSpecification](#) object

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# InstanceFleetResizingSpecifications

The resize specification for On-Demand and Spot Instances in the fleet.

## Contents

### OnDemandResizeSpecification

The resize specification for On-Demand Instances in the instance fleet, which contains the allocation strategy, capacity reservation options, and the resize timeout period.

Type: [OnDemandResizingSpecification](#) object

Required: No

### SpotResizeSpecification

The resize specification for Spot Instances in the instance fleet, which contains the allocation strategy and the resize timeout period.

Type: [SpotResizingSpecification](#) object

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)



# InstanceFleetStateChangeReason

Provides status change reason details for the instance fleet.

## Note

The instance fleet configuration is available only in Amazon EMR releases 4.8.0 and later, excluding 5.0.x versions.

## Contents

### Code

A code corresponding to the reason the state change occurred.

Type: String

Valid Values: INTERNAL\_ERROR | VALIDATION\_ERROR | INSTANCE\_FAILURE | CLUSTER\_TERMINATED

Required: No

### Message

An explanatory message.

Type: String

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# InstanceFleetStatus

The status of the instance fleet.

## Note

The instance fleet configuration is available only in Amazon EMR releases 4.8.0 and later, excluding 5.0.x versions.

## Contents

### State

A code representing the instance fleet status.

- **PROVISIONING**—The instance fleet is provisioning Amazon EC2 resources and is not yet ready to run jobs.
- **BOOTSTRAPPING**—Amazon EC2 instances and other resources have been provisioned and the bootstrap actions specified for the instances are underway.
- **RUNNING**—Amazon EC2 instances and other resources are running. They are either executing jobs or waiting to execute jobs.
- **RESIZING**—A resize operation is underway. Amazon EC2 instances are either being added or removed.
- **SUSPENDED**—A resize operation could not complete. Existing Amazon EC2 instances are running, but instances can't be added or removed.
- **TERMINATING**—The instance fleet is terminating Amazon EC2 instances.
- **TERMINATED**—The instance fleet is no longer active, and all Amazon EC2 instances have been terminated.

Type: String

Valid Values: PROVISIONING | BOOTSTRAPPING | RUNNING | RESIZING | SUSPENDED | TERMINATING | TERMINATED

Required: No

### StateChangeReason

Provides status change reason details for the instance fleet.

Type: [InstanceFleetStateChangeReason](#) object

Required: No

## Timeline

Provides historical timestamps for the instance fleet, including the time of creation, the time it became ready to run jobs, and the time of termination.

Type: [InstanceFleetTimeline](#) object

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# InstanceFleetTimeline

Provides historical timestamps for the instance fleet, including the time of creation, the time it became ready to run jobs, and the time of termination.

## Note

The instance fleet configuration is available only in Amazon EMR releases 4.8.0 and later, excluding 5.0.x versions.

## Contents

### CreationDateTime

The time and date the instance fleet was created.

Type: Timestamp

Required: No

### EndDateTime

The time and date the instance fleet terminated.

Type: Timestamp

Required: No

### ReadyDateTime

The time and date the instance fleet was ready to run jobs.

Type: Timestamp

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# InstanceGroup

This entity represents an instance group, which is a group of instances that have common purpose. For example, CORE instance group is used for HDFS.

## Contents

### AutoScalingPolicy

An automatic scaling policy for a core instance group or task instance group in an Amazon EMR cluster. The automatic scaling policy defines how an instance group dynamically adds and terminates Amazon EC2 instances in response to the value of a CloudWatch metric. See [PutAutoScalingPolicy](#).

Type: [AutoScalingPolicyDescription](#) object

Required: No

### BidPrice

If specified, indicates that the instance group uses Spot Instances. This is the maximum price you are willing to pay for Spot Instances. Specify `OnDemandPrice` to set the amount equal to the On-Demand price, or specify an amount in USD.

Type: String

Required: No

### Configurations

#### Note

Amazon EMR releases 4.x or later.

The list of configurations supplied for an Amazon EMR cluster instance group. You can specify a separate configuration for each instance group (master, core, and task).

Type: Array of [Configuration](#) objects

Required: No

## ConfigurationsVersion

The version number of the requested configuration specification for this instance group.

Type: Long

Required: No

## CustomAmiId

The custom AMI ID to use for the provisioned instance group.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

## EbsBlockDevices

The EBS block devices that are mapped to this instance group.

Type: Array of [EbsBlockDevice](#) objects

Required: No

## EbsOptimized

If the instance group is EBS-optimized. An Amazon EBS-optimized instance uses an optimized configuration stack and provides additional, dedicated capacity for Amazon EBS I/O.

Type: Boolean

Required: No

## Id

The identifier of the instance group.

Type: String

Required: No

## InstanceGroupType

The type of the instance group. Valid values are MASTER, CORE or TASK.

Type: String

Valid Values: MASTER | CORE | TASK

Required: No

### **InstanceType**

The Amazon EC2 instance type for all instances in the instance group.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 256.

Pattern: `[\u0020-\u007F\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\u0000-\u000F\u0010-\u001F\u0020-\u002F\u0030-\u0039\u0040-\u004F\u0050-\u005F\u0060-\u006F\u0070-\u007F\u0080-\u008F\u0090-\u009F\u00A0-\u00AF\u00B0-\u00BF\u00C0-\u00CF\u00D0-\u00DF\u00E0-\u00EF\u00F0-\u00FF\u0100-\u017F\u0180-\u01FF\u0200-\u02FF\u0300-\u037F\u0380-\u03FF\u0400-\u047F\u0480-\u04FF\u0500-\u057F\u0580-\u05FF\u0600-\u06FF\u0700-\u077F\u0780-\u07FF\u0800-\u087F\u0880-\u08FF\u0900-\u097F\u0980-\u09FF\u0A00-\u0A7F\u0A80-\u0AFF\u0B00-\u0B7F\u0B80-\u0BFF\u0C00-\u0C7F\u0C80-\u0CFF\u0D00-\u0D7F\u0D80-\u0DBF\u0DC0-\u0DCF\u0DD0-\u0DDF\u0DE0-\u0DEF\u0DF0-\u0DFB\u0E00-\u0E7F\u0E80-\u0EFF\u0F00-\u0F7F\u0F80-\u0FFF\u1000-\u107F\u1080-\u10FF\u1100-\u117F\u1180-\u11FF\u1200-\u127F\u1280-\u12FF\u1300-\u137F\u1380-\u13FF\u1400-\u147F\u1480-\u14FF\u1500-\u157F\u1580-\u15FF\u1600-\u167F\u1680-\u16FF\u1700-\u177F\u1780-\u17FF\u1800-\u187F\u1880-\u18FF\u1900-\u197F\u1980-\u19FF\u1A00-\u1A7F\u1A80-\u1AFF\u1B00-\u1B7F\u1B80-\u1BFF\u1C00-\u1C7F\u1C80-\u1CFF\u1D00-\u1D7F\u1D80-\u1DBF\u1E00-\u1E7F\u1E80-\u1EFF\u1F00-\u1F7F\u1F80-\u1FFF\u2000-\u207F\u2080-\u20FF\u2100-\u217F\u2180-\u21FF\u2200-\u227F\u2280-\u22FF\u2300-\u237F\u2380-\u23FF\u2400-\u247F\u2480-\u24FF\u2500-\u257F\u2580-\u25FF\u2600-\u267F\u2680-\u26FF\u2700-\u277F\u2780-\u27FF\u2800-\u287F\u2880-\u28FF\u2900-\u297F\u2980-\u29FF\u2A00-\u2A7F\u2A80-\u2AFF\u2B00-\u2B7F\u2B80-\u2BFF\u2C00-\u2C7F\u2C80-\u2CFF\u2D00-\u2D7F\u2D80-\u2DBF\u2E00-\u2E7F\u2E80-\u2EFF\u2F00-\u2F7F\u2F80-\u2FFF\u3000-\u307F\u3080-\u30FF\u3100-\u317F\u3180-\u31FF\u3200-\u327F\u3280-\u32FF\u3300-\u337F\u3380-\u33FF\u3400-\u347F\u3480-\u34FF\u3500-\u357F\u3580-\u35FF\u3600-\u367F\u3680-\u36FF\u3700-\u377F\u3780-\u37FF\u3800-\u387F\u3880-\u38FF\u3900-\u397F\u3980-\u39FF\u3A00-\u3A7F\u3A80-\u3AFF\u3B00-\u3B7F\u3B80-\u3BFF\u3C00-\u3C7F\u3C80-\u3CFF\u3D00-\u3D7F\u3D80-\u3DBF\u3E00-\u3E7F\u3E80-\u3EFF\u3F00-\u3F7F\u3F80-\u3FFF\u4000-\u407F\u4080-\u40FF\u4100-\u417F\u4180-\u41FF\u4200-\u427F\u4280-\u42FF\u4300-\u437F\u4380-\u43FF\u4400-\u447F\u4480-\u44FF\u4500-\u457F\u4580-\u45FF\u4600-\u467F\u4680-\u46FF\u4700-\u477F\u4780-\u47FF\u4800-\u487F\u4880-\u48FF\u4900-\u497F\u4980-\u49FF\u4A00-\u4A7F\u4A80-\u4AFF\u4B00-\u4B7F\u4B80-\u4BFF\u4C00-\u4C7F\u4C80-\u4CFF\u4D00-\u4D7F\u4D80-\u4DBF\u4E00-\u4E7F\u4E80-\u4EFF\u4F00-\u4F7F\u4F80-\u4FFF\u5000-\u507F\u5080-\u50FF\u5100-\u517F\u5180-\u51FF\u5200-\u527F\u5280-\u52FF\u5300-\u537F\u5380-\u53FF\u5400-\u547F\u5480-\u54FF\u5500-\u557F\u5580-\u55FF\u5600-\u567F\u5680-\u56FF\u5700-\u577F\u5780-\u57FF\u5800-\u587F\u5880-\u58FF\u5900-\u597F\u5980-\u59FF\u5A00-\u5A7F\u5A80-\u5AFF\u5B00-\u5B7F\u5B80-\u5BFF\u5C00-\u5C7F\u5C80-\u5CFF\u5D00-\u5D7F\u5D80-\u5DBF\u5E00-\u5E7F\u5E80-\u5EFF\u5F00-\u5F7F\u5F80-\u5FFF\u6000-\u607F\u6080-\u60FF\u6100-\u617F\u6180-\u61FF\u6200-\u627F\u6280-\u62FF\u6300-\u637F\u6380-\u63FF\u6400-\u647F\u6480-\u64FF\u6500-\u657F\u6580-\u65FF\u6600-\u667F\u6680-\u66FF\u6700-\u677F\u6780-\u67FF\u6800-\u687F\u6880-\u68FF\u6900-\u697F\u6980-\u69FF\u6A00-\u6A7F\u6A80-\u6AFF\u6B00-\u6B7F\u6B80-\u6BFF\u6C00-\u6C7F\u6C80-\u6CFF\u6D00-\u6D7F\u6D80-\u6DBF\u6E00-\u6E7F\u6E80-\u6EFF\u6F00-\u6F7F\u6F80-\u6FFF\u7000-\u707F\u7080-\u70FF\u7100-\u717F\u7180-\u71FF\u7200-\u727F\u7280-\u72FF\u7300-\u737F\u7380-\u73FF\u7400-\u747F\u7480-\u74FF\u7500-\u757F\u7580-\u75FF\u7600-\u767F\u7680-\u76FF\u7700-\u777F\u7780-\u77FF\u7800-\u787F\u7880-\u78FF\u7900-\u797F\u7980-\u79FF\u7A00-\u7A7F\u7A80-\u7AFF\u7B00-\u7B7F\u7B80-\u7BFF\u7C00-\u7C7F\u7C80-\u7CFF\u7D00-\u7D7F\u7D80-\u7DBF\u7E00-\u7E7F\u7E80-\u7EFF\u7F00-\u7F7F\u7F80-\u7FFF\u8000-\u807F\u8080-\u80FF\u8100-\u817F\u8180-\u81FF\u8200-\u827F\u8280-\u82FF\u8300-\u837F\u8380-\u83FF\u8400-\u847F\u8480-\u84FF\u8500-\u857F\u8580-\u85FF\u8600-\u867F\u8680-\u86FF\u8700-\u877F\u8780-\u87FF\u8800-\u887F\u8880-\u88FF\u8900-\u897F\u8980-\u89FF\u8A00-\u8A7F\u8A80-\u8AFF\u8B00-\u8B7F\u8B80-\u8BFF\u8C00-\u8C7F\u8C80-\u8CFF\u8D00-\u8D7F\u8D80-\u8DBF\u8E00-\u8E7F\u8E80-\u8EFF\u8F00-\u8F7F\u8F80-\u8FFF\u9000-\u907F\u9080-\u90FF\u9100-\u917F\u9180-\u91FF\u9200-\u927F\u9280-\u92FF\u9300-\u937F\u9380-\u93FF\u9400-\u947F\u9480-\u94FF\u9500-\u957F\u9580-\u95FF\u9600-\u967F\u9680-\u96FF\u9700-\u977F\u9780-\u97FF\u9800-\u987F\u9880-\u98FF\u9900-\u997F\u9980-\u99FF\u9A00-\u9A7F\u9A80-\u9AFF\u9B00-\u9B7F\u9B80-\u9BFF\u9C00-\u9C7F\u9C80-\u9CFF\u9D00-\u9D7F\u9D80-\u9DBF\u9E00-\u9E7F\u9E80-\u9EFF\u9F00-\u9F7F\u9F80-\u9FFF\uA000-\uA07F\uA080-\uA0FF\uA100-\uA17F\uA180-\uA1FF\uA200-\uA27F\uA280-\uA2FF\uA300-\uA37F\uA380-\uA3FF\uA400-\uA47F\uA480-\uA4FF\uA500-\uA57F\uA580-\uA5FF\uA600-\uA67F\uA680-\uA6FF\uA700-\uA77F\uA780-\uA7FF\uA800-\uA87F\uA880-\uA8FF\uA900-\uA97F\uA980-\uA9FF\uAA00-\uAA7F\uAA80-\uAAFF\uAB00-\uAB7F\uAB80-\uABFF\uAC00-\uAC7F\uAC80-\uACFF\uAD00-\uAD7F\uAD80-\uADB\u0000-\u000F\u0010-\u001F\u0020-\u002F\u0030-\u0039\u0040-\u004F\u0050-\u005F\u0060-\u006F\u0070-\u007F\u0080-\u008F\u0090-\u009F\u00A0-\u00AF\u00B0-\u00BF\u00C0-\u00CF\u00D0-\u00DF\u00E0-\u00EF\u00F0-\u00FF\u0100-\u017F\u0180-\u01FF\u0200-\u02FF\u0300-\u037F\u0380-\u03FF\u0400-\u047F\u0480-\u04FF\u0500-\u057F\u0580-\u05FF\u0600-\u06FF\u0700-\u077F\u0780-\u07FF\u0800-\u087F\u0880-\u08FF\u0900-\u097F\u0980-\u09FF\u0A00-\u0A7F\u0A80-\u0AFF\u0B00-\u0B7F\u0B80-\u0BFF\u0C00-\u0C7F\u0C80-\u0CFF\u0D00-\u0D7F\u0D80-\u0DBF\u0E00-\u0E7F\u0E80-\u0EFF\u0F00-\u0F7F\u0F80-\u0FFF\u1000-\u107F\u1080-\u10FF\u1100-\u117F\u1180-\u11FF\u1200-\u127F\u1280-\u12FF\u1300-\u137F\u1380-\u13FF\u1400-\u147F\u1480-\u14FF\u1500-\u157F\u1580-\u15FF\u1600-\u167F\u1680-\u16FF\u1700-\u177F\u1780-\u17FF\u1800-\u187F\u1880-\u18FF\u1900-\u197F\u1980-\u19FF\u1A00-\u1A7F\u1A80-\u1AFF\u1B00-\u1B7F\u1B80-\u1BFF\u1C00-\u1C7F\u1C80-\u1CFF\u1D00-\u1D7F\u1D80-\u1DBF\u1E00-\u1E7F\u1E80-\u1EFF\u1F00-\u1F7F\u1F80-\u1FFF\u2000-\u207F\u2080-\u20FF\u2100-\u217F\u2180-\u21FF\u2200-\u227F\u2280-\u22FF\u2300-\u237F\u2380-\u23FF\u2400-\u247F\u2480-\u24FF\u2500-\u257F\u2580-\u25FF\u2600-\u267F\u2680-\u26FF\u2700-\u277F\u2780-\u27FF\u2800-\u287F\u2880-\u28FF\u2900-\u297F\u2980-\u29FF\u2A00-\u2A7F\u2A80-\u2AFF\u2B00-\u2B7F\u2B80-\u2BFF\u2C00-\u2C7F\u2C80-\u2CFF\u2D00-\u2D7F\u2D80-\u2DBF\u2E00-\u2E7F\u2E80-\u2EFF\u2F00-\u2F7F\u2F80-\u2FFF\u3000-\u307F\u3080-\u30FF\u3100-\u317F\u3180-\u31FF\u3200-\u327F\u3280-\u32FF\u3300-\u337F\u3380-\u33FF\u3400-\u347F\u3480-\u34FF\u3500-\u357F\u3580-\u35FF\u3600-\u367F\u3680-\u36FF\u3700-\u377F\u3780-\u37FF\u3800-\u387F\u3880-\u38FF\u3900-\u397F\u3980-\u39FF\u3A00-\u3A7F\u3A80-\u3AFF\u3B00-\u3B7F\u3B80-\u3BFF\u3C00-\u3C7F\u3C80-\u3CFF\u3D00-\u3D7F\u3D80-\u3DBF\u3E00-\u3E7F\u3E80-\u3EFF\u3F00-\u3F7F\u3F80-\u3FFF\u4000-\u407F\u4080-\u40FF\u4100-\u417F\u4180-\u41FF\u4200-\u427F\u4280-\u42FF\u4300-\u437F\u4380-\u43FF\u4400-\u447F\u4480-\u44FF\u4500-\u457F\u4580-\u45FF\u4600-\u467F\u4680-\u46FF\u4700-\u477F\u4780-\u47FF\u4800-\u487F\u4880-\u48FF\u4900-\u497F\u4980-\u49FF\u4A00-\u4A7F\u4A80-\u4AFF\u4B00-\u4B7F\u4B80-\u4BFF\u4C00-\u4C7F\u4C80-\u4CFF\u4D00-\u4D7F\u4D80-\u4DBF\u4E00-\u4E7F\u4E80-\u4EFF\u4F00-\u4F7F\u4F80-\u4FFF\u5000-\u507F\u5080-\u50FF\u5100-\u517F\u5180-\u51FF\u5200-\u527F\u5280-\u52FF\u5300-\u537F\u5380-\u53FF\u5400-\u547F\u5480-\u54FF\u5500-\u557F\u5580-\u55FF\u5600-\u567F\u5680-\u56FF\u5700-\u577F\u5780-\u57FF\u5800-\u587F\u5880-\u58FF\u5900-\u597F\u5980-\u59FF\u5A00-\u5A7F\u5A80-\u5AFF\u5B00-\u5B7F\u5B80-\u5BFF\u5C00-\u5C7F\u5C80-\u5CFF\u5D00-\u5D7F\u5D80-\u5DBF\u5E00-\u5E7F\u5E80-\u5EFF\u5F00-\u5F7F\u5F80-\u5FFF\u6000-\u607F\u6080-\u60FF\u6100-\u617F\u6180-\u61FF\u6200-\u627F\u6280-\u62FF\u6300-\u637F\u6380-\u63FF\u6400-\u647F\u6480-\u64FF\u6500-\u657F\u6580-\u65FF\u6600-\u667F\u6680-\u66FF\u6700-\u677F\u6780-\u67FF\u6800-\u687F\u6880-\u68FF\u6900-\u697F\u6980-\u69FF\u6A00-\u6A7F\u6A80-\u6AFF\u6B00-\u6B7F\u6B80-\u6BFF\u6C00-\u6C7F\u6C80-\u6CFF\u6D00-\u6D7F\u6D80-\u6DBF\u6E00-\u6E7F\u6E80-\u6EFF\u6F00-\u6F7F\u6F80-\u6FFF\u7000-\u707F\u7080-\u70FF\u7100-\u717F\u7180-\u71FF\u7200-\u727F\u7280-\u72FF\u7300-\u737F\u7380-\u73FF\u7400-\u747F\u7480-\u74FF\u7500-\u757F\u7580-\u75FF\u7600-\u767F\u7680-\u76FF\u7700-\u777F\u7780-\u77FF\u7800-\u787F\u7880-\u78FF\u7900-\u797F\u7980-\u79FF\u7A00-\u7A7F\u7A80-\u7AFF\u7B00-\u7B7F\u7B80-\u7BFF\u7C00-\u7C7F\u7C80-\u7CFF\u7D00-\u7D7F\u7D80-\u7DBF\u7E00-\u7E7F\u7E80-\u7EFF\u7F00-\u7F7F\u7F80-\u7FFF\u8000-\u807F\u8080-\u80FF\u8100-\u817F\u8180-\u81FF\u8200-\u827F\u8280-\u82FF\u8300-\u837F\u8380-\u83FF\u8400-\u847F\u8480-\u84FF\u8500-\u857F\u8580-\u85FF\u8600-\u867F\u8680-\u86FF\u8700-\u877F\u8780-\u87FF\u8800-\u887F\u8880-\u88FF\u8900-\u897F\u8980-\u89FF\u8A00-\u8A7F\u8A80-\u8AFF\u8B00-\u8B7F\u8B80-\u8BFF\u8C00-\u8C7F\u8C80-\u8CFF\u8D00-\u8D7F\u8D80-\u8DBF\u8E00-\u8E7F\u8E80-\u8EFF\u8F00-\u8F7F\u8F80-\u8FFF\u9000-\u907F\u9080-\u90FF\u9100-\u917F\u9180-\u91FF\u9200-\u927F\u9280-\u92FF\u9300-\u937F\u9380-\u93FF\u9400-\u947F\u9480-\u94FF\u9500-\u957F\u9580-\u95FF\u9600-\u967F\u9680-\u96FF\u9700-\u977F\u9780-\u97FF\u9800-\u987F\u9880-\u98FF\u9900-\u997F\u9980-\u99FF\u9A00-\u9A7F\u9A80-\u9AFF\u9B00-\u9B7F\u9B80-\u9BFF\u9C00-\u9C7F\u9C80-\u9CFF\u9D00-\u9D7F\u9D80-\u9DBF\u9E00-\u9E7F\u9E80-\u9EFF\u9F00-\u9F7F\u9F80-\u9FFF\uA000-\uA07F\uA080-\uA0FF\uA100-\uA17F\uA180-\uA1FF\uA200-\uA27F\uA280-\uA2FF\uA300-\uA37F\uA380-\uA3FF\uA400-\uA47F\uA480-\uA4FF\uA500-\uA57F\uA580-\uA5FF\uA600-\uA67F\uA680-\uA6FF\uA700-\uA77F\uA780-\uA7FF\uA800-\uA87F\uA880-\uA8FF\uA900-\uA97F\uA980-\uA9FF\uAA00-\uAA7F\uAA80-\uAAFF\uAB00-\uAB7F\uAB80-\uABFF\uAC00-\uAC7F\uAC80-\uACFF\uAD00-\uAD7F\uAD80-\uADB`

Required: No

### **LastSuccessfullyAppliedConfigurations**

A list of configurations that were successfully applied for an instance group last time.

Type: Array of [Configuration](#) objects

Required: No

### **LastSuccessfullyAppliedConfigurationsVersion**

The version number of a configuration specification that was successfully applied for an instance group last time.

Type: Long

Required: No

### **Market**

The marketplace to provision instances for this group. Valid values are ON\_DEMAND or SPOT.

Type: String

Valid Values: ON\_DEMAND | SPOT

Required: No

### **Name**

The name of the instance group.



Type: String

Required: No

### **RequestedInstanceCount**

The target number of instances for the instance group.

Type: Integer

Required: No

### **RunningInstanceCount**

The number of instances currently running in this instance group.

Type: Integer

Required: No

### **ShrinkPolicy**

Policy for customizing shrink operations.

Type: [ShrinkPolicy](#) object

Required: No

### **Status**

The current status of the instance group.

Type: [InstanceGroupStatus](#) object

Required: No

## **See Also**

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)



# InstanceGroupConfig

Configuration defining a new instance group.

## Contents

### InstanceCount

Target number of instances for the instance group.

Type: Integer

Required: Yes

### InstanceRole

The role of the instance group in the cluster.

Type: String

Valid Values: MASTER | CORE | TASK

Required: Yes

### InstanceType

The Amazon EC2 instance type for all instances in the instance group.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 256.

Pattern: `[\u0020-\u007F\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

### AutoScalingPolicy

An automatic scaling policy for a core instance group or task instance group in an Amazon EMR cluster. The automatic scaling policy defines how an instance group dynamically adds and terminates Amazon EC2 instances in response to the value of a CloudWatch metric. See [PutAutoScalingPolicy](#).

Type: [AutoScalingPolicy](#) object



Type: [EbsConfiguration](#) object

Required: No

## Market

Market type of the Amazon EC2 instances used to create a cluster node.

Type: String

Valid Values: ON\_DEMAND | SPOT

Required: No

## Name

Friendly name given to the instance group.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# InstanceGroupDetail

Detailed information about an instance group.

## Contents

### CreationDateTime

The date/time the instance group was created.

Type: Timestamp

Required: Yes

### InstanceRequestCount

Target number of instances to run in the instance group.

Type: Integer

Required: Yes

### InstanceRole

Instance group role in the cluster

Type: String

Valid Values: MASTER | CORE | TASK

Required: Yes

### InstanceRunningCount

Actual count of running instances.

Type: Integer

Required: Yes

### InstanceType

Amazon EC2 instance type.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

## Market

Market type of the Amazon EC2 instances used to create a cluster node.

Type: String

Valid Values: ON\_DEMAND | SPOT

Required: Yes

## State

State of instance group. The following values are no longer supported: STARTING, TERMINATED, and FAILED.

Type: String

Valid Values: PROVISIONING | BOOTSTRAPPING | RUNNING | RECONFIGURING  
| RESIZING | SUSPENDED | TERMINATING | TERMINATED | ARRESTED |  
SHUTTING\_DOWN | ENDED

Required: Yes

## BidPrice

If specified, indicates that the instance group uses Spot Instances. This is the maximum price you are willing to pay for Spot Instances. Specify `OnDemandPrice` to set the amount equal to the On-Demand price, or specify an amount in USD.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

## CustomAmild

The custom AMI ID to use for the provisioned instance group.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **EndDateTime**

The date/time the instance group was terminated.

Type: Timestamp

Required: No

### **InstanceGroupId**

Unique identifier for the instance group.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **LastStateChangeReason**

Details regarding the state of the instance group.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **Name**

Friendly name for the instance group.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.



Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **ReadyDateTime**

The date/time the instance group was available to the cluster.

Type: Timestamp

Required: No

### **StartDateTime**

The date/time the instance group was started.

Type: Timestamp

Required: No

## **See Also**

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# InstanceGroupModifyConfig

Modify the size or configurations of an instance group.

## Contents

### InstanceGroupId

Unique ID of the instance group to modify.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\u007F\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

### Configurations

A list of new or modified configurations to apply for an instance group.

Type: Array of [Configuration](#) objects

Required: No

### EC2InstanceIdsToTerminate

The Amazon EC2 InstanceIds to terminate. After you terminate the instances, the instance group will not return to its original requested size.

Type: Array of strings

Required: No

### InstanceCount

Target size for the instance group.

Type: Integer

Required: No

### ReconfigurationType

Type of reconfiguration requested. Valid values are MERGE and OVERWRITE.

Type: String

Valid Values: OVERWRITE | MERGE

Required: No

## **ShrinkPolicy**

Policy for customizing shrink operations.

Type: [ShrinkPolicy](#) object

Required: No

## **See Also**

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# InstanceGroupStateChangeReason

The status change reason details for the instance group.

## Contents

### Code

The programmable code for the state change reason.

Type: String

Valid Values: INTERNAL\_ERROR | VALIDATION\_ERROR | INSTANCE\_FAILURE | CLUSTER\_TERMINATED

Required: No

### Message

The status change reason description.

Type: String

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# InstanceGroupStatus

The details of the instance group status.

## Contents

### State

The current state of the instance group.

Type: String

Valid Values: PROVISIONING | BOOTSTRAPPING | RUNNING | RECONFIGURING  
| RESIZING | SUSPENDED | TERMINATING | TERMINATED | ARRESTED |  
SHUTTING\_DOWN | ENDED

Required: No

### StateChangeReason

The status change reason details for the instance group.

Type: [InstanceGroupStateChangeReason](#) object

Required: No

### Timeline

The timeline of the instance group status over time.

Type: [InstanceGroupTimeline](#) object

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)



# InstanceGroupTimeline

The timeline of the instance group lifecycle.

## Contents

### CreationDateTime

The creation date and time of the instance group.

Type: Timestamp

Required: No

### EndDateTime

The date and time when the instance group terminated.

Type: Timestamp

Required: No

### ReadyDateTime

The date and time when the instance group became ready to perform tasks.

Type: Timestamp

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# InstanceResizePolicy

Custom policy for requesting termination protection or termination of specific instances when shrinking an instance group.

## Contents

### InstancesToProtect

Specific list of instances to be protected when shrinking an instance group.

Type: Array of strings

Required: No

### InstancesToTerminate

Specific list of instances to be terminated when shrinking an instance group.

Type: Array of strings

Required: No

### InstanceTerminationTimeout

Decommissioning timeout override for the specific list of instances to be terminated.

Type: Integer

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)



# InstanceStateChangeReason

The details of the status change reason for the instance.

## Contents

### Code

The programmable code for the state change reason.

Type: String

Valid Values: INTERNAL\_ERROR | VALIDATION\_ERROR | INSTANCE\_FAILURE | BOOTSTRAP\_FAILURE | CLUSTER\_TERMINATED

Required: No

### Message

The status change reason description.

Type: String

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# InstanceState

The instance status details.

## Contents

### State

The current state of the instance.

Type: String

Valid Values: AWAITING\_FULFILLMENT | PROVISIONING | BOOTSTRAPPING | RUNNING  
| TERMINATED

Required: No

### StateChangeReason

The details of the status change reason for the instance.

Type: [InstanceStateChangeReason](#) object

Required: No

### Timeline

The timeline of the instance status over time.

Type: [InstanceTimeline](#) object

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)



# InstanceTimeline

The timeline of the instance lifecycle.

## Contents

### CreationDateTime

The creation date and time of the instance.

Type: Timestamp

Required: No

### EndDateTime

The date and time when the instance was terminated.

Type: Timestamp

Required: No

### ReadyDateTime

The date and time when the instance was ready to perform tasks.

Type: Timestamp

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# InstanceTypeConfig

An instance type configuration for each instance type in an instance fleet, which determines the Amazon EC2 instances Amazon EMR attempts to provision to fulfill On-Demand and Spot target capacities. When you use an allocation strategy, you can include a maximum of 30 instance type configurations for a fleet. For more information about how to use an allocation strategy, see [Configure Instance Fleets](#). Without an allocation strategy, you may specify a maximum of five instance type configurations for a fleet.

## Note

The instance fleet configuration is available only in Amazon EMR releases 4.8.0 and later, excluding 5.0.x versions.

## Contents

### InstanceType

An Amazon EC2 instance type, such as `m3.xlarge`.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

### BidPrice

The bid price for each Amazon EC2 Spot Instance type as defined by InstanceType. Expressed in USD. If neither BidPrice nor BidPriceAsPercentageOfOnDemandPrice is provided, BidPriceAsPercentageOfOnDemandPrice defaults to 100%.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`



## Priority

The priority at which Amazon EMR launches the Amazon EC2 instances with this instance type. Priority starts at 0, which is the highest priority. Amazon EMR considers the highest priority first.

Type: Double

Valid Range: Minimum value of 0.0.

Required: No

## WeightedCapacity

The number of units that a provisioned instance of this type provides toward fulfilling the target capacities defined in [InstanceFleetConfig](#). This value is 1 for a master instance fleet, and must be 1 or greater for core and task instance fleets. Defaults to 1 if not specified.

Type: Integer

Valid Range: Minimum value of 0.

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# InstanceTypeSpecification

The configuration specification for each instance type in an instance fleet.

## Note

The instance fleet configuration is available only in Amazon EMR releases 4.8.0 and later, excluding 5.0.x versions.

## Contents

### BidPrice

The bid price for each Amazon EC2 Spot Instance type as defined by InstanceType. Expressed in USD.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### BidPriceAsPercentageOfOnDemandPrice

The bid price, as a percentage of On-Demand price, for each Amazon EC2 Spot Instance as defined by InstanceType. Expressed as a number (for example, 20 specifies 20%).

Type: Double

Valid Range: Minimum value of 0.0.

Required: No

### Configurations

A configuration classification that applies when provisioning cluster instances, which can include configurations for applications and software bundled with Amazon EMR.

Type: Array of [Configuration](#) objects



Required: No

### **CustomAmiId**

The custom AMI ID to use for the instance type.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **EbsBlockDevices**

The configuration of Amazon Elastic Block Store (Amazon EBS) attached to each instance as defined by InstanceType.

Type: Array of [EbsBlockDevice](#) objects

Required: No

### **EbsOptimized**

Evaluates to TRUE when the specified InstanceType is EBS-optimized.

Type: Boolean

Required: No

### **InstanceType**

The Amazon EC2 instance type, for example `m3.xlarge`.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **Priority**

The priority at which Amazon EMR launches the Amazon EC2 instances with this instance type. Priority starts at 0, which is the highest priority. Amazon EMR considers the highest priority first.

Type: Double

Valid Range: Minimum value of 0.0.

Required: No

### **WeightedCapacity**

The number of units that a provisioned instance of this type provides toward fulfilling the target capacities defined in [InstanceFleetConfig](#). Capacity values represent performance characteristics such as vCPUs, memory, or I/O. If not specified, the default value is 1.

Type: Integer

Valid Range: Minimum value of 0.

Required: No

## **See Also**

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# JobFlowDetail

A description of a cluster (job flow).

## Contents

### ExecutionStatusDetail

Describes the execution status of the job flow.

Type: [JobFlowExecutionStatusDetail](#) object

Required: Yes

### Instances

Describes the Amazon EC2 instances of the job flow.

Type: [JobFlowInstancesDetail](#) object

Required: Yes

### JobFlowId

The job flow identifier.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

### Name

The name of the job flow.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

## AmiVersion

Applies only to Amazon EMR AMI versions 3.x and 2.x. For Amazon EMR releases 4.0 and later, `ReleaseLabel` is used. To specify a custom AMI, use `CustomAmiID`.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

## AutoScalingRole

An IAM role for automatic scaling policies. The default role is `EMR_AutoScaling_DefaultRole`. The IAM role provides a way for the automatic scaling feature to get the required permissions it needs to launch and terminate Amazon EC2 instances in an instance group.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

## BootstrapActions

A list of the bootstrap actions run by the job flow.

Type: Array of [BootstrapActionDetail](#) objects

Required: No

## JobFlowRole

The IAM role that was specified when the job flow was launched. The Amazon EC2 instances of the job flow assume this role.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **LogEncryptionKmsKeyId**

The Amazon KMS key used for encrypting log files. This attribute is only available with Amazon EMR 5.30.0 and later, excluding 6.0.0.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **LogUri**

The location in Amazon S3 where log files for the job are stored.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **ScaleDownBehavior**

The way that individual Amazon EC2 instances terminate when an automatic scale-in activity occurs or an instance group is resized. `TERMINATE_AT_INSTANCE_HOUR` indicates that Amazon EMR terminates nodes at the instance-hour boundary, regardless of when the request to terminate the instance was submitted. This option is only available with Amazon EMR 5.1.0 and later and is the default for clusters created using that version. `TERMINATE_AT_TASK_COMPLETION` indicates that Amazon EMR adds nodes to a deny list and drains tasks from nodes before terminating the Amazon EC2 instances, regardless of the instance-hour boundary. With either behavior, Amazon EMR removes the least active nodes first and blocks instance termination if it could lead to HDFS corruption. `TERMINATE_AT_TASK_COMPLETION` available only in Amazon EMR releases 4.1.0 and later, and is the default for releases of Amazon EMR earlier than 5.1.0.

Type: String

Valid Values: TERMINATE\_AT\_INSTANCE\_HOUR | TERMINATE\_AT\_TASK\_COMPLETION

Required: No

### ServiceRole

The IAM role that is assumed by the Amazon EMR service to access Amazon resources on your behalf.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### Steps

A list of steps run by the job flow.

Type: Array of [StepDetail](#) objects

Required: No

### SupportedProducts

A list of strings set by third-party software when the job flow is launched. If you are not using third-party software to manage the job flow, this value is empty.

Type: Array of strings

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### VisibleToAllUsers

Indicates whether the cluster is visible to IAM principals in the Amazon Web Services account associated with the cluster. When `true`, IAM principals in the Amazon Web Services account can perform Amazon EMR cluster actions that their IAM policies allow. When `false`, only the IAM principal that created the cluster and the Amazon Web Services account root user can perform Amazon EMR actions, regardless of IAM permissions policies attached to other IAM principals.

The default value is `true` if a value is not provided when creating a cluster using the Amazon EMR API [RunJobFlow](#) command, the Amazon CLI [create-cluster](#) command, or the Amazon Web Services Management Console.

Type: Boolean

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)





## ReadyDateTime

The date and time when the job flow was ready to start running bootstrap actions.

Type: Timestamp

Required: No

## StartDateTime

The start date and time of the job flow.

Type: Timestamp

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)



Required: No

### **Ec2SubnetId**

Applies to clusters that use the uniform instance group configuration. To launch the cluster in Amazon Virtual Private Cloud (Amazon VPC), set this parameter to the identifier of the Amazon VPC subnet where you want the cluster to launch. If you do not specify this value and your account supports EC2-Classic, the cluster launches in EC2-Classic.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **Ec2SubnetIds**

Applies to clusters that use the instance fleet configuration. When multiple Amazon EC2 subnet IDs are specified, Amazon EMR evaluates them and launches instances in the optimal subnet.

#### **Note**

The instance fleet configuration is available only in Amazon EMR releases 4.8.0 and later, excluding 5.0.x versions.

Type: Array of strings

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **EmrManagedMasterSecurityGroup**

The identifier of the Amazon EC2 security group for the master node. If you specify `EmrManagedMasterSecurityGroup`, you must also specify `EmrManagedSlaveSecurityGroup`.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **EmrManagedSlaveSecurityGroup**

The identifier of the Amazon EC2 security group for the core and task nodes. If you specify `EmrManagedSlaveSecurityGroup`, you must also specify `EmrManagedMasterSecurityGroup`.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **HadoopVersion**

Applies only to Amazon EMR release versions earlier than 4.0. The Hadoop version for the cluster. Valid inputs are "0.18" (no longer maintained), "0.20" (no longer maintained), "0.20.205" (no longer maintained), "1.0.3", "2.2.0", or "2.4.0". If you do not set this value, the default of 0.18 is used, unless the `AmiVersion` parameter is set in the `RunJobFlow` call, in which case the default version of Hadoop for that AMI version is used.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **InstanceCount**

The number of Amazon EC2 instances in the cluster.

Type: Integer

Required: No

## InstanceFleets

### Note

The instance fleet configuration is available only in Amazon EMR releases 4.8.0 and later, excluding 5.0.x versions.

Describes the Amazon EC2 instances and instance configurations for clusters that use the instance fleet configuration.

Type: Array of [InstanceFleetConfig](#) objects

Required: No

## InstanceGroups

Configuration for the instance groups in a cluster.

Type: Array of [InstanceGroupConfig](#) objects

Required: No

## KeepJobFlowAliveWhenNoSteps

Specifies whether the cluster should remain available after completing all steps. Defaults to `false`. For more information about configuring cluster termination, see [Control Cluster Termination](#) in the *EMR Management Guide*.

Type: Boolean

Required: No

## MasterInstanceType

The Amazon EC2 instance type of the master node.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 256.

Pattern: `[\u0020-\u007F\u00E0-\u00FF\u0080-\u00FF\u00DC-\u00DB\u00FF\u00FF\u00r\u00n\u00t]*`

Required: No

## Placement

The Availability Zone in which the cluster runs.

Type: [PlacementType](#) object

Required: No

## ServiceAccessSecurityGroup

The identifier of the Amazon EC2 security group for the Amazon EMR service to access clusters in VPC private subnets.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

## SlaveInstanceType

The Amazon EC2 instance type of the core and task nodes.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

## TerminationProtected

Specifies whether to lock the cluster to prevent the Amazon EC2 instances from being terminated by API call, user intervention, or in the event of a job-flow error.

Type: Boolean

Required: No

## UnhealthyNodeReplacement

Indicates whether Amazon EMR should gracefully replace core nodes that have degraded within the cluster.

Type: Boolean

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# JobFlowInstancesDetail

Specify the type of Amazon EC2 instances that the cluster (job flow) runs on.

## Contents

### InstanceCount

The number of Amazon EC2 instances in the cluster. If the value is 1, the same instance serves as both the master and core and task node. If the value is greater than 1, one instance is the master node and all others are core and task nodes.

Type: Integer

Required: Yes

### MasterInstanceType

The Amazon EC2 master node instance type.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

### SlaveInstanceType

The Amazon EC2 core and task node instance type.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

### Ec2KeyName

The name of an Amazon EC2 key pair that can be used to connect to the master node using SSH.



Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **Ec2SubnetId**

For clusters launched within Amazon Virtual Private Cloud, this is the identifier of the subnet where the cluster was launched.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **HadoopVersion**

The Hadoop version for the cluster.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **InstanceGroups**

Details about the instance groups in a cluster.

Type: Array of [InstanceGroupDetail](#) objects

Required: No

### **KeepJobFlowAliveWhenNoSteps**

Specifies whether the cluster should remain available after completing all steps.

Type: Boolean

Required: No

### **MasterInstanceId**

The Amazon EC2 instance identifier of the master node.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **MasterPublicDnsName**

The DNS name of the master node. If the cluster is on a private subnet, this is the private DNS name. On a public subnet, this is the public DNS name.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **NormalizedInstanceHours**

An approximation of the cost of the cluster, represented in m1.small/hours. This value is increased one time for every hour that an m1.small instance runs. Larger instances are weighted more heavily, so an Amazon EC2 instance that is roughly four times more expensive would result in the normalized instance hours being increased incrementally four times. This result is only an approximation and does not reflect the actual billing rate.

Type: Integer

Required: No

### **Placement**

The Amazon EC2 Availability Zone for the cluster.

Type: [PlacementType](#) object

Required: No

## TerminationProtected

Specifies whether the Amazon EC2 instances in the cluster are protected from termination by API calls, user intervention, or in the event of a job-flow error.

Type: Boolean

Required: No

## UnhealthyNodeReplacement

Indicates whether Amazon EMR should gracefully replace core nodes that have degraded within the cluster.

Type: Boolean

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# KerberosAttributes

Attributes for Kerberos configuration when Kerberos authentication is enabled using a security configuration. For more information see [Use Kerberos Authentication](#) in the *Amazon EMR Management Guide*.

## Contents

### KdcAdminPassword

The password used within the cluster for the kadmin service on the cluster-dedicated KDC, which maintains Kerberos principals, password policies, and keytabs for the cluster.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

### Realm

The name of the Kerberos realm to which all nodes in a cluster belong. For example, EC2.INTERNAL.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

### ADDomainJoinPassword

The Active Directory password for ADDomainJoinUser.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **ADDomainJoinUser**

Required only when establishing a cross-realm trust with an Active Directory domain. A user with sufficient privileges to join resources to the domain.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **CrossRealmTrustPrincipalPassword**

Required only when establishing a cross-realm trust with a KDC in a different realm. The cross-realm principal password, which must be identical across realms.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

## **See Also**

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# KeyValue

A key-value pair.

## Contents

### Key

The unique identifier of a key-value pair.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### Value

The value part of the identified key.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# ManagedScalingPolicy

Managed scaling policy for an Amazon EMR cluster. The policy specifies the limits for resources that can be added or terminated from a cluster. The policy only applies to the core and task nodes. The master node cannot be scaled after initial configuration.

## Contents

### ComputeLimits

The Amazon EC2 unit limits for a managed scaling policy. The managed scaling activity of a cluster is not allowed to go above or below these limits. The limit only applies to the core and task nodes. The master node cannot be scaled after initial configuration.

Type: [ComputeLimits](#) object

Required: No

### ScalingStrategy

Determines whether a custom scaling utilization performance index can be set. Possible values include *ADVANCED* or *DEFAULT*.

Type: String

Valid Values: DEFAULT | ADVANCED

Required: No

### UtilizationPerformanceIndex

An integer value that represents an advanced scaling strategy. Setting a higher value optimizes for performance. Setting a lower value optimizes for resource conservation. Setting the value to 50 balances performance and resource conservation. Possible values are 1, 25, 50, 75, and 100.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 100.

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)



# MetricDimension

A CloudWatch dimension, which is specified using a Key (known as a Name in CloudWatch), Value pair. By default, Amazon EMR uses one dimension whose Key is JobFlowID and Value is a variable representing the cluster ID, which is `${emr.clusterId}`. This enables the rule to bootstrap when the cluster ID becomes available.

## Contents

### Key

The dimension name.

Type: String

Required: No

### Value

The dimension value.

Type: String

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# NotebookExecution

A notebook execution. An execution is a specific instance that an Amazon EMR Notebook is run using the `StartNotebookExecution` action.

## Contents

### Arn

The Amazon Resource Name (ARN) of the notebook execution.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### EditorId

The unique identifier of the Amazon EMR Notebook that is used for the notebook execution.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### EndTime

The timestamp when notebook execution ended.

Type: Timestamp

Required: No

### EnvironmentVariables

The environment variables associated with the notebook execution.

Type: String to string map

Key Length Constraints: Minimum length of 0. Maximum length of 256.

Key Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Value Length Constraints: Minimum length of 0. Maximum length of 10280.

Value Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **ExecutionEngine**

The execution engine, such as an Amazon EMR cluster, used to run the Amazon EMR notebook and perform the notebook execution.

Type: [ExecutionEngineConfig](#) object

Required: No

### **LastStateChangeReason**

The reason for the latest status change of the notebook execution.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **NotebookExecutionId**

The unique identifier of a notebook execution.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **NotebookExecutionName**

A name for the notebook execution.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **NotebookInstanceSecurityGroupId**

The unique identifier of the Amazon EC2 security group associated with the Amazon EMR Notebook instance. For more information see [Specifying Amazon EC2 Security Groups for Amazon EMR Notebooks](#) in the *Amazon EMR Management Guide*.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **NotebookParams**

Input parameters in JSON format passed to the Amazon EMR Notebook at runtime for execution.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **NotebookS3Location**

The Amazon S3 location that stores the notebook execution input.

Type: [NotebookS3LocationForOutput](#) object

Required: No

### **OutputNotebookFormat**

The output format for the notebook execution.

Type: String

Valid Values: HTML

Required: No

### **OutputNotebookS3Location**

The Amazon S3 location for the notebook execution output.

Type: [OutputNotebookS3LocationForOutput](#) object

Required: No

### **OutputNotebookURI**

The location of the notebook execution's output file in Amazon S3.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **StartTime**

The timestamp when notebook execution started.

Type: Timestamp

Required: No

### **Status**

The status of the notebook execution.

- `START_PENDING` indicates that the cluster has received the execution request but execution has not begun.
- `STARTING` indicates that the execution is starting on the cluster.
- `RUNNING` indicates that the execution is being processed by the cluster.
- `FINISHING` indicates that execution processing is in the final stages.
- `FINISHED` indicates that the execution has completed without error.

- FAILING indicates that the execution is failing and will not finish successfully.
- FAILED indicates that the execution failed.
- STOP\_PENDING indicates that the cluster has received a StopNotebookExecution request and the stop is pending.
- STOPPING indicates that the cluster is in the process of stopping the execution as a result of a StopNotebookExecution request.
- STOPPED indicates that the execution stopped because of a StopNotebookExecution request.

Type: String

Valid Values: START\_PENDING | STARTING | RUNNING | FINISHING | FINISHED | FAILING | FAILED | STOP\_PENDING | STOPPING | STOPPED

Required: No

## Tags

A list of tags associated with a notebook execution. Tags are user-defined key-value pairs that consist of a required key string with a maximum of 128 characters and an optional value string with a maximum of 256 characters.

Type: Array of [Tag](#) objects

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# NotebookExecutionSummary

Details for a notebook execution. The details include information such as the unique ID and status of the notebook execution.

## Contents

### EditorId

The unique identifier of the editor associated with the notebook execution.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### EndTime

The timestamp when notebook execution started.

Type: Timestamp

Required: No

### ExecutionEngineId

The unique ID of the execution engine for the notebook execution.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### NotebookExecutionId

The unique identifier of the notebook execution.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **NotebookExecutionName**

The name of the notebook execution.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **NotebookS3Location**

The Amazon S3 location that stores the notebook execution input.

Type: [NotebookS3LocationForOutput](#) object

Required: No

### **StartTime**

The timestamp when notebook execution started.

Type: Timestamp

Required: No

### **Status**

The status of the notebook execution.

- `START_PENDING` indicates that the cluster has received the execution request but execution has not begun.
- `STARTING` indicates that the execution is starting on the cluster.
- `RUNNING` indicates that the execution is being processed by the cluster.
- `FINISHING` indicates that execution processing is in the final stages.
- `FINISHED` indicates that the execution has completed without error.



- FAILING indicates that the execution is failing and will not finish successfully.
- FAILED indicates that the execution failed.
- STOP\_PENDING indicates that the cluster has received a `StopNotebookExecution` request and the stop is pending.
- STOPPING indicates that the cluster is in the process of stopping the execution as a result of a `StopNotebookExecution` request.
- STOPPED indicates that the execution stopped because of a `StopNotebookExecution` request.

Type: String

Valid Values: START\_PENDING | STARTING | RUNNING | FINISHING | FINISHED | FAILING | FAILED | STOP\_PENDING | STOPPING | STOPPED

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# NotebookS3LocationForOutput

The Amazon S3 location that stores the notebook execution input.

## Contents

### Bucket

The Amazon S3 bucket that stores the notebook execution input.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### Key

The key to the Amazon S3 location that stores the notebook execution input.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDBFF-\uDC00\uDFFF\r\n\t]*`

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# NotebookS3LocationFromInput

The Amazon S3 location that stores the notebook execution input.

## Contents

### Bucket

The Amazon S3 bucket that stores the notebook execution input.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### Key

The key to the Amazon S3 location that stores the notebook execution input.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDBFF-\uDC00\uDFFF\r\n\t]*`

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# OnDemandCapacityReservationOptions

Describes the strategy for using unused Capacity Reservations for fulfilling On-Demand capacity.

## Contents

### CapacityReservationPreference

Indicates the instance's Capacity Reservation preferences. Possible preferences include:

- `open` - The instance can run in any open Capacity Reservation that has matching attributes (instance type, platform, Availability Zone).
- `none` - The instance avoids running in a Capacity Reservation even if one is available. The instance runs as an On-Demand Instance.

Type: String

Valid Values: `open` | `none`

Required: No

### CapacityReservationResourceGroupArn

The ARN of the Capacity Reservation resource group in which to run the instance.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### UsageStrategy

Indicates whether to use unused Capacity Reservations for fulfilling On-Demand capacity.

If you specify `use-capacity-reservations-first`, the fleet uses unused Capacity Reservations to fulfill On-Demand capacity up to the target On-Demand capacity. If multiple instance pools have unused Capacity Reservations, the On-Demand allocation strategy (`lowest-price`) is applied. If the number of unused Capacity Reservations is less than the On-Demand target capacity, the remaining On-Demand target capacity is launched according to the On-Demand allocation strategy (`lowest-price`).

If you do not specify a value, the fleet fulfills the On-Demand capacity according to the chosen On-Demand allocation strategy.

Type: String

Valid Values: `use-capacity-reservations-first`

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# OnDemandProvisioningSpecification

The launch specification for On-Demand Instances in the instance fleet, which determines the allocation strategy.

## Note

The instance fleet configuration is available only in Amazon EMR releases 4.8.0 and later, excluding 5.0.x versions. On-Demand Instances allocation strategy is available in Amazon EMR releases 5.12.1 and later.

## Contents

### AllocationStrategy

Specifies the strategy to use in launching On-Demand instance fleets. Available options are `lowest-price` and `prioritized`. `lowest-price` specifies to launch the instances with the lowest price first, and `prioritized` specifies that Amazon EMR should launch the instances with the highest priority first. The default is `lowest-price`.

Type: String

Valid Values: `lowest-price` | `prioritized`

Required: Yes

### CapacityReservationOptions

The launch specification for On-Demand instances in the instance fleet, which determines the allocation strategy.

Type: [OnDemandCapacityReservationOptions](#) object

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# OnDemandResizingSpecification

The resize specification for On-Demand Instances in the instance fleet, which contains the resize timeout period.

## Contents

### AllocationStrategy

Specifies the allocation strategy to use to launch On-Demand instances during a resize. The default is `lowest-price`.

Type: String

Valid Values: `lowest-price` | `prioritized`

Required: No

### CapacityReservationOptions

Describes the strategy for using unused Capacity Reservations for fulfilling On-Demand capacity.

Type: [OnDemandCapacityReservationOptions](#) object

Required: No

### TimeoutDurationMinutes

On-Demand resize timeout in minutes. If On-Demand Instances are not provisioned within this time, the resize workflow stops. The minimum value is 5 minutes, and the maximum value is 10,080 minutes (7 days). The timeout applies to all resize workflows on the Instance Fleet. The resize could be triggered by Amazon EMR Managed Scaling or by the customer (via Amazon EMR Console, Amazon EMR CLI `modify-instance-fleet` or Amazon EMR SDK `ModifyInstanceFleet` API) or by Amazon EMR due to Amazon EC2 Spot Reclamation.

Type: Integer

Valid Range: Minimum value of 0.

Required: No



## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# OSRelease

The Amazon Linux release specified for a cluster in the RunJobFlow request.

## Contents

### Label

The Amazon Linux release specified for a cluster in the RunJobFlow request. The format is as shown in [Amazon Linux 2 Release Notes](#). For example, 2.0.20220218.1.

Type: String

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# OutputNotebookS3LocationForOutput

The Amazon S3 location that stores the notebook execution output.

## Contents

### Bucket

The Amazon S3 bucket that stores the notebook execution output.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### Key

The key to the Amazon S3 location that stores the notebook execution output.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDBFF-\uDC00\uDFFF\r\n\t]*`

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# OutputNotebookS3LocationFromInput

The Amazon S3 location that stores the notebook execution output.

## Contents

### Bucket

The Amazon S3 bucket that stores the notebook execution output.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### Key

The key to the Amazon S3 location that stores the notebook execution output.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDBFF-\uDC00\uDFFF\r\n\t]*`

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# PlacementGroupConfig

Placement group configuration for an Amazon EMR cluster. The configuration specifies the placement strategy that can be applied to instance roles during cluster creation.

To use this configuration, consider attaching managed policy `AmazonElasticMapReducePlacementGroupPolicy` to the Amazon EMR role.

## Contents

### InstanceRole

Role of the instance in the cluster.

Starting with Amazon EMR release 5.23.0, the only supported instance role is MASTER.

Type: String

Valid Values: MASTER | CORE | TASK

Required: Yes

### PlacementStrategy

Amazon EC2 Placement Group strategy associated with instance role.

Starting with Amazon EMR release 5.23.0, the only supported placement strategy is SPREAD for the MASTER instance role.

Type: String

Valid Values: SPREAD | PARTITION | CLUSTER | NONE

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)

- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# PlacementType

The Amazon EC2 Availability Zone configuration of the cluster (job flow).

## Contents

### AvailabilityZone

The Amazon EC2 Availability Zone for the cluster. `AvailabilityZone` is used for uniform instance groups, while `AvailabilityZones` (plural) is used for instance fleets.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\u007F\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### AvailabilityZones

When multiple Availability Zones are specified, Amazon EMR evaluates them and launches instances in the optimal Availability Zone. `AvailabilityZones` is used for instance fleets, while `AvailabilityZone` (singular) is used for uniform instance groups.

#### Note

The instance fleet configuration is available only in Amazon EMR releases 4.8.0 and later, excluding 5.0.x versions.

Type: Array of strings

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\u007F\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)



# PortRange

A list of port ranges that are permitted to allow inbound traffic from all public IP addresses. To specify a single port, use the same value for `MinRange` and `MaxRange`.

## Contents

### MinRange

The smallest port number in a specified range of port numbers.

Type: Integer

Valid Range: Minimum value of -1. Maximum value of 65535.

Required: Yes

### MaxRange

The smallest port number in a specified range of port numbers.

Type: Integer

Valid Range: Minimum value of -1. Maximum value of 65535.

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# ReleaseLabelFilter

The release label filters by application or version prefix.

## Contents

### Application

Optional release label application filter. For example, `spark@2.1.0`.

Type: String

Required: No

### Prefix

Optional release label version prefix filter. For example, `emr-5`.

Type: String

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# ScalingAction

The type of adjustment the automatic scaling activity makes when triggered, and the periodicity of the adjustment.

## Contents

### SimpleScalingPolicyConfiguration

The type of adjustment the automatic scaling activity makes when triggered, and the periodicity of the adjustment.

Type: [SimpleScalingPolicyConfiguration](#) object

Required: Yes

### Market

Not available for instance groups. Instance groups use the market type specified for the group.

Type: String

Valid Values: ON\_DEMAND | SPOT

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# ScalingConstraints

The upper and lower Amazon EC2 instance limits for an automatic scaling policy. Automatic scaling activities triggered by automatic scaling rules will not cause an instance group to grow above or below these limits.

## Contents

### MaxCapacity

The upper boundary of Amazon EC2 instances in an instance group beyond which scaling activities are not allowed to grow. Scale-out activities will not add instances beyond this boundary.

Type: Integer

Required: Yes

### MinCapacity

The lower boundary of Amazon EC2 instances in an instance group below which scaling activities are not allowed to shrink. Scale-in activities will not terminate instances below this boundary.

Type: Integer

Required: Yes

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# ScalingRule

A scale-in or scale-out rule that defines scaling activity, including the CloudWatch metric alarm that triggers activity, how Amazon EC2 instances are added or removed, and the periodicity of adjustments. The automatic scaling policy for an instance group can comprise one or more automatic scaling rules.

## Contents

### Action

The conditions that trigger an automatic scaling activity.

Type: [ScalingAction](#) object

Required: Yes

### Name

The name used to identify an automatic scaling rule. Rule names must be unique within a scaling policy.

Type: String

Required: Yes

### Trigger

The CloudWatch alarm definition that determines when automatic scaling activity is triggered.

Type: [ScalingTrigger](#) object

Required: Yes

### Description

A friendly, more verbose description of the automatic scaling rule.

Type: String

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# ScalingTrigger

The conditions that trigger an automatic scaling activity.

## Contents

### CloudWatchAlarmDefinition

The definition of a CloudWatch metric alarm. When the defined alarm conditions are met along with other trigger parameters, scaling activity begins.

Type: [CloudWatchAlarmDefinition](#) object

Required: Yes

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# ScriptBootstrapActionConfig

Configuration of the script to run during a bootstrap action.

## Contents

### Path

Location in Amazon S3 of the script to run during a bootstrap action.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

### Args

A list of command line arguments to pass to the bootstrap action script.

Type: Array of strings

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)



# SecurityConfigurationSummary

The creation date and time, and name, of a security configuration.

## Contents

### CreationDateTime

The date and time the security configuration was created.

Type: Timestamp

Required: No

### Name

The name of the security configuration.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# SessionMappingDetail

Details for an Amazon EMR Studio session mapping including creation time, user or group ID, Studio ID, and so on.

## Contents

### CreationTime

The time the session mapping was created.

Type: Timestamp

Required: No

### IdentityId

The globally unique identifier (GUID) of the user or group.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### IdentityName

The name of the user or group. For more information, see [UserName](#) and [DisplayName](#) in the *IAM Identity Center Identity Store API Reference*.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### IdentityType

Specifies whether the identity mapped to the Amazon EMR Studio is a user or a group.

Type: String

Valid Values: USER | GROUP

Required: No

### **LastModifiedTime**

The time the session mapping was last modified.

Type: Timestamp

Required: No

### **SessionPolicyArn**

The Amazon Resource Name (ARN) of the session policy associated with the user or group.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **StudioId**

The ID of the Amazon EMR Studio.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

## **See Also**

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)



# SessionMappingSummary

Details for an Amazon EMR Studio session mapping. The details do not include the time the session mapping was last modified.

## Contents

### CreationTime

The time the session mapping was created.

Type: Timestamp

Required: No

### IdentityId

The globally unique identifier (GUID) of the user or group from the IAM Identity Center Identity Store.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### IdentityName

The name of the user or group. For more information, see [UserName](#) and [DisplayName](#) in the *IAM Identity Center Identity Store API Reference*.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### IdentityType

Specifies whether the identity mapped to the Amazon EMR Studio is a user or a group.

Type: String

Valid Values: USER | GROUP

Required: No

### SessionPolicyArn

The Amazon Resource Name (ARN) of the session policy associated with the user or group.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### Studiold

The ID of the Amazon EMR Studio.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# ShrinkPolicy

Policy for customizing shrink operations. Allows configuration of decommissioning timeout and targeted instance shrinking.

## Contents

### DecommissionTimeout

The desired timeout for decommissioning an instance. Overrides the default YARN decommissioning timeout.

Type: Integer

Required: No

### InstanceResizePolicy

Custom policy for requesting termination protection or termination of specific instances when shrinking an instance group.

Type: [InstanceResizePolicy](#) object

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# SimpleScalingPolicyConfiguration

An automatic scaling configuration, which describes how the policy adds or removes instances, the cooldown period, and the number of Amazon EC2 instances that will be added each time the CloudWatch metric alarm condition is satisfied.

## Contents

### ScalingAdjustment

The amount by which to scale in or scale out, based on the specified `AdjustmentType`. A positive value adds to the instance group's Amazon EC2 instance count while a negative number removes instances. If `AdjustmentType` is set to `EXACT_CAPACITY`, the number should only be a positive integer. If `AdjustmentType` is set to `PERCENT_CHANGE_IN_CAPACITY`, the value should express the percentage as an integer. For example, `-20` indicates a decrease in 20% increments of cluster capacity.

Type: Integer

Required: Yes

### AdjustmentType

The way in which Amazon EC2 instances are added (if `ScalingAdjustment` is a positive number) or terminated (if `ScalingAdjustment` is a negative number) each time the scaling activity is triggered. `CHANGE_IN_CAPACITY` is the default. `CHANGE_IN_CAPACITY` indicates that the Amazon EC2 instance count increments or decrements by `ScalingAdjustment`, which should be expressed as an integer. `PERCENT_CHANGE_IN_CAPACITY` indicates the instance count increments or decrements by the percentage specified by `ScalingAdjustment`, which should be expressed as an integer. For example, `20` indicates an increase in 20% increments of cluster capacity. `EXACT_CAPACITY` indicates the scaling activity results in an instance group with the number of Amazon EC2 instances specified by `ScalingAdjustment`, which should be expressed as a positive integer.

Type: String

Valid Values: `CHANGE_IN_CAPACITY` | `PERCENT_CHANGE_IN_CAPACITY` | `EXACT_CAPACITY`

Required: No



## CoolDown

The amount of time, in seconds, after a scaling activity completes before any further trigger-related scaling activities can start. The default value is 0.

Type: Integer

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# SimplifiedApplication

The returned release label application names or versions.

## Contents

### Name

The returned release label application name. For example, `hadoop`.

Type: String

Required: No

### Version

The returned release label application version. For example, `3.2.1`.

Type: String

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# SpotProvisioningSpecification

The launch specification for Spot Instances in the instance fleet, which determines the defined duration, provisioning timeout behavior, and allocation strategy.

## Note

The instance fleet configuration is available only in Amazon EMR releases 4.8.0 and later, excluding 5.0.x versions. Spot Instance allocation strategy is available in Amazon EMR releases 5.12.1 and later.

## Note

Spot Instances with a defined duration (also known as Spot blocks) are no longer available to new customers from July 1, 2021. For customers who have previously used the feature, we will continue to support Spot Instances with a defined duration until December 31, 2022.

## Contents

### TimeoutAction

The action to take when `TargetSpotCapacity` has not been fulfilled when the `TimeoutDurationMinutes` has expired; that is, when all Spot Instances could not be provisioned within the Spot provisioning timeout. Valid values are `TERMINATE_CLUSTER` and `SWITCH_TO_ON_DEMAND`. `SWITCH_TO_ON_DEMAND` specifies that if no Spot Instances are available, On-Demand Instances should be provisioned to fulfill any remaining Spot capacity.

Type: String

Valid Values: `SWITCH_TO_ON_DEMAND` | `TERMINATE_CLUSTER`

Required: Yes

## TimeoutDurationMinutes

The Spot provisioning timeout period in minutes. If Spot Instances are not provisioned within this time period, the `TimeoutAction` is taken. Minimum value is 5 and maximum value is 1440. The timeout applies only during initial provisioning, when the cluster is first created.

Type: Integer

Valid Range: Minimum value of 0.

Required: Yes

## AllocationStrategy

Specifies one of the following strategies to launch Spot Instance fleets: `capacity-optimized`, `price-capacity-optimized`, `lowest-price`, or `diversified`, and `capacity-optimized-prioritized`. For more information on the provisioning strategies, see [Allocation strategies for Spot Instances](#) in the *Amazon EC2 User Guide for Linux Instances*.

### Note

When you launch a Spot Instance fleet with the old console, it automatically launches with the `capacity-optimized` strategy. You can't change the allocation strategy from the old console.

Type: String

Valid Values: `capacity-optimized` | `price-capacity-optimized` | `lowest-price` | `diversified` | `capacity-optimized-prioritized`

Required: No

## BlockDurationMinutes

The defined duration for Spot Instances (also known as Spot blocks) in minutes. When specified, the Spot Instance does not terminate before the defined duration expires, and defined duration pricing for Spot Instances applies. Valid values are 60, 120, 180, 240, 300, or 360. The duration period starts as soon as a Spot Instance receives its instance ID. At the end of the duration, Amazon EC2 marks the Spot Instance for termination and provides a Spot Instance termination notice, which gives the instance a two-minute warning before it terminates.

**Note**

Spot Instances with a defined duration (also known as Spot blocks) are no longer available to new customers from July 1, 2021. For customers who have previously used the feature, we will continue to support Spot Instances with a defined duration until December 31, 2022.

Type: Integer

Valid Range: Minimum value of 0.

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# SpotResizingSpecification

The resize specification for Spot Instances in the instance fleet, which contains the resize timeout period.

## Contents

### AllocationStrategy

Specifies the allocation strategy to use to launch Spot instances during a resize. If you run Amazon EMR releases 6.9.0 or higher, the default is `price-capacity-optimized`. If you run Amazon EMR releases 6.8.0 or lower, the default is `capacity-optimized`.

Type: String

Valid Values: `capacity-optimized` | `price-capacity-optimized` | `lowest-price` | `diversified` | `capacity-optimized-prioritized`

Required: No

### TimeoutDurationMinutes

Spot resize timeout in minutes. If Spot Instances are not provisioned within this time, the resize workflow will stop provisioning of Spot instances. Minimum value is 5 minutes and maximum value is 10,080 minutes (7 days). The timeout applies to all resize workflows on the Instance Fleet. The resize could be triggered by Amazon EMR Managed Scaling or by the customer (via Amazon EMR Console, Amazon EMR CLI `modify-instance-fleet` or Amazon EMR SDK `ModifyInstanceFleet` API) or by Amazon EMR due to Amazon EC2 Spot Reclamation.

Type: Integer

Valid Range: Minimum value of 0.

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)

- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# Step

This represents a step in a cluster.

## Contents

### ActionOnFailure

The action to take when the cluster step fails. Possible values are `TERMINATE_CLUSTER`, `CANCEL_AND_WAIT`, and `CONTINUE`. `TERMINATE_JOB_FLOW` is provided for backward compatibility. We recommend using `TERMINATE_CLUSTER` instead.

If a cluster's `StepConcurrencyLevel` is greater than 1, do not use `AddJobFlowSteps` to submit a step with this parameter set to `CANCEL_AND_WAIT` or `TERMINATE_CLUSTER`. The step is not submitted and the action fails with a message that the `ActionOnFailure` setting is not valid.

If you change a cluster's `StepConcurrencyLevel` to be greater than 1 while a step is running, the `ActionOnFailure` parameter may not behave as you expect. In this case, for a step that fails with this parameter set to `CANCEL_AND_WAIT`, pending steps and the running step are not canceled; for a step that fails with this parameter set to `TERMINATE_CLUSTER`, the cluster does not terminate.

Type: String

Valid Values: `TERMINATE_JOB_FLOW` | `TERMINATE_CLUSTER` | `CANCEL_AND_WAIT` | `CONTINUE`

Required: No

### Config

The Hadoop job configuration of the cluster step.

Type: [HadoopStepConfig](#) object

Required: No

### ExecutionRoleArn

The Amazon Resource Name (ARN) of the runtime role for a step on the cluster. The runtime role can be a cross-account IAM role. The runtime role ARN is a



combination of account ID, role name, and role type using the following format:  
`arn:partition:service:region:account:resource`.

For example, `arn:aws:IAM::1234567890:role/ReadOnly` is a correctly formatted runtime role ARN.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 2048.

Required: No

## Id

The identifier of the cluster step.

Type: String

Required: No

## Name

The name of the cluster step.

Type: String

Required: No

## Status

The current execution status details of the cluster step.

Type: [StepStatus](#) object

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)

- [Amazon SDK for Ruby V3](#)

# StepConfig

Specification for a cluster (job flow) step.

## Contents

### HadoopJarStep

The JAR file used for the step.

Type: [HadoopJarStepConfig](#) object

Required: Yes

### Name

The name of the step.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: Yes

### ActionOnFailure

The action to take when the step fails. Use one of the following values:

- `TERMINATE_CLUSTER` - Shuts down the cluster.
- `CANCEL_AND_WAIT` - Cancels any pending steps and returns the cluster to the `WAITING` state.
- `CONTINUE` - Continues to the next step in the queue.
- `TERMINATE_JOB_FLOW` - Shuts down the cluster. `TERMINATE_JOB_FLOW` is provided for backward compatibility. We recommend using `TERMINATE_CLUSTER` instead.

If a cluster's `StepConcurrencyLevel` is greater than 1, do not use `AddJobFlowSteps` to submit a step with this parameter set to `CANCEL_AND_WAIT` or `TERMINATE_CLUSTER`. The step is not submitted and the action fails with a message that the `ActionOnFailure` setting is not valid.

If you change a cluster's `StepConcurrencyLevel` to be greater than 1 while a step is running, the `ActionOnFailure` parameter may not behave as you expect. In this case, for a step that fails with this parameter set to `CANCEL_AND_WAIT`, pending steps and the running step are not canceled; for a step that fails with this parameter set to `TERMINATE_CLUSTER`, the cluster does not terminate.

Type: String

Valid Values: `TERMINATE_JOB_FLOW` | `TERMINATE_CLUSTER` | `CANCEL_AND_WAIT` | `CONTINUE`

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# StepDetail

Combines the execution state and configuration of a step.

## Contents

### ExecutionStatusDetail

The description of the step status.

Type: [StepExecutionStatusDetail](#) object

Required: Yes

### StepConfig

The step configuration.

Type: [StepConfig](#) object

Required: Yes

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# StepExecutionStatusDetail

The execution state of a step.

## Contents

### CreationDateTime

The creation date and time of the step.

Type: Timestamp

Required: Yes

### State

The state of the step.

Type: String

Valid Values: PENDING | RUNNING | CONTINUE | COMPLETED | CANCELLED | FAILED  
| INTERRUPTED

Required: Yes

### EndDateTime

The completion date and time of the step.

Type: Timestamp

Required: No

### LastStateChangeReason

A description of the step's current state.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

## StartDateTime

The start date and time of the step.

Type: Timestamp

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# StepStateChangeReason

The details of the step state change reason.

## Contents

### Code

The programmable code for the state change reason. Note: Currently, the service provides no code for the state change.

Type: String

Valid Values: NONE

Required: No

### Message

The descriptive message for the state change reason.

Type: String

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)



# StepStatus

The execution status details of the cluster step.

## Contents

### FailureDetails

The details for the step failure including reason, message, and log file path where the root cause was identified.

Type: [FailureDetails](#) object

Required: No

### State

The execution state of the cluster step.

Type: String

Valid Values: PENDING | CANCEL\_PENDING | RUNNING | COMPLETED | CANCELLED | FAILED | INTERRUPTED

Required: No

### StateChangeReason

The reason for the step execution status change.

Type: [StepStateChangeReason](#) object

Required: No

### Timeline

The timeline of the cluster step status over time.

Type: [StepTimeline](#) object

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# StepSummary

The summary of the cluster step.

## Contents

### ActionOnFailure

The action to take when the cluster step fails. Possible values are TERMINATE\_CLUSTER, CANCEL\_AND\_WAIT, and CONTINUE. TERMINATE\_JOB\_FLOW is available for backward compatibility.

Type: String

Valid Values: TERMINATE\_JOB\_FLOW | TERMINATE\_CLUSTER | CANCEL\_AND\_WAIT | CONTINUE

Required: No

### Config

The Hadoop job configuration of the cluster step.

Type: [HadoopStepConfig](#) object

Required: No

### Id

The identifier of the cluster step.

Type: String

Required: No

### Name

The name of the cluster step.

Type: String

Required: No

### Status

The current execution status details of the cluster step.

Type: [StepStatus](#) object

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# StepTimeline

The timeline of the cluster step lifecycle.

## Contents

### CreationDateTime

The date and time when the cluster step was created.

Type: Timestamp

Required: No

### EndDateTime

The date and time when the cluster step execution completed or failed.

Type: Timestamp

Required: No

### StartDateTime

The date and time when the cluster step execution started.

Type: Timestamp

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# Studio

Details for an Amazon EMR Studio including ID, creation time, name, and so on.

## Contents

### AuthMode

Specifies whether the Amazon EMR Studio authenticates users with IAM or IAM Identity Center.

Type: String

Valid Values: SSO | IAM

Required: No

### CreationTime

The time the Amazon EMR Studio was created.

Type: Timestamp

Required: No

### DefaultS3Location

The Amazon S3 location to back up Amazon EMR Studio Workspaces and notebook files.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### Description

The detailed description of the Amazon EMR Studio.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **EncryptionKeyArn**

The Amazon KMS key identifier (ARN) used to encrypt Amazon EMR Studio workspace and notebook files when backed up to Amazon S3.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **EngineSecurityGroupId**

The ID of the Engine security group associated with the Amazon EMR Studio. The Engine security group allows inbound network traffic from resources in the Workspace security group.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **IdcInstanceArn**

The ARN of the IAM Identity Center instance the Studio application belongs to.

Type: String

Length Constraints: Minimum length of 20. Maximum length of 2048.

Required: No

### **IdcUserAssignment**

Indicates whether the Studio has REQUIRED or OPTIONAL IAM Identity Center user assignment. If the value is set to REQUIRED, users must be explicitly assigned to the Studio application to access the Studio.

Type: String

Valid Values: REQUIRED | OPTIONAL

Required: No

### **IdpAuthUrl**

Your identity provider's authentication endpoint. Amazon EMR Studio redirects federated users to this endpoint for authentication when logging in to a Studio with the Studio URL.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **IdpRelayStateParameterName**

The name of your identity provider's RelayState parameter.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **Name**

The name of the Amazon EMR Studio.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **ServiceRole**

The name of the IAM role assumed by the Amazon EMR Studio.

Type: String



Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **StudioArn**

The Amazon Resource Name (ARN) of the Amazon EMR Studio.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **StudioId**

The ID of the Amazon EMR Studio.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **SubnetIds**

The list of IDs of the subnets associated with the Amazon EMR Studio.

Type: Array of strings

Required: No

### **Tags**

A list of tags associated with the Amazon EMR Studio.

Type: Array of [Tag](#) objects

Required: No

## TrustedIdentityPropagationEnabled

Indicates whether the Studio has Trusted identity propagation enabled. The default value is `false`.

Type: Boolean

Required: No

## Url

The unique access URL of the Amazon EMR Studio.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

## UserRole

The name of the IAM role assumed by users logged in to the Amazon EMR Studio. A Studio only requires a `UserRole` when you use IAM authentication.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

## VpcId

The ID of the VPC associated with the Amazon EMR Studio.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

## WorkspaceSecurityGroupId

The ID of the Workspace security group associated with the Amazon EMR Studio. The Workspace security group allows outbound network traffic to resources in the Engine security group and to the internet.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# StudioSummary

Details for an Amazon EMR Studio, including ID, Name, VPC, and Description. To fetch additional details such as subnets, IAM roles, security groups, and tags for the Studio, use the [DescribeStudio](#) API.

## Contents

### AuthMode

Specifies whether the Studio authenticates users using IAM or IAM Identity Center.

Type: String

Valid Values: SSO | IAM

Required: No

### CreationTime

The time when the Amazon EMR Studio was created.

Type: Timestamp

Required: No

### Description

The detailed description of the Amazon EMR Studio.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### Name

The name of the Amazon EMR Studio.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **Studioid**

The ID of the Amazon EMR Studio.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **Url**

The unique access URL of the Amazon EMR Studio.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### **VpcId**

The ID of the Virtual Private Cloud (Amazon VPC) associated with the Amazon EMR Studio.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

## **See Also**

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# SupportedInstanceType

An instance type that the specified Amazon EMR release supports.

## Contents

### Architecture

The CPU architecture, for example X86\_64 or AARCH64.

Type: String

Required: No

### EbsOptimizedAvailable

Indicates whether the SupportedInstanceType supports Amazon EBS optimization.

Type: Boolean

Required: No

### EbsOptimizedByDefault

Indicates whether the SupportedInstanceType uses Amazon EBS optimization by default.

Type: Boolean

Required: No

### EbsStorageOnly

Indicates whether the SupportedInstanceType only supports Amazon EBS.

Type: Boolean

Required: No

### InstanceFamilyId

The Amazon EC2 family and generation for the SupportedInstanceType.

Type: String

Required: No

## Is64BitsOnly

Indicates whether the SupportedInstanceType only supports 64-bit architecture.

Type: Boolean

Required: No

## MemoryGB

The amount of memory that is available to Amazon EMR from the SupportedInstanceType. The kernel and hypervisor software consume some memory, so this value might be lower than the overall memory for the instance type.

Type: Float

Required: No

## NumberOfDisks

Number of disks for the SupportedInstanceType. This value is 0 for Amazon EBS-only instance types.

Type: Integer

Required: No

## StorageGB

StorageGB represents the storage capacity of the SupportedInstanceType. This value is 0 for Amazon EBS-only instance types.

Type: Integer

Required: No

## Type

The [Amazon EC2 instance type](#), for example m5.xlarge, of the SupportedInstanceType.

Type: String

Required: No

## VCPU

The number of vCPUs available for the SupportedInstanceType.



Type: Integer

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# SupportedProductConfig

The list of supported product configurations that allow user-supplied arguments. Amazon EMR accepts these arguments and forwards them to the corresponding installation script as bootstrap action arguments.

## Contents

### Args

The list of user-supplied arguments.

Type: Array of strings

Length Constraints: Minimum length of 0. Maximum length of 10280.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### Name

The name of the product configuration.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFF\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# Tag

A key-value pair containing user-defined metadata that you can associate with an Amazon EMR resource. Tags make it easier to associate clusters in various ways, such as grouping clusters to track your Amazon EMR resource allocation costs. For more information, see [Tag Clusters](#).

## Contents

### Key

A user-defined key, which is the minimum required information for a valid tag. For more information, see [Tag](#).

Type: String

Required: No

### Value

A user-defined value, which is optional in a tag. For more information, see [Tag Clusters](#).

Type: String

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# UsernamePassword

The username and password that you use to connect to cluster endpoints.

## Contents

### Password

The password associated with the temporary credentials that you use to connect to cluster endpoints.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

### Username

The username associated with the temporary credentials that you use to connect to cluster endpoints.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `[\u0020-\uD7FF\uE000-\uFFFD\uD800\uDC00-\uDBFF\uDFFF\r\n\t]*`

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# VolumeSpecification

EBS volume specifications such as volume type, IOPS, size (GiB) and throughput (MiB/s) that are requested for the EBS volume attached to an Amazon EC2 instance in the cluster.

## Contents

### SizeInGB

The volume size, in gibibytes (GiB). This can be a number from 1 - 1024. If the volume type is EBS-optimized, the minimum value is 10.

Type: Integer

Required: Yes

### VolumeType

The volume type. Volume types supported are gp3, gp2, io1, st1, sc1, and standard.

Type: String

Required: Yes

### IOPS

The number of I/O operations per second (IOPS) that the volume supports.

Type: Integer

Required: No

### Throughput

The throughput, in mebibyte per second (MiB/s). This optional parameter can be a number from 125 - 1000 and is valid only for gp3 volumes.

Type: Integer

Valid Range: Minimum value of 0.

Required: No

## See Also

For more information about using this API in one of the language-specific Amazon SDKs, see the following:

- [Amazon SDK for C++](#)
- [Amazon SDK for Java V2](#)
- [Amazon SDK for Ruby V3](#)

# Common Parameters

The following list contains the parameters that all actions use for signing Signature Version 4 requests with a query string. Any action-specific parameters are listed in the topic for that action. For more information about Signature Version 4, see [Signing Amazon API requests](#) in the *IAM User Guide*.

## Action

The action to be performed.

Type: string

Required: Yes

## Version

The API version that the request is written for, expressed in the format YYYY-MM-DD.

Type: string

Required: Yes

## X-Amz-Algorithm

The hash algorithm that you used to create the request signature.

Condition: Specify this parameter when you include authentication information in a query string instead of in the HTTP authorization header.

Type: string

Valid Values: AWS4-HMAC-SHA256

Required: Conditional

## X-Amz-Credential

The credential scope value, which is a string that includes your access key, the date, the region you are targeting, the service you are requesting, and a termination string ("aws4\_request"). The value is expressed in the following format: *access\_key/YYYYMMDD/region/service/aws4\_request*.

For more information, see [Create a signed Amazon API request](#) in the *IAM User Guide*.

Condition: Specify this parameter when you include authentication information in a query string instead of in the HTTP authorization header.

Type: string

Required: Conditional

### **X-Amz-Date**

The date that is used to create the signature. The format must be ISO 8601 basic format (YYYYMMDD'T'HHMMSS'Z'). For example, the following date time is a valid X-Amz-Date value: 20120325T120000Z.

Condition: X-Amz-Date is optional for all requests; it can be used to override the date used for signing requests. If the Date header is specified in the ISO 8601 basic format, X-Amz-Date is not required. When X-Amz-Date is used, it always overrides the value of the Date header. For more information, see [Elements of an Amazon API request signature](#) in the *IAM User Guide*.

Type: string

Required: Conditional

### **X-Amz-Security-Token**

The temporary security token that was obtained through a call to Amazon Security Token Service (Amazon STS). For a list of services that support temporary security credentials from Amazon STS, see [Amazon Web Services services that work with IAM](#) in the *IAM User Guide*.

Condition: If you're using temporary security credentials from Amazon STS, you must include the security token.

Type: string

Required: Conditional

### **X-Amz-Signature**

Specifies the hex-encoded signature that was calculated from the string to sign and the derived signing key.

Condition: Specify this parameter when you include authentication information in a query string instead of in the HTTP authorization header.



Type: string

Required: Conditional

### **X-Amz-SignedHeaders**

Specifies all the HTTP headers that were included as part of the canonical request. For more information about specifying signed headers, see [Create a signed Amazon API request](#) in the *IAM User Guide*.

Condition: Specify this parameter when you include authentication information in a query string instead of in the HTTP authorization header.

Type: string

Required: Conditional

## Common Errors

This section lists the errors common to the API actions of all Amazon services. For errors specific to an API action for this service, see the topic for that API action.

### **AccessDeniedException**

You do not have sufficient access to perform this action.

HTTP Status Code: 400

### **IncompleteSignature**

The request signature does not conform to Amazon standards.

HTTP Status Code: 400

### **InternalFailure**

The request processing has failed because of an unknown error, exception or failure.

HTTP Status Code: 500

### **InvalidAction**

The action or operation requested is invalid. Verify that the action is typed correctly.

HTTP Status Code: 400

### **InvalidClientTokenId**

The X.509 certificate or Amazon access key ID provided does not exist in our records.

HTTP Status Code: 403

### **NotAuthorized**

You do not have permission to perform this action.

HTTP Status Code: 400

### **OptInRequired**

The Amazon access key ID needs a subscription for the service.

HTTP Status Code: 403

**RequestExpired**

The request reached the service more than 15 minutes after the date stamp on the request or more than 15 minutes after the request expiration date (such as for pre-signed URLs), or the date stamp on the request is more than 15 minutes in the future.

HTTP Status Code: 400

**ServiceUnavailable**

The request has failed due to a temporary failure of the server.

HTTP Status Code: 503

**ThrottlingException**

The request was denied due to request throttling.

HTTP Status Code: 400

**ValidationError**

The input fails to satisfy the constraints specified by an Amazon service.

HTTP Status Code: 400