



API Reference

MachineLearning



API Version 2014-12-12

Copyright © 2025 Amazon Web Services, Inc. and/or its affiliates. All rights reserved.

MachineLearning: API Reference

Copyright © 2025 Amazon Web Services, Inc. and/or its affiliates. All rights reserved.

Amazon's trademarks and trade dress may not be used in connection with any product or service that is not Amazon's, in any manner that is likely to cause confusion among customers, or in any manner that disparages or discredits Amazon. All other trademarks not owned by Amazon are the property of their respective owners, who may or may not be affiliated with, connected to, or sponsored by Amazon.

Table of Contents

Welcome	1
Actions	2
AddTags	4
Request Syntax	4
Request Parameters	4
Response Syntax	5
Response Elements	5
Errors	6
Examples	6
See Also	7
CreateBatchPrediction	9
Request Syntax	9
Request Parameters	9
Response Syntax	11
Response Elements	11
Errors	11
Examples	12
See Also	13
CreateDataSourceFromRDS	14
Request Syntax	14
Request Parameters	15
Response Syntax	17
Response Elements	17
Errors	17
Examples	18
See Also	19
CreateDataSourceFromRedshift	21
Request Syntax	21
Request Parameters	22
Response Syntax	24
Response Elements	24
Errors	24
Examples	25
See Also	26

CreateDataSourceFromS3	28
Request Syntax	28
Request Parameters	29
Response Syntax	30
Response Elements	30
Errors	31
Examples	31
See Also	32
CreateEvaluation	33
Request Syntax	33
Request Parameters	33
Response Syntax	34
Response Elements	35
Errors	35
Examples	36
See Also	36
CreateMLModel	38
Request Syntax	38
Request Parameters	38
Response Syntax	41
Response Elements	41
Errors	42
Examples	42
See Also	43
CreateRealtimeEndpoint	44
Request Syntax	44
Request Parameters	44
Response Syntax	44
Response Elements	45
Errors	45
Examples	46
See Also	47
DeleteBatchPrediction	48
Request Syntax	48
Request Parameters	48
Response Syntax	48

Response Elements	49
Errors	49
Examples	50
See Also	50
DeleteDataSource	52
Request Syntax	52
Request Parameters	52
Response Syntax	52
Response Elements	53
Errors	53
Examples	54
See Also	54
DeleteEvaluation	56
Request Syntax	56
Request Parameters	56
Response Syntax	56
Response Elements	57
Errors	57
Examples	58
See Also	58
DeleteMLModel	60
Request Syntax	60
Request Parameters	60
Response Syntax	60
Response Elements	61
Errors	61
Examples	61
See Also	62
DeleteRealtimeEndpoint	64
Request Syntax	64
Request Parameters	64
Response Syntax	64
Response Elements	65
Errors	65
Examples	66
See Also	67

DeleteTags	68
Request Syntax	68
Request Parameters	68
Response Syntax	69
Response Elements	69
Errors	70
Examples	70
See Also	71
DescribeBatchPredictions	73
Request Syntax	73
Request Parameters	73
Response Syntax	77
Response Elements	77
Errors	78
Examples	78
See Also	79
DescribeDataSources	81
Request Syntax	81
Request Parameters	81
Response Syntax	84
Response Elements	85
Errors	86
Examples	86
See Also	88
DescribeEvaluations	89
Request Syntax	89
Request Parameters	89
Response Syntax	93
Response Elements	93
Errors	94
Examples	94
See Also	95
DescribeMLModels	97
Request Syntax	97
Request Parameters	97
Response Syntax	101

Response Elements	102
Errors	102
Examples	102
See Also	104
DescribeTags	105
Request Syntax	105
Request Parameters	105
Response Syntax	105
Response Elements	106
Errors	106
Examples	107
See Also	108
GetBatchPrediction	109
Request Syntax	109
Request Parameters	109
Response Syntax	109
Response Elements	110
Errors	113
Examples	114
See Also	115
GetDataSource	116
Request Syntax	116
Request Parameters	116
Response Syntax	117
Response Elements	118
Errors	121
Examples	122
See Also	123
GetEvaluation	125
Request Syntax	125
Request Parameters	125
Response Syntax	125
Response Elements	126
Errors	129
Examples	130
See Also	131

GetMLModel	132
Request Syntax	132
Request Parameters	132
Response Syntax	133
Response Elements	133
Errors	138
Examples	139
See Also	141
Predict	142
Request Syntax	142
Request Parameters	142
Response Syntax	143
Response Elements	143
Errors	144
Examples	144
See Also	145
UpdateBatchPrediction	147
Request Syntax	147
Request Parameters	147
Response Syntax	148
Response Elements	148
Errors	148
Examples	149
See Also	149
UpdateDataSource	151
Request Syntax	151
Request Parameters	151
Response Syntax	152
Response Elements	152
Errors	152
Examples	153
See Also	153
UpdateEvaluation	155
Request Syntax	155
Request Parameters	155
Response Syntax	156

Response Elements	156
Errors	156
Examples	157
See Also	157
UpdateMLModel	159
Request Syntax	159
Request Parameters	159
Response Syntax	160
Response Elements	160
Errors	160
Examples	161
See Also	162
Data Types	163
BatchPrediction	164
Contents	164
See Also	167
DataSource	169
Contents	169
See Also	173
Evaluation	174
Contents	174
See Also	177
MLModel	178
Contents	178
See Also	183
PerformanceMetrics	184
Contents	184
See Also	184
Prediction	185
Contents	185
See Also	186
RDSDatabase	187
Contents	187
See Also	187
RDSDatabaseCredentials	188
Contents	188

See Also	188
RDSDataSpec	189
Contents	189
See Also	194
RDSMetadata	195
Contents	195
See Also	196
RealtimeEndpointInfo	197
Contents	197
See Also	198
RedshiftDatabase	199
Contents	199
See Also	199
RedshiftDatabaseCredentials	200
Contents	200
See Also	200
RedshiftDataSpec	201
Contents	201
See Also	205
RedshiftMetadata	206
Contents	206
See Also	206
S3DataSpec	208
Contents	208
See Also	211
Tag	212
Contents	212
See Also	212
Common Parameters	213
Common Errors	216

Welcome

Definition of the public APIs exposed by Amazon Machine Learning

This document was last published on September 4, 2025.

Actions

The following actions are supported:

- [AddTags](#)
- [CreateBatchPrediction](#)
- [CreateDataSourceFromRDS](#)
- [CreateDataSourceFromRedshift](#)
- [CreateDataSourceFromS3](#)
- [CreateEvaluation](#)
- [CreateMLModel](#)
- [CreateRealtimeEndpoint](#)
- [DeleteBatchPrediction](#)
- [DeleteDataSource](#)
- [DeleteEvaluation](#)
- [DeleteMLModel](#)
- [DeleteRealtimeEndpoint](#)
- [DeleteTags](#)
- [DescribeBatchPredictions](#)
- [DescribeDataSources](#)
- [DescribeEvaluations](#)
- [DescribeMLModels](#)
- [DescribeTags](#)
- [GetBatchPrediction](#)
- [GetDataSource](#)
- [GetEvaluation](#)
- [GetMLModel](#)
- [Predict](#)
- [UpdateBatchPrediction](#)
- [UpdateDataSource](#)
- [UpdateEvaluation](#)

- [UpdateMLModel](#)

AddTags

Adds one or more tags to an object, up to a limit of 10. Each tag consists of a key and an optional value. If you add a tag using a key that is already associated with the ML object, AddTags updates the tag's value.

Request Syntax

```
{
  "ResourceId": "string",
  "ResourceType": "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 ID of the ML object to tag. For example, `exampleModelId`.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9_.-]+`

Required: Yes

ResourceType

The type of the ML object to tag.

Type: String

Valid Values: BatchPrediction | DataSource | Evaluation | MLModel

Required: Yes

Tags

The key-value pairs to use to create tags. If you specify a key without specifying a value, Amazon ML creates a tag with the specified key and a value of null.

Type: Array of [Tag](#) objects

Array Members: Maximum number of 100 items.

Required: Yes

Response Syntax

```
{
  "ResourceId": "string",
  "ResourceType": "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.

[ResourceId](#)

The ID of the ML object that was tagged.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

[ResourceType](#)

The type of the ML object that was tagged.

Type: String

Valid Values: BatchPrediction | DataSource | Evaluation | MLModel

Errors

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

InternalServerError

An error on the server occurred when trying to process a request.

HTTP Status Code: 500

InvalidInputException

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

InvalidTagException

A submitted tag is invalid.

HTTP Status Code: 400

ResourceNotFoundException

A specified resource cannot be located.

HTTP Status Code: 400

TagLimitExceededException

The limit in the number of tags has been exceeded.

HTTP Status Code: 400

Examples

The following is an example of a request and response for the AddTags operation.

This example illustrates one usage of AddTags.

Sample Request

```
POST / HTTP/1.1
```



```
Host: machinelearning.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AmazonML_20141212.AddTags
{
  "ResourceId": "exampleModelId",
  "ResourceType": "MLModel",
  "Tags": {
    "Key": "exampleKey",
    "Value": "exampleKeyValue"
  }
}
```

Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
{
  "ResourceId": "exampleModelId",
  "ResourceType": "MLModel"
}
```

See Also

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

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

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

CreateBatchPrediction

Generates predictions for a group of observations. The observations to process exist in one or more data files referenced by a DataSource. This operation creates a new BatchPrediction, and uses an MLModel and the data files referenced by the DataSource as information sources.

CreateBatchPrediction is an asynchronous operation. In response to CreateBatchPrediction, Amazon Machine Learning (Amazon ML) immediately returns and sets the BatchPrediction status to PENDING. After the BatchPrediction completes, Amazon ML sets the status to COMPLETED.

You can poll for status updates by using the [GetBatchPrediction](#) operation and checking the Status parameter of the result. After the COMPLETED status appears, the results are available in the location specified by the OutputUri parameter.

Request Syntax

```
{
  "BatchPredictionDataSourceId": "string",
  "BatchPredictionId": "string",
  "BatchPredictionName": "string",
  "MLModelId": "string",
  "OutputUri": "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.

[BatchPredictionDataSourceId](#)

The ID of the DataSource that points to the group of observations to predict.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Required: Yes

BatchPredictionId

A user-supplied ID that uniquely identifies the BatchPrediction.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Required: Yes

BatchPredictionName

A user-supplied name or description of the BatchPrediction. BatchPredictionName can only use the UTF-8 character set.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: .*\S.*|^\$

Required: No

MLModelId

The ID of the MLModel that will generate predictions for the group of observations.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Required: Yes

OutputUri

The location of an Amazon Simple Storage Service (Amazon S3) bucket or directory to store the batch prediction results. The following substrings are not allowed in the s3 key portion of the outputURI field: ':', '//', '/../', '/../'.

Amazon ML needs permissions to store and retrieve the logs on your behalf. For information about how to set permissions, see the [Amazon Machine Learning Developer Guide](#).

Type: String

Length Constraints: Maximum length of 2048.

Pattern: s3://([^/]+)(/.*)?

Required: Yes

Response Syntax

```
{  
  "BatchPredictionId": "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.

[BatchPredictionId](#)

A user-supplied ID that uniquely identifies the BatchPrediction. This value is identical to the value of the BatchPredictionId in the request.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Errors

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

IdempotentParameterMismatchException

A second request to use or change an object was not allowed. This can result from retrying a request using a parameter that was not present in the original request.

HTTP Status Code: 400

InternalServerErrorException

An error on the server occurred when trying to process a request.

HTTP Status Code: 500

InvalidInputException

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

Examples

The following is a sample request and response of the BatchPrediction operation.

This example illustrates one usage of CreateBatchPrediction.

Sample Request

```
POST / HTTP/1.1
Host: machinelearning.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AmazonML_20141212.CreateBatchPrediction
{
  "BatchPredictionId": "EXAMPLE-bp-2014-09-12-15-14-04-156",
  "BatchPredictionName": "EXAMPLE",
  "MLModelId": "EXAMPLE-pr-2014-09-12-15-14-04-924",
  "BatchPredictionDataSourceId": "EXAMPLE-tr-ds-2014-09-12-15-14-04-989",
  "OutputUri": "s3://eml-test-EXAMPLE/test-outputs/EXAMPLE-bp-2014-09-12-15-14-04-156/
results"
}
```

Sample Response

```
HTTP/1.1 200 OK
```

```
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
{"BatchPredictionId":"EXAMPLE-bp-2014-09-12-15-14-04-156"}
```

See Also

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

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

CreateDataSourceFromRDS

Creates a DataSource object from an [Amazon Relational Database Service](#) (Amazon RDS). A DataSource references data that can be used to perform CreateMLModel, CreateEvaluation, or CreateBatchPrediction operations.

CreateDataSourceFromRDS is an asynchronous operation. In response to CreateDataSourceFromRDS, Amazon Machine Learning (Amazon ML) immediately returns and sets the DataSource status to PENDING. After the DataSource is created and ready for use, Amazon ML sets the Status parameter to COMPLETED. DataSource in the COMPLETED or PENDING state can be used only to perform >CreateMLModel>, CreateEvaluation, or CreateBatchPrediction operations.

If Amazon ML cannot accept the input source, it sets the Status parameter to FAILED and includes an error message in the Message attribute of the GetDataSource operation response.

Request Syntax

```
{
  "ComputeStatistics": boolean,
  "DataSourceId": "string",
  "DataSourceName": "string",
  "RDSData": {
    "DatabaseCredentials": {
      "Password": "string",
      "Username": "string"
    },
    "DatabaseInformation": {
      "DatabaseName": "string",
      "InstanceIdentifier": "string"
    },
    "DataRearrangement": "string",
    "DataSchema": "string",
    "DataSchemaUri": "string",
    "ResourceRole": "string",
    "S3StagingLocation": "string",
    "SecurityGroupIds": [ "string" ],
    "SelectSqlQuery": "string",
    "ServiceRole": "string",
    "SubnetId": "string"
  },
}
```



```
"RoleARN": "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.

ComputeStatistics

The compute statistics for a DataSource. The statistics are generated from the observation data referenced by a DataSource. Amazon ML uses the statistics internally during MLModel training. This parameter must be set to true if the DataSource needs to be used for MLModel training.

Type: Boolean

Required: No

DataSourceId

A user-supplied ID that uniquely identifies the DataSource. Typically, an Amazon Resource Number (ARN) becomes the ID for a DataSource.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Required: Yes

DataSourceName

A user-supplied name or description of the DataSource.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: .*\\S.*|^\$

Required: No

RDSData

The data specification of an Amazon RDS DataSource:

- DatabaseInformation -
 - DatabaseName - The name of the Amazon RDS database.
 - InstanceIdentifier - A unique identifier for the Amazon RDS database instance.
- DatabaseCredentials - AWS Identity and Access Management (IAM) credentials that are used to connect to the Amazon RDS database.
- ResourceRole - A role (DataPipelineDefaultResourceRole) assumed by an EC2 instance to carry out the copy task from Amazon RDS to Amazon Simple Storage Service (Amazon S3). For more information, see [Role templates](#) for data pipelines.
- ServiceRole - A role (DataPipelineDefaultRole) assumed by the AWS Data Pipeline service to monitor the progress of the copy task from Amazon RDS to Amazon S3. For more information, see [Role templates](#) for data pipelines.
- SecurityInfo - The security information to use to access an RDS DB instance. You need to set up appropriate ingress rules for the security entity IDs provided to allow access to the Amazon RDS instance. Specify a [SubnetId, SecurityGroupIds] pair for a VPC-based RDS DB instance.
- SelectSqlQuery - A query that is used to retrieve the observation data for the DataSource.
- S3StagingLocation - The Amazon S3 location for staging Amazon RDS data. The data retrieved from Amazon RDS using SelectSqlQuery is stored in this location.
- DataSchemaUri - The Amazon S3 location of the DataSchema.
- DataSchema - A JSON string representing the schema. This is not required if DataSchemaUri is specified.
- DataRearrangement - A JSON string that represents the splitting and rearrangement requirements for the DataSource.

Sample - `"{\"splitting\":{\"percentBegin\":10,\"percentEnd\":60}}"`

Type: [RDSDataSpec](#) object

Required: Yes

RoleARN

The role that Amazon ML assumes on behalf of the user to create and activate a data pipeline in the user's account and copy data using the `SelectSqlQuery` query from Amazon RDS to Amazon S3.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 110.

Required: Yes

Response Syntax

```
{
  "DataSourceId": "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.

DataSourceId

A user-supplied ID that uniquely identifies the datasource. This value should be identical to the value of the `DataSourceId` in the request.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9_.-]+`

Errors

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

IdempotentParameterMismatchException

A second request to use or change an object was not allowed. This can result from retrying a request using a parameter that was not present in the original request.

HTTP Status Code: 400

InternalServerErrorException

An error on the server occurred when trying to process a request.

HTTP Status Code: 500

InvalidInputException

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

Examples

The following is a sample HTTP request and response of the CreateDataSourceFromRDS operation.

This example illustrates one usage of CreateDataSourceFromRDS.

Sample Request

```
POST / HTTP/1.1
Host: machinelearning.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
  requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AmazonML_20141212.CreateDataSourceFromRDS
{
  "DataSourceId": "ml-rds-data-source-demo",
  "DataSourceName": "ml-rds-data-source-demo",
  "RDSData":
```

```
{
  "DatabaseInformation":
  {
    "InstanceIdentifier": "demo",
    "DatabaseName": "demo"
  },
  "SelectSqlQuery": "select feature1, feature2, feature3, ...., featureN from
RDS_DEMO_TABLE;",
  "DatabaseCredentials":
  {
    "Username": "demo_user",
    "Password": "demo_password"
  },
  "S3StagingLocation": "s3://mldemo/data/",
  "DataSchemaUri": "s3://mldemo/schema/mldemo.csv.schema",
  "ResourceRole": "DataPipelineDefaultResourceRole",
  "ServiceRole": "DataPipelineDefaultRole",
  "SubnetId": "subnet-XXXX",
  "SecurityGroupIds":
    ["sg-XXXXXX", "sg-XXXXXX"]
  },
  "RoleARN": "arn:aws:iam::<awsAccountId>:role/<roleToAssume>"
}
```

Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
{
  "DataSourceId": "ml-rds-data-source-demo"
}
```

See Also

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

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

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

CreateDataSourceFromRedshift

Creates a DataSource from a database hosted on an Amazon Redshift cluster. A DataSource references data that can be used to perform either CreateMLModel, CreateEvaluation, or CreateBatchPrediction operations.

CreateDataSourceFromRedshift is an asynchronous operation. In response to CreateDataSourceFromRedshift, Amazon Machine Learning (Amazon ML) immediately returns and sets the DataSource status to PENDING. After the DataSource is created and ready for use, Amazon ML sets the Status parameter to COMPLETED. DataSource in COMPLETED or PENDING states can be used to perform only CreateMLModel, CreateEvaluation, or CreateBatchPrediction operations.

If Amazon ML can't accept the input source, it sets the Status parameter to FAILED and includes an error message in the Message attribute of the GetDataSource operation response.

The observations should be contained in the database hosted on an Amazon Redshift cluster and should be specified by a SelectSqlQuery query. Amazon ML executes an Unload command in Amazon Redshift to transfer the result set of the SelectSqlQuery query to S3StagingLocation.

After the DataSource has been created, it's ready for use in evaluations and batch predictions. If you plan to use the DataSource to train an MLModel, the DataSource also requires a recipe. A recipe describes how each input variable will be used in training an MLModel. Will the variable be included or excluded from training? Will the variable be manipulated; for example, will it be combined with another variable or will it be split apart into word combinations? The recipe provides answers to these questions.

You can't change an existing datasource, but you can copy and modify the settings from an existing Amazon Redshift datasource to create a new datasource. To do so, call GetDataSource for an existing datasource and copy the values to a CreateDataSource call. Change the settings that you want to change and make sure that all required fields have the appropriate values.

Request Syntax

```
{  
  "ComputeStatistics": boolean,  
  "DataSourceId": "string",  
  "DataSourceName": "string",  
  "DataSpec": {
```

```
  "DatabaseCredentials": {
    "Password": "string",
    "Username": "string"
  },
  "DatabaseInformation": {
    "ClusterIdentifier": "string",
    "DatabaseName": "string"
  },
  "DataRearrangement": "string",
  "DataSchema": "string",
  "DataSchemaUri": "string",
  "S3StagingLocation": "string",
  "SelectSqlQuery": "string"
},
"RoleARN": "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.

ComputeStatistics

The compute statistics for a DataSource. The statistics are generated from the observation data referenced by a DataSource. Amazon ML uses the statistics internally during MLModel training. This parameter must be set to `true` if the DataSource needs to be used for MLModel training.

Type: Boolean

Required: No

DataSourceId

A user-supplied ID that uniquely identifies the DataSource.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9_.-]+`

Required: Yes

DataSourceName

A user-supplied name or description of the DataSource.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `.*\S.*|^$`

Required: No

DataSpec

The data specification of an Amazon Redshift DataSource:

- **DatabaseInformation** -
 - **DatabaseName** - The name of the Amazon Redshift database.
 - **ClusterIdentifier** - The unique ID for the Amazon Redshift cluster.
- **DatabaseCredentials** - The AWS Identity and Access Management (IAM) credentials that are used to connect to the Amazon Redshift database.
- **SelectSqlQuery** - The query that is used to retrieve the observation data for the DataSource.
- **S3StagingLocation** - The Amazon Simple Storage Service (Amazon S3) location for staging Amazon Redshift data. The data retrieved from Amazon Redshift using the **SelectSqlQuery** query is stored in this location.
- **DataSchemaUri** - The Amazon S3 location of the DataSchema.
- **DataSchema** - A JSON string representing the schema. This is not required if **DataSchemaUri** is specified.
- **DataRearrangement** - A JSON string that represents the splitting and rearrangement requirements for the DataSource.

Sample - `"{\"splitting\":{\"percentBegin\":10,\"percentEnd\":60}}"`

Type: [RedshiftDataSpec](#) object

Required: Yes

RoleARN

A fully specified role Amazon Resource Name (ARN). Amazon ML assumes the role on behalf of the user to create the following:

- A security group to allow Amazon ML to execute the `SelectSqlQuery` query on an Amazon Redshift cluster
- An Amazon S3 bucket policy to grant Amazon ML read/write permissions on the `S3StagingLocation`

Type: String

Length Constraints: Minimum length of 1. Maximum length of 110.

Required: Yes

Response Syntax

```
{  
  "DataSourceId": "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.

[DataSourceId](#)

A user-supplied ID that uniquely identifies the datasource. This value should be identical to the value of the `DataSourceId` in the request.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9_.-]+`

Errors

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

IdempotentParameterMismatchException

A second request to use or change an object was not allowed. This can result from retrying a request using a parameter that was not present in the original request.

HTTP Status Code: 400

InternalServerErrorException

An error on the server occurred when trying to process a request.

HTTP Status Code: 500

InvalidInputException

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

Examples

The following is a sample request and response of the `CreateDataSourceFromRedshift` operation.

This example illustrates one usage of `CreateDataSourceFromRedshift`.

Sample Request

```
POST / HTTP/1.1
Host: machinelearning.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
  requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AmazonML_20141212.CreateDataSourceFromRedshift
{
  "DataSourceId": "ds-exampleDatasourceId",
  "DataSourceName": "exampleDatasourceName",
  "DataSpec":
```

```
{
  "DatabaseInformation":
  {
    "DatabaseName": "dev",
    "ClusterIdentifier": "test-cluster-1234"
  },
  "SelectSqlQuery": "select * from table",
  "DatabaseCredentials":
  {
    "Username": "foo",
    "Password": "foo"
  },
  "S3StagingLocation": "s3://bucketName/",
  "DataSchemaUri": "s3://bucketName/locationToUri/example.schema.json",
  "RoleARN": "arn:aws:iam::<awsAccountId>:role/username"
}
```

Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
{"DataSourceId": "ds-exampleDataSourceId"}
```

See Also

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

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

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

CreateDataSourceFromS3

Creates a `DataSource` object. A `DataSource` references data that can be used to perform `CreateMLModel`, `CreateEvaluation`, or `CreateBatchPrediction` operations.

`CreateDataSourceFromS3` is an asynchronous operation. In response to `CreateDataSourceFromS3`, Amazon Machine Learning (Amazon ML) immediately returns and sets the `DataSource` status to `PENDING`. After the `DataSource` has been created and is ready for use, Amazon ML sets the `Status` parameter to `COMPLETED`. `DataSource` in the `COMPLETED` or `PENDING` state can be used to perform only `CreateMLModel`, `CreateEvaluation` or `CreateBatchPrediction` operations.

If Amazon ML can't accept the input source, it sets the `Status` parameter to `FAILED` and includes an error message in the `Message` attribute of the `GetDataSource` operation response.

The observation data used in a `DataSource` should be ready to use; that is, it should have a consistent structure, and missing data values should be kept to a minimum. The observation data must reside in one or more `.csv` files in an Amazon Simple Storage Service (Amazon S3) location, along with a schema that describes the data items by name and type. The same schema must be used for all of the data files referenced by the `DataSource`.

After the `DataSource` has been created, it's ready to use in evaluations and batch predictions. If you plan to use the `DataSource` to train an `MLModel`, the `DataSource` also needs a recipe. A recipe describes how each input variable will be used in training an `MLModel`. Will the variable be included or excluded from training? Will the variable be manipulated; for example, will it be combined with another variable or will it be split apart into word combinations? The recipe provides answers to these questions.

Request Syntax

```
{
  "ComputeStatistics": boolean,
  "DataSourceId": "string",
  "DataSourceName": "string",
  "DataSpec": {
    "DataLocationS3": "string",
    "DataRearrangement": "string",
    "DataSchema": "string",
    "DataSchemaLocationS3": "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.

ComputeStatistics

The compute statistics for a DataSource. The statistics are generated from the observation data referenced by a DataSource. Amazon ML uses the statistics internally during MLModel training. This parameter must be set to `true` if the DataSource needs to be used for MLModel training.

Type: Boolean

Required: No

DataSourceId

A user-supplied identifier that uniquely identifies the DataSource.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9_.-]+`

Required: Yes

DataSourceName

A user-supplied name or description of the DataSource.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `.*\S.*|^$`

Required: No

DataSpec

The data specification of a DataSource:

- DataLocationS3 - The Amazon S3 location of the observation data.
- DataSchemaLocationS3 - The Amazon S3 location of the DataSchema.
- DataSchema - A JSON string representing the schema. This is not required if DataSchemaUri is specified.
- DataRearrangement - A JSON string that represents the splitting and rearrangement requirements for the Datasource.

Sample - "{\\"splitting\\":{\\"percentBegin\\":10,\\"percentEnd\\":60}}"

Type: [S3DataSpec](#) object

Required: Yes

Response Syntax

```
{
  "DataSourceId": "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.

[DataSourceId](#)

A user-supplied ID that uniquely identifies the DataSource. This value should be identical to the value of the DataSourceID in the request.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Errors

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

IdempotentParameterMismatchException

A second request to use or change an object was not allowed. This can result from retrying a request using a parameter that was not present in the original request.

HTTP Status Code: 400

InternalServerErrorException

An error on the server occurred when trying to process a request.

HTTP Status Code: 500

InvalidInputException

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

Examples

The following is a sample request and response of the `CreateDataSourceFromS3` operation.

This example illustrates one usage of `CreateDataSourceFromS3`.

Sample Request

```
POST / HTTP/1.1
Host: machinelearning.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
  requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AmazonML_20141212.CreateDataSourceFromS3
```

```
{
  "DataSourceId": "exampleDataSourceId",
  "DataSourceName": "exampleDataSourceName",
  "DataSpec":
  {
    "DataLocationS3": "s3://eml-test-EXAMPLE/data.csv",
    "DataSchemaLocationS3": "s3://eml-test-EXAMPLE/data.csv.schema",
    "DataRearrangement": "{\"splitting\":{\"percentBegin\":10,\"percentEnd\":60}}\"
  }
}
```

Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
{"DataSourceId":"exampleDataSourceId"}
```

See Also

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

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

CreateEvaluation

Creates a new Evaluation of an MLModel. An MLModel is evaluated on a set of observations associated to a DataSource. Like a DataSource for an MLModel, the DataSource for an Evaluation contains values for the Target Variable. The Evaluation compares the predicted result for each observation to the actual outcome and provides a summary so that you know how effective the MLModel functions on the test data. Evaluation generates a relevant performance metric, such as BinaryAUC, RegressionRMSE or MulticlassAvgFScore based on the corresponding MLModelType: BINARY, REGRESSION or MULTICLASS.

CreateEvaluation is an asynchronous operation. In response to CreateEvaluation, Amazon Machine Learning (Amazon ML) immediately returns and sets the evaluation status to PENDING. After the Evaluation is created and ready for use, Amazon ML sets the status to COMPLETED.

You can use the GetEvaluation operation to check progress of the evaluation during the creation operation.

Request Syntax

```
{
  "EvaluationDataSourceId": "string",
  "EvaluationId": "string",
  "EvaluationName": "string",
  "MLModelId": "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.

EvaluationDataSourceId

The ID of the DataSource for the evaluation. The schema of the DataSource must match the schema used to create the MLModel.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Required: Yes

EvaluationId

A user-supplied ID that uniquely identifies the Evaluation.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Required: Yes

EvaluationName

A user-supplied name or description of the Evaluation.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: .*\S.*|^\$

Required: No

MLModelId

The ID of the MLModel to evaluate.

The schema used in creating the MLModel must match the schema of the DataSource used in the Evaluation.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Required: Yes

Response Syntax

```
{
```

```
"EvaluationId": "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.

EvaluationId

The user-supplied ID that uniquely identifies the Evaluation. This value should be identical to the value of the EvaluationId in the request.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Errors

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

IdempotentParameterMismatchException

A second request to use or change an object was not allowed. This can result from retrying a request using a parameter that was not present in the original request.

HTTP Status Code: 400

InternalServerErrorException

An error on the server occurred when trying to process a request.

HTTP Status Code: 500

InvalidInputException

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

Examples

The following is a sample request and response of the CreateEvaluation operation:

This example illustrates one usage of CreateEvaluation.

Sample Request

```
POST / HTTP/1.1
Host: machinelearning.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AmazonML_20141212.CreateEvaluation
{
  "EvaluationId": "CreateEvaluation-pr-2014-09-12-15-14-04-924",
  "EvaluationName": "EXAMPLE",
  "MLModelId": "EXAMPLE-pr-2014-09-12-15-14-04-924",
  "EvaluationDataSourceId": "EXAMPLE-ev-ds-2014-09-12-15-14-04-411",
}
```

Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
{"EvaluationId":"CreateEvaluation-pr-2014-09-12-15-14-04-924"}
```

See Also

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

- [AWS Command Line Interface](#)

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

CreateMLModel

Creates a new MLModel using the DataSource and the recipe as information sources.

An MLModel is nearly immutable. Users can update only the MLModelName and the ScoreThreshold in an MLModel without creating a new MLModel.

CreateMLModel is an asynchronous operation. In response to CreateMLModel, Amazon Machine Learning (Amazon ML) immediately returns and sets the MLModel status to PENDING. After the MLModel has been created and ready is for use, Amazon ML sets the status to COMPLETED.

You can use the GetMLModel operation to check the progress of the MLModel during the creation operation.

CreateMLModel requires a DataSource with computed statistics, which can be created by setting ComputeStatistics to true in CreateDataSourceFromRDS, CreateDataSourceFromS3, or CreateDataSourceFromRedshift operations.

Request Syntax

```
{
  "MLModelId": "string",
  "MLModelName": "string",
  "MLModelType": "string",
  "Parameters": {
    "string" : "string"
  },
  "Recipe": "string",
  "RecipeUri": "string",
  "TrainingDataSourceId": "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.

MLModelId

A user-supplied ID that uniquely identifies the MLModel.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Required: Yes

MLModelName

A user-supplied name or description of the `MLModel`.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: .*\\S.*|^\$

Required: No

MLModelType

The category of supervised learning that this `MLModel` will address. Choose from the following types:

- Choose `REGRESSION` if the `MLModel` will be used to predict a numeric value.
- Choose `BINARY` if the `MLModel` result has two possible values.
- Choose `MULTICLASS` if the `MLModel` result has a limited number of values.

For more information, see the [Amazon Machine Learning Developer Guide](#).

Type: String

Valid Values: `REGRESSION` | `BINARY` | `MULTICLASS`

Required: Yes

Parameters

A list of the training parameters in the `MLModel`. The list is implemented as a map of key-value pairs.

The following is the current set of training parameters:

- `sgd.maxMLModelSizeInBytes` - The maximum allowed size of the model. Depending on the input data, the size of the model might affect its performance.

The value is an integer that ranges from 100000 to 2147483648. The default value is 33554432.

- `sgd.maxPasses` - The number of times that the training process traverses the observations to build the `MLModel`. The value is an integer that ranges from 1 to 100. The default value is 10.
- `sgd.shuffleType` - Whether Amazon ML shuffles the training data. Shuffling the data improves a model's ability to find the optimal solution for a variety of data types. The valid values are `auto` and `none`. The default value is `none`. We strongly recommend that you shuffle your data.
- `sgd.l1RegularizationAmount` - The coefficient regularization L1 norm. It controls overfitting the data by penalizing large coefficients. This tends to drive coefficients to zero, resulting in a sparse feature set. If you use this parameter, start by specifying a small value, such as `1.0E-08`.

The value is a double that ranges from 0 to `MAX_DOUBLE`. The default is to not use L1 normalization. This parameter can't be used when L2 is specified. Use this parameter sparingly.

- `sgd.l2RegularizationAmount` - The coefficient regularization L2 norm. It controls overfitting the data by penalizing large coefficients. This tends to drive coefficients to small, nonzero values. If you use this parameter, start by specifying a small value, such as `1.0E-08`.

The value is a double that ranges from 0 to `MAX_DOUBLE`. The default is to not use L2 normalization. This parameter can't be used when L1 is specified. Use this parameter sparingly.

Type: String to string map

Required: No

Recipe

The data recipe for creating the `MLModel`. You must specify either the recipe or its URI. If you don't specify a recipe or its URI, Amazon ML creates a default.

Type: String

Length Constraints: Maximum length of 131071.

Required: No

[RecipeUri](#)

The Amazon Simple Storage Service (Amazon S3) location and file name that contains the `MLModel` recipe. You must specify either the recipe or its URI. If you don't specify a recipe or its URI, Amazon ML creates a default.

Type: String

Length Constraints: Maximum length of 2048.

Pattern: `s3://([^\s/]+)(/.*)?`

Required: No

[TrainingDataSourceId](#)

The `DataSource` that points to the training data.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9_.-]+`

Required: Yes

Response Syntax

```
{  
  "MLModelId": "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.

[MLModelId](#)

A user-supplied ID that uniquely identifies the `MLModel`. This value should be identical to the value of the `MLModelId` in the request.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Errors

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

IdempotentParameterMismatchException

A second request to use or change an object was not allowed. This can result from retrying a request using a parameter that was not present in the original request.

HTTP Status Code: 400

InternalServerErrorException

An error on the server occurred when trying to process a request.

HTTP Status Code: 500

InvalidInputException

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

Examples

The following is a sample request and response of the CreateMLModel operation.

This example illustrates one usage of CreateMLModel.

Sample Request

```
POST / HTTP/1.1
Host: machinelearning.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
  requestid,Signature=<Signature>
```

```
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AmazonML_20141212.CreateMLModel
{
  "MLModelId": "exampleModelId",
  "MLModelName": "EXAMPLE",
  "MLModelType": "BINARY",
  "TrainingDataSourceId": "17SdAv6WC6r5vACaXF7U",
  "RecipeUri": "s3://eml-test-EXAMPLE/data.recipe.json"
}
```

Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
{"MLModelId":"exampleModelId"}
```

See Also

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

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

CreateRealtimeEndpoint

Creates a real-time endpoint for the `MLModel`. The endpoint contains the URI of the `MLModel`; that is, the location to send real-time prediction requests for the specified `MLModel`.

Request Syntax

```
{  
  "MLModelId": "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.

MLModelId

The ID assigned to the `MLModel` during creation.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Required: Yes

Response Syntax

```
{  
  "MLModelId": "string",  
  "RealtimeEndpointInfo": {  
    "CreatedAt": number,  
    "EndpointStatus": "string",  
    "EndpointUrl": "string",  
    "PeakRequestsPerSecond": 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.

MLModelId

A user-supplied ID that uniquely identifies the `MLModel`. This value should be identical to the value of the `MLModelId` in the request.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9_.-]+`

RealtimeEndpointInfo

The endpoint information of the `MLModel`

Type: [RealtimeEndpointInfo](#) object

Errors

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

InternalServerError

An error on the server occurred when trying to process a request.

HTTP Status Code: 500

InvalidInputException

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

ResourceNotFoundException

A specified resource cannot be located.

HTTP Status Code: 400

Examples

The following is a sample request and response of the CreateRealtimeEndpoint operation.

This example illustrates one usage of CreateRealtimeEndpoint.

Sample Request

```
POST / HTTP/1.1
Host: machinelearning.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AmazonML_20141212.CreateRealtimeEndpoint
{
  "MLModelId": "ml-ModelExampleId",
}
```

Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
{
  "MLModelId": "ml-ModelExampleId",
  "EndpointInfo":
  {
    "CreatedAt": 1422488124.71,
    "EndpointUrl": "<realtime endpoint from Amazon Machine Learning for ml-
ModelExampleId>",
    "EndpointStatus": "READY",
    "PeakRequestsPerSecond": 200
  }
}
```


See Also

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

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

DeleteBatchPrediction

Assigns the DELETED status to a BatchPrediction, rendering it unusable.

After using the DeleteBatchPrediction operation, you can use the [GetBatchPrediction](#) operation to verify that the status of the BatchPrediction changed to DELETED.

Caution: The result of the DeleteBatchPrediction operation is irreversible.

Request Syntax

```
{  
  "BatchPredictionId": "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.

[BatchPredictionId](#)

A user-supplied ID that uniquely identifies the BatchPrediction.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Required: Yes

Response Syntax

```
{  
  "BatchPredictionId": "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.

BatchPredictionId

A user-supplied ID that uniquely identifies the BatchPrediction. This value should be identical to the value of the BatchPredictionID in the request.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Errors

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

InternalServerError

An error on the server occurred when trying to process a request.

HTTP Status Code: 500

InvalidInputException

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

ResourceNotFoundException

A specified resource cannot be located.

HTTP Status Code: 400

Examples

The following is a sample request and response of the DeleteBatchPrediction operation.

This example illustrates one usage of DeleteBatchPrediction.

Sample Request

```
POST / HTTP/1.1
Host: machinelearning.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
  requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AmazonML_20141212.DeleteBatchPrediction
{"BatchPredictionId": "exampleBatchPredictionId"}
```

Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
{"BatchPredictionId":"exampleBatchPredictionId"}
```

See Also

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

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

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

DeleteDataSource

Assigns the DELETED status to a DataSource, rendering it unusable.

After using the DeleteDataSource operation, you can use the [GetDataSource](#) operation to verify that the status of the DataSource changed to DELETED.

Caution: The results of the DeleteDataSource operation are irreversible.

Request Syntax

```
{  
  "DataSourceId": "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.

[DataSourceId](#)

A user-supplied ID that uniquely identifies the DataSource.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Required: Yes

Response Syntax

```
{  
  "DataSourceId": "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.

DataSourceId

A user-supplied ID that uniquely identifies the DataSource. This value should be identical to the value of the DataSourceID in the request.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Errors

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

InternalServerError

An error on the server occurred when trying to process a request.

HTTP Status Code: 500

InvalidInputException

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

ResourceNotFoundException

A specified resource cannot be located.

HTTP Status Code: 400

Examples

The following is a sample request and response of the `DeleteDataSource` operation:

This example illustrates one usage of `DeleteDataSource`.

Sample Request

```
POST / HTTP/1.1
Host: machinelearning.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
  requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AmazonML_20141212.DeleteDataSource
{"DataSourceId": "exampleDataSourceId"}
```

Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
{"DataSourceId": "exampleDataSourceId"}
```

See Also

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

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

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

DeleteEvaluation

Assigns the DELETED status to an Evaluation, rendering it unusable.

After invoking the DeleteEvaluation operation, you can use the GetEvaluation operation to verify that the status of the Evaluation changed to DELETED.

Caution: The results of the DeleteEvaluation operation are irreversible.

Request Syntax

```
{  
  "EvaluationId": "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.

EvaluationId

A user-supplied ID that uniquely identifies the Evaluation to delete.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Required: Yes

Response Syntax

```
{  
  "EvaluationId": "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.

EvaluationId

A user-supplied ID that uniquely identifies the `Evaluation`. This value should be identical to the value of the `EvaluationId` in the request.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9_.-]+`

Errors

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

InternalServerError

An error on the server occurred when trying to process a request.

HTTP Status Code: 500

InvalidInputException

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

ResourceNotFoundException

A specified resource cannot be located.

HTTP Status Code: 400

Examples

The following is a sample request and response of the DeleteEvaluation operation.

This example illustrates one usage of DeleteEvaluation.

Sample Request

```
POST / HTTP/1.1
Host: machinelearning.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
  requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AmazonML_20141212.DeleteEvaluation
{"EvaluationId": "exampleEvaluationId"}
```

Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
{"EvaluationId":"exampleEvaluationId"}
```

See Also

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

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

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

DeleteMLModel

Assigns the DELETED status to an MLModel, rendering it unusable.

After using the DeleteMLModel operation, you can use the GetMLModel operation to verify that the status of the MLModel changed to DELETED.

Caution: The result of the DeleteMLModel operation is irreversible.

Request Syntax

```
{  
  "MLModelId": "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.

MLModelId

A user-supplied ID that uniquely identifies the MLModel.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Required: Yes

Response Syntax

```
{  
  "MLModelId": "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.

MLModelId

A user-supplied ID that uniquely identifies the `MLModel`. This value should be identical to the value of the `MLModelID` in the request.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9_.-]+`

Errors

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

InternalServerError

An error on the server occurred when trying to process a request.

HTTP Status Code: 500

InvalidInputException

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

ResourceNotFoundException

A specified resource cannot be located.

HTTP Status Code: 400

Examples

The following is a sample request and response of the `DeleteMLModel` operation:

This example illustrates one usage of `DeleteMLModel`.

Sample Request

```
POST / HTTP/1.1
Host: machinelearning.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AmazonML_20141212.DeleteMLModel
{"MLModelId": "exampleMLModelId"}
```

Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
{"MLModelId": "exampleMLModelId"}
```

See Also

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

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

- [AWS SDK for Ruby V3](#)

DeleteRealtimeEndpoint

Deletes a real time endpoint of an MLModel.

Request Syntax

```
{  
  "MLModelId": "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.

MLModelId

The ID assigned to the MLModel during creation.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Required: Yes

Response Syntax

```
{  
  "MLModelId": "string",  
  "RealtimeEndpointInfo": {  
    "CreatedAt": number,  
    "EndpointStatus": "string",  
    "EndpointUrl": "string",  
    "PeakRequestsPerSecond": 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.

MLModelId

A user-supplied ID that uniquely identifies the `MLModel`. This value should be identical to the value of the `MLModelId` in the request.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9_.-]+`

RealtimeEndpointInfo

The endpoint information of the `MLModel`

Type: [RealtimeEndpointInfo](#) object

Errors

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

InternalServerErrorException

An error on the server occurred when trying to process a request.

HTTP Status Code: 500

InvalidInputException

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

ResourceNotFoundException

A specified resource cannot be located.

HTTP Status Code: 400

Examples

The following is a sample request and response of the `DeleteRealtimeEndpoint` operation.

This example illustrates one usage of `DeleteRealtimeEndpoint`.

Sample Request

```
POST / HTTP/1.1
Host: machinelearning.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AmazonML_20141212.DeleteRealtimeEndpoint
{
  "MLModelId": "ml-ModelExampleId",
}
```

Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
{
  "MLModelId": "ml-ModelExampleId",
  "EndpointInfo":
    {
      "EndpointStatus": "NONE",
      "PeakRequestsPerSecond": 0
    }
}
```

See Also

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

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

DeleteTags

Deletes the specified tags associated with an ML object. After this operation is complete, you can't recover deleted tags.

If you specify a tag that doesn't exist, Amazon ML ignores it.

Request Syntax

```
{  
  "ResourceId": "string",  
  "ResourceType": "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 ID of the tagged ML object. For example, `exampleModelId`.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9_.-]+`

Required: Yes

[ResourceType](#)

The type of the tagged ML object.

Type: String

Valid Values: `BatchPrediction` | `DataSource` | `Evaluation` | `MLModel`

Required: Yes

TagKeys

One or more tags to delete.

Type: Array of strings

Array Members: Maximum number of 100 items.

Length Constraints: Minimum length of 1. Maximum length of 128.

Pattern: `^([\p{L}\p{Z}\p{N}_.: /+=\ -@]*)$`

Required: Yes

Response Syntax

```
{
  "ResourceId": "string",
  "ResourceType": "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.

ResourceId

The ID of the ML object from which tags were deleted.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9_.-]+`

ResourceType

The type of the ML object from which tags were deleted.

Type: String

Valid Values: BatchPrediction | DataSource | Evaluation | MLModel

Errors

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

InternalServerError

An error on the server occurred when trying to process a request.

HTTP Status Code: 500

InvalidInputException

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

InvalidTagException

A submitted tag is invalid.

HTTP Status Code: 400

ResourceNotFoundException

A specified resource cannot be located.

HTTP Status Code: 400

Examples

The following are an example request and response for the DeleteTags operation.

This example illustrates one usage of DeleteTags.

Sample Request

```
POST / HTTP/1.1
Host: machinelearning.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
  requestid,Signature=<Signature>
```



```
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AmazonML_20141212.DeleteTags
{
  "ResourceId": "exampleModelId",
  "ResourceType": "MLModel",
  "Tags": [
    "exampleKey"
  ]
}
```

Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
{
  "ResourceId": "exampleModelId",
  "ResourceType": "MLModel"
}
```

See Also

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

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

- [AWS SDK for Ruby V3](#)

DescribeBatchPredictions

Returns a list of BatchPrediction operations that match the search criteria in the request.

Request Syntax

```
{
  "EQ": "string",
  "FilterVariable": "string",
  "GE": "string",
  "GT": "string",
  "LE": "string",
  "Limit": number,
  "LT": "string",
  "NE": "string",
  "NextToken": "string",
  "Prefix": "string",
  "SortOrder": "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.

EQ

The equal to operator. The BatchPrediction results will have FilterVariable values that exactly match the value specified with EQ.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `.*\S.*|^$`

Required: No

FilterVariable

Use one of the following variables to filter a list of BatchPrediction:

- **CreatedAt** - Sets the search criteria to the BatchPrediction creation date.
- **Status** - Sets the search criteria to the BatchPrediction status.
- **Name** - Sets the search criteria to the contents of the BatchPrediction Name.
- **IAMUser** - Sets the search criteria to the user account that invoked the BatchPrediction creation.
- **MLModelId** - Sets the search criteria to the MLModel used in the BatchPrediction.
- **DataSourceId** - Sets the search criteria to the DataSource used in the BatchPrediction.
- **DataURI** - Sets the search criteria to the data file(s) used in the BatchPrediction. The URL can identify either a file or an Amazon Simple Storage Solution (Amazon S3) bucket or directory.

Type: String

Valid Values: CreatedAt | LastUpdatedAt | Status | Name | IAMUser | MLModelId | DataSourceId | DataURI

Required: No

GE

The greater than or equal to operator. The BatchPrediction results will have FilterVariable values that are greater than or equal to the value specified with GE.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: .*\\S.*|^\$

Required: No

GT

The greater than operator. The BatchPrediction results will have FilterVariable values that are greater than the value specified with GT.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: .*\\S.*|^\$

Required: No

LE

The less than or equal to operator. The BatchPrediction results will have FilterVariable values that are less than or equal to the value specified with LE.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: .*\\S.*|^\$

Required: No

Limit

The number of pages of information to include in the result. The range of acceptable values is 1 through 100. The default value is 100.

Type: Integer

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

Required: No

LT

The less than operator. The BatchPrediction results will have FilterVariable values that are less than the value specified with LT.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: .*\\S.*|^\$

Required: No

NE

The not equal to operator. The BatchPrediction results will have FilterVariable values not equal to the value specified with NE.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `.*\S.*|^$`

Required: No

[NextToken](#)

An ID of the page in the paginated results.

Type: String

Required: No

[Prefix](#)

A string that is found at the beginning of a variable, such as Name or Id.

For example, a Batch Prediction operation could have the Name 2014-09-09-HolidayGiftMailer. To search for this BatchPrediction, select Name for the FilterVariable and any of the following strings for the Prefix:

- 2014-09
- 2014-09-09
- 2014-09-09-Holiday

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `.*\S.*|^$`

Required: No

[SortOrder](#)

A two-value parameter that determines the sequence of the resulting list of MLModels.

- asc - Arranges the list in ascending order (A-Z, 0-9).
- dsc - Arranges the list in descending order (Z-A, 9-0).

Results are sorted by FilterVariable.

Type: String

Valid Values: asc | dsc

Required: No

Response Syntax

```
{
  "NextToken": "string",
  "Results": [
    {
      "BatchPredictionDataSourceId": "string",
      "BatchPredictionId": "string",
      "ComputeTime": number,
      "CreatedAt": number,
      "CreatedByIamUser": "string",
      "FinishedAt": number,
      "InputDataLocationS3": "string",
      "InvalidRecordCount": number,
      "LastUpdatedAt": number,
      "Message": "string",
      "MLModelId": "string",
      "Name": "string",
      "OutputUri": "string",
      "StartedAt": number,
      "Status": "string",
      "TotalRecordCount": 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.

NextToken

The ID of the next page in the paginated results that indicates at least one more page follows.

Type: String

Results

A list of BatchPrediction objects that meet the search criteria.

Type: Array of [BatchPrediction](#) objects

Errors

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

InternalServerError

An error on the server occurred when trying to process a request.

HTTP Status Code: 500

InvalidInputException

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

Examples

The following is a sample request and response of the DescribeBatchPredictions operation.

This example illustrates one usage of DescribeBatchPredictions.

Sample Request

```
POST / HTTP/1.1
Host: machinelearning.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AmazonML_20141212.DescribeBatchPredictions
{
  "FilterVariable": "Name",
  "Prefix": "bp-",
  "SortOrder": "asc",
  "Limit": 1
}
```


Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
{
  "Results": [
    {
      "BatchPredictionDataSourceId": "ds-exampleDataSourceId",
      "BatchPredictionId": "bp-exampleBatchPredictionId",
      "CreatedAt": 1422057670.697,
      "CreatedByIamUser": "arn:aws:iam::<awsAccountId>:user/username",
      "InputDataLocationS3": "s3://bucket/locationToInput/example-data.testing.csv",
      "LastUpdatedAt": 1422057811.431,
      "MLModelId": "pr-exampleModelId",
      "Name": "bp-exampleBatchPredictionName",
      "OutputUri": "s3://bucket/locationToLogs/",
      "Status": "COMPLETED",
      "ComputeTime": "185200",
      "FinishedAt": "1422057711.192",
      "StartedAt": "14220557678.324",
      "TotalRecordCount": "21154",
      "InvalidRecordCount": "0"
    }
  ]
}
```

See Also

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

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

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

DescribeDataSources

Returns a list of DataSource that match the search criteria in the request.

Request Syntax

```
{
  "EQ": "string",
  "FilterVariable": "string",
  "GE": "string",
  "GT": "string",
  "LE": "string",
  "Limit": number,
  "LT": "string",
  "NE": "string",
  "NextToken": "string",
  "Prefix": "string",
  "SortOrder": "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.

EQ

The equal to operator. The DataSource results will have FilterVariable values that exactly match the value specified with EQ.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `.*\S.*|^$`

Required: No

FilterVariable

Use one of the following variables to filter a list of DataSource:

- CreatedAt - Sets the search criteria to DataSource creation dates.

- **Status** - Sets the search criteria to DataSource statuses.
- **Name** - Sets the search criteria to the contents of DataSource Name.
- **DataUri** - Sets the search criteria to the URI of data files used to create the DataSource. The URI can identify either a file or an Amazon Simple Storage Service (Amazon S3) bucket or directory.
- **IAMUser** - Sets the search criteria to the user account that invoked the DataSource creation.

Type: String

Valid Values: CreatedAt | LastUpdatedAt | Status | Name | DataLocationS3 | IAMUser

Required: No

GE

The greater than or equal to operator. The DataSource results will have FilterVariable values that are greater than or equal to the value specified with GE.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: .*\\S.*|^\$

Required: No

GT

The greater than operator. The DataSource results will have FilterVariable values that are greater than the value specified with GT.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: .*\\S.*|^\$

Required: No

LE

The less than or equal to operator. The DataSource results will have FilterVariable values that are less than or equal to the value specified with LE.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `.*\S.*|^$`

Required: No

Limit

The maximum number of DataSource to include in the result.

Type: Integer

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

Required: No

LT

The less than operator. The DataSource results will have FilterVariable values that are less than the value specified with LT.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `.*\S.*|^$`

Required: No

NE

The not equal to operator. The DataSource results will have FilterVariable values not equal to the value specified with NE.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `.*\S.*|^$`

Required: No

NextToken

The ID of the page in the paginated results.

Type: String

Required: No

Prefix

A string that is found at the beginning of a variable, such as Name or Id.

For example, a DataSource could have the Name 2014-09-09-HolidayGiftMailer. To search for this DataSource, select Name for the FilterVariable and any of the following strings for the Prefix:

- 2014-09
- 2014-09-09
- 2014-09-09-Holiday

Type: String

Length Constraints: Maximum length of 1024.

Pattern: .*\\S.*|^\$

Required: No

SortOrder

A two-value parameter that determines the sequence of the resulting list of DataSource.

- asc - Arranges the list in ascending order (A-Z, 0-9).
- dsc - Arranges the list in descending order (Z-A, 9-0).

Results are sorted by FilterVariable.

Type: String

Valid Values: asc | dsc

Required: No

Response Syntax

```
{  
  "NextToken": "string",  
  "Results": [  
    ...  
  ]  
}
```

```

{
  "ComputeStatistics": boolean,
  "ComputeTime": number,
  "CreatedAt": number,
  "CreatedByIamUser": "string",
  "DataLocationS3": "string",
  "DataRearrangement": "string",
  "DataSizeInBytes": number,
  "DataSourceId": "string",
  "FinishedAt": number,
  "LastUpdatedAt": number,
  "Message": "string",
  "Name": "string",
  "NumberOfFiles": number,
  "RDSMetadata": {
    "Database": {
      "DatabaseName": "string",
      "InstanceIdentifier": "string"
    },
    "DatabaseUserName": "string",
    "DataPipelineId": "string",
    "ResourceRole": "string",
    "SelectSqlQuery": "string",
    "ServiceRole": "string"
  },
  "RedshiftMetadata": {
    "DatabaseUserName": "string",
    "RedshiftDatabase": {
      "ClusterIdentifier": "string",
      "DatabaseName": "string"
    },
    "SelectSqlQuery": "string"
  },
  "RoleARN": "string",
  "StartedAt": 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.

NextToken

An ID of the next page in the paginated results that indicates at least one more page follows.

Type: String

Results

A list of DataSource that meet the search criteria.

Type: Array of [DataSource](#) objects

Errors

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

InternalServerError

An error on the server occurred when trying to process a request.

HTTP Status Code: 500

InvalidInputException

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

Examples

The following is a sample request and response of the DescribeDataSources operation.

This example illustrates one usage of DescribeDataSources.

Sample Request

```
POST / HTTP/1.1
Host: machinelearning.<region>.<domain>
x-amz-Date: <Date>
```



```
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AmazonML_20141212.DescribeDataSources
{
  "FilterVariable": "Name",
  "Prefix": "bp-",
  "SortOrder": "asc",
  "Limit": 1
}
```

Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
{
  "NextToken": "{\\"DataSourceId\\":\\"ds-exampleDataSource2\\"}",
  "Results": [
    {
      "ComputeStatistics": true,
      "CreatedAt": 1428008286.077,
      "CreatedByIamUser": "arn:aws:iam::<awsAccountId>:user/username",
      "DataLocationS3": "s3://bucket/locationToInput/example-data.testing.csv",
      "DataSourceId": "ds-exampleDataSourceId",
      "LastUpdatedAt": 1428018286.654,
      "Name": "exampleDataSource",
      "Status": "COMPLETED",
      "ComputeTime": "185200",
      "FinishedAt": "1428018286.654",
      "StartedAt": "1428008287.324"
    },
    {
      "ComputeStatistics": true,
      "CreatedAt": 1428008286.077,
      "CreatedByIamUser": "arn:aws:iam::<awsAccountId>:user/username",
      "DataLocationS3": "s3://bucket/locationToInput/example-data.testing.csv",
```

```
    "DataSourceId": "ds-exampleDataSourceId",  
    "LastUpdatedAt": 1428018286.654,  
    "Name": "exampleDataSource",  
    "Status": "PENDING"  
  }  
]  
}
```

See Also

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

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

DescribeEvaluations

Returns a list of DescribeEvaluations that match the search criteria in the request.

Request Syntax

```
{  
  "EQ": "string",  
  "FilterVariable": "string",  
  "GE": "string",  
  "GT": "string",  
  "LE": "string",  
  "Limit": number,  
  "LT": "string",  
  "NE": "string",  
  "NextToken": "string",  
  "Prefix": "string",  
  "SortOrder": "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.

EQ

The equal to operator. The Evaluation results will have FilterVariable values that exactly match the value specified with EQ.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: .*\\S.*|^\$

Required: No

FilterVariable

Use one of the following variable to filter a list of Evaluation objects:

- `CreatedAt` - Sets the search criteria to the `Evaluation` creation date.
- `Status` - Sets the search criteria to the `Evaluation` status.
- `Name` - Sets the search criteria to the contents of `Evaluation` `Name`.
- `IAMUser` - Sets the search criteria to the user account that invoked an `Evaluation`.
- `MLModelId` - Sets the search criteria to the `MLModel` that was evaluated.
- `DataSourceId` - Sets the search criteria to the `DataSource` used in `Evaluation`.
- `DataUri` - Sets the search criteria to the data file(s) used in `Evaluation`. The URL can identify either a file or an Amazon Simple Storage Solution (Amazon S3) bucket or directory.

Type: String

Valid Values: `CreatedAt` | `LastUpdatedAt` | `Status` | `Name` | `IAMUser` | `MLModelId` | `DataSourceId` | `DataURI`

Required: No

GE

The greater than or equal to operator. The `Evaluation` results will have `FilterVariable` values that are greater than or equal to the value specified with `GE`.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `.*\S.*|^$`

Required: No

GT

The greater than operator. The `Evaluation` results will have `FilterVariable` values that are greater than the value specified with `GT`.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `.*\S.*|^$`

Required: No

LE

The less than or equal to operator. The Evaluation results will have FilterVariable values that are less than or equal to the value specified with LE.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: .*\\S.*|^\$

Required: No

Limit

The maximum number of Evaluation to include in the result.

Type: Integer

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

Required: No

LT

The less than operator. The Evaluation results will have FilterVariable values that are less than the value specified with LT.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: .*\\S.*|^\$

Required: No

NE

The not equal to operator. The Evaluation results will have FilterVariable values not equal to the value specified with NE.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: .*\\S.*|^\$

Required: No

NextToken

The ID of the page in the paginated results.

Type: String

Required: No

Prefix

A string that is found at the beginning of a variable, such as Name or Id.

For example, an Evaluation could have the Name 2014-09-09-HolidayGiftMailer. To search for this Evaluation, select Name for the FilterVariable and any of the following strings for the Prefix:

- 2014-09
- 2014-09-09
- 2014-09-09-Holiday

Type: String

Length Constraints: Maximum length of 1024.

Pattern: .*\\S.*|^\$

Required: No

SortOrder

A two-value parameter that determines the sequence of the resulting list of Evaluation.

- asc - Arranges the list in ascending order (A-Z, 0-9).
- dsc - Arranges the list in descending order (Z-A, 9-0).

Results are sorted by FilterVariable.

Type: String

Valid Values: asc | dsc

Required: No

Response Syntax

```
{
  "NextToken": "string",
  "Results": [
    {
      "ComputeTime": number,
      "CreatedAt": number,
      "CreatedByIamUser": "string",
      "EvaluationDataSourceId": "string",
      "EvaluationId": "string",
      "FinishedAt": number,
      "InputDataLocationS3": "string",
      "LastUpdatedAt": number,
      "Message": "string",
      "MLModelId": "string",
      "Name": "string",
      "PerformanceMetrics": {
        "Properties": {
          "string" : "string"
        }
      },
      "StartedAt": 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.

NextToken

The ID of the next page in the paginated results that indicates at least one more page follows.

Type: String

Results

A list of Evaluation that meet the search criteria.

Type: Array of [Evaluation](#) objects

Errors

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

InternalServerError

An error on the server occurred when trying to process a request.

HTTP Status Code: 500

InvalidInputException

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

Examples

The following is a sample request and response of the DescribeEvaluations operation.

This example illustrates one usage of DescribeEvaluations.

Sample Request

```
POST / HTTP/1.1
Host: machinelearning.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
  requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AmazonML_20141212.DescribeEvaluations
{
  "FilterVariable": "Name",
  "Prefix": "ev-",
```



```
"SortOrder": "asc",
"Limit": 1
}
```

Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
{
  "NextToken": "{\"EvaluationId\":\"ev-exampleId2\"}",
  "Results": [
    {
      "CreatedAt": 1420745248.785,
      "CreatedByIamUser": "arn:aws:iam::<awsAccountId>:user/username",
      "EvaluationDataSourceId": "ds-exampleDataSourceId",
      "EvaluationId": "ev-exampleId1",
      "InputDataLocationS3": "s3://bucket/locationToInput/example-data.testing.csv",
      "LastUpdatedAt": 1420745524.506,
      "MLModelId": "pr-exampleModelId",
      "Name": "ev-1",
      "PerformanceMetrics":
        {
          "Properties": {"BinaryAUC": "0.9228827246570067"}
        },
      "Status": "COMPLETED",
      "ComputeTime": "185200",
      "FinishedAt": "1420745524.506",
      "StartedAt": "1420745249.324"
    }
  ]
}
```

See Also

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

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

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

DescribeMLModels

Returns a list of `MLModel` that match the search criteria in the request.

Request Syntax

```
{
  "EQ": "string",
  "FilterVariable": "string",
  "GE": "string",
  "GT": "string",
  "LE": "string",
  "Limit": number,
  "LT": "string",
  "NE": "string",
  "NextToken": "string",
  "Prefix": "string",
  "SortOrder": "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.

EQ

The equal to operator. The `MLModel` results will have `FilterVariable` values that exactly match the value specified with EQ.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `.*\S.*|^$`

Required: No

FilterVariable

Use one of the following variables to filter a list of `MLModel`:

- `CreatedAt` - Sets the search criteria to `MLModel` creation date.
- `Status` - Sets the search criteria to `MLModel` status.
- `Name` - Sets the search criteria to the contents of `MLModel` `Name`.
- `IAMUser` - Sets the search criteria to the user account that invoked the `MLModel` creation.
- `TrainingDataSourceId` - Sets the search criteria to the `DataSource` used to train one or more `MLModel`.
- `RealtimeEndpointStatus` - Sets the search criteria to the `MLModel` real-time endpoint status.
- `MLModelType` - Sets the search criteria to `MLModel` type: binary, regression, or multi-class.
- `Algorithm` - Sets the search criteria to the algorithm that the `MLModel` uses.
- `TrainingDataURI` - Sets the search criteria to the data file(s) used in training a `MLModel`. The URL can identify either a file or an Amazon Simple Storage Service (Amazon S3) bucket or directory.

Type: String

Valid Values: `CreatedAt` | `LastUpdatedAt` | `Status` | `Name` | `IAMUser` | `TrainingDataSourceId` | `RealtimeEndpointStatus` | `MLModelType` | `Algorithm` | `TrainingDataURI`

Required: No

GE

The greater than or equal to operator. The `MLModel` results will have `FilterVariable` values that are greater than or equal to the value specified with `GE`.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `.*\S.*|^$`

Required: No

GT

The greater than operator. The `MLModel` results will have `FilterVariable` values that are greater than the value specified with `GT`.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `.*\S.*|^$`

Required: No

LE

The less than or equal to operator. The `MLModel` results will have `FilterVariable` values that are less than or equal to the value specified with LE.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `.*\S.*|^$`

Required: No

Limit

The number of pages of information to include in the result. The range of acceptable values is 1 through 100. The default value is 100.

Type: Integer

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

Required: No

LT

The less than operator. The `MLModel` results will have `FilterVariable` values that are less than the value specified with LT.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `.*\S.*|^$`

Required: No

NE

The not equal to operator. The `MLModel` results will have `FilterVariable` values not equal to the value specified with NE.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `.*\S.*|^$`

Required: No

NextToken

The ID of the page in the paginated results.

Type: String

Required: No

Prefix

A string that is found at the beginning of a variable, such as Name or Id.

For example, an `MLModel` could have the Name `2014-09-09-HolidayGiftMailer`. To search for this `MLModel`, select Name for the `FilterVariable` and any of the following strings for the Prefix:

- 2014-09
- 2014-09-09
- 2014-09-09-Holiday

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `.*\S.*|^$`

Required: No

SortOrder

A two-value parameter that determines the sequence of the resulting list of `MLModel`.

- `asc` - Arranges the list in ascending order (A-Z, 0-9).

- dsc - Arranges the list in descending order (Z-A, 9-0).

Results are sorted by FilterVariable.

Type: String

Valid Values: asc | dsc

Required: No

Response Syntax

```
{
  "NextToken": "string",
  "Results": [
    {
      "Algorithm": "string",
      "ComputeTime": number,
      "CreatedAt": number,
      "CreatedByIamUser": "string",
      "EndpointInfo": {
        "CreatedAt": number,
        "EndpointStatus": "string",
        "EndpointUrl": "string",
        "PeakRequestsPerSecond": number
      },
      "FinishedAt": number,
      "InputDataLocationS3": "string",
      "LastUpdatedAt": number,
      "Message": "string",
      "MLModelId": "string",
      "MLModelType": "string",
      "Name": "string",
      "ScoreThreshold": number,
      "ScoreThresholdLastUpdatedAt": number,
      "SizeInBytes": number,
      "StartedAt": number,
      "Status": "string",
      "TrainingDataSourceId": "string",
      "TrainingParameters": {
        "string" : "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

The ID of the next page in the paginated results that indicates at least one more page follows.

Type: String

Results

A list of `MLModel` that meet the search criteria.

Type: Array of [MLModel](#) objects

Errors

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

InternalServerError

An error on the server occurred when trying to process a request.

HTTP Status Code: 500

InvalidInputException

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

Examples

The following is a sample request and response of the DescribeMLModels operation:

This example illustrates one usage of DescribeMLModels.

Sample Request

```
POST / HTTP/1.1
Host: machinelearning.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AmazonML_20141212.DescribeMLModels
{
  "FilterVariable": "Name",
  "Prefix": "ml-",
  "SortOrder": "asc",
  "Limit": 1
}
```

Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
{
  "NextToken": "\"PredictorId\": \"Spr-ml-model-testing\"",
  "Results": [
    {
      "CreatedAt": 1422475435.595,
      "CreatedByIamUser": "arn:aws:iam::<awsAccountId>:user/username",
      "InputDataLocationS3": "s3://bucket/locationToInput/example-data.testing.csv",
      "LastUpdatedAt": 1422475709.691,
      "MLModelId": "ml-model-testing",
      "MLModelType": "MULTICLASS",
      "EndpointInfo": {
        "CreatedAt": 1424378682.266,
        "EndpointStatus": "READY",
        "EndpointUrl": "<realtime endpoint from Amazon Machine Learning for ml-model-
testing>",
        "PeakRequestsPerSecond": 200}
    ]
  }
```

```
    "Name": "ml-model-name",
    "Algorithm": "sgd",
    "SizeInBytes": 352720,
    "Status": "COMPLETED",
    "ComputeTime": "185200",
    "FinishedAt": "1422475709.691",
    "StartedAt": "1422475438.324",
    "TrainingDataSourceId": "exampleDataSourceId",
    "TrainingParameters":
    {
        "algorithm": "sgd",
        "sgd.l1RegularizationAmount": "0.0",
        "sgd.l2RegularizationAmount": "1E-6",
        "sgd.maxMLModelSizeInBytes": "33554432",
        "sgd.maxPasses": "10"
    }
}
]
```

See Also

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

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

DescribeTags

Describes one or more of the tags for your Amazon ML object.

Request Syntax

```
{  
  "ResourceId": "string",  
  "ResourceType": "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 ID of the ML object. For example, exampleModelId.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Required: Yes

[ResourceType](#)

The type of the ML object.

Type: String

Valid Values: BatchPrediction | DataSource | Evaluation | MLModel

Required: Yes

Response Syntax

```
{
```

```
"ResourceId": "string",  
"ResourceType": "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.

ResourceId

The ID of the tagged ML object.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

ResourceType

The type of the tagged ML object.

Type: String

Valid Values: BatchPrediction | DataSource | Evaluation | MLModel

Tags

A list of tags associated with the ML object.

Type: Array of [Tag](#) objects

Array Members: Maximum number of 100 items.

Errors

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

InternalServerError

An error on the server occurred when trying to process a request.

HTTP Status Code: 500

InvalidInputException

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

ResourceNotFoundException

A specified resource cannot be located.

HTTP Status Code: 400

Examples

The following are an example request and response for the DescribeTags operation.

This example illustrates one usage of DescribeTags.

Sample Request

```
POST / HTTP/1.1
Host: machinelearning.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AmazonML_20141212.DescribeTags
{
  "ResourceId": "exampleModelId",
  "ResourceType": "MLModel"
}
```

Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
{
  "ResourceId": "exampleModelId",
  "ResourceType": "MLModel",
  "Tags": {
    "Key": "exampleKey",
    "Value": "exampleKeyValue"
  }
}
```

See Also

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

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

GetBatchPrediction

Returns a BatchPrediction that includes detailed metadata, status, and data file information for a Batch Prediction request.

Request Syntax

```
{  
  "BatchPredictionId": "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.

[BatchPredictionId](#)

An ID assigned to the BatchPrediction at creation.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Required: Yes

Response Syntax

```
{  
  "BatchPredictionDataSourceId": "string",  
  "BatchPredictionId": "string",  
  "ComputeTime": number,  
  "CreatedAt": number,  
  "CreatedByIamUser": "string",  
  "FinishedAt": number,  
  "InputDataLocationS3": "string",  
  "InvalidRecordCount": number,  
}
```

```
"LastUpdatedAt": number,  
"LogUri": "string",  
"Message": "string",  
"MLModelId": "string",  
"Name": "string",  
"OutputUri": "string",  
"StartedAt": number,  
"Status": "string",  
"TotalRecordCount": 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.

BatchPredictionDataSourceId

The ID of the DataSource that was used to create the BatchPrediction.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

BatchPredictionId

An ID assigned to the BatchPrediction at creation. This value should be identical to the value of the BatchPredictionID in the request.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

ComputeTime

The approximate CPU time in milliseconds that Amazon Machine Learning spent processing the BatchPrediction, normalized and scaled on computation resources. ComputeTime is only available if the BatchPrediction is in the COMPLETED state.

Type: Long

CreatedAt

The time when the BatchPrediction was created. The time is expressed in epoch time.

Type: Timestamp

CreatedByIamUser

The AWS user account that invoked the BatchPrediction. The account type can be either an AWS root account or an AWS Identity and Access Management (IAM) user account.

Type: String

Pattern: `arn:aws:iam::[0-9]+:((user/.+)|(root))`

FinishedAt

The epoch time when Amazon Machine Learning marked the BatchPrediction as COMPLETED or FAILED. FinishedAt is only available when the BatchPrediction is in the COMPLETED or FAILED state.

Type: Timestamp

InputDataLocationS3

The location of the data file or directory in Amazon Simple Storage Service (Amazon S3).

Type: String

Length Constraints: Maximum length of 2048.

Pattern: `s3://([^\s/]+)(/.*)?`

InvalidRecordCount

The number of invalid records that Amazon Machine Learning saw while processing the BatchPrediction.

Type: Long

LastUpdatedAt

The time of the most recent edit to BatchPrediction. The time is expressed in epoch time.

Type: Timestamp

LogUri

A link to the file that contains logs of the CreateBatchPrediction operation.

Type: String

Message

A description of the most recent details about processing the batch prediction request.

Type: String

Length Constraints: Maximum length of 10240.

MLModelId

The ID of the MLModel that generated predictions for the BatchPrediction request.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Name

A user-supplied name or description of the BatchPrediction.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: .*\S.*|^\$

OutputUri

The location of an Amazon S3 bucket or directory to receive the operation results.

Type: String

Length Constraints: Maximum length of 2048.

Pattern: s3://([^\s]+)(/.*)?

StartedAt

The epoch time when Amazon Machine Learning marked the BatchPrediction as INPROGRESS. StartedAt isn't available if the BatchPrediction is in the PENDING state.

Type: Timestamp

Status

The status of the BatchPrediction, which can be one of the following values:

- PENDING - Amazon Machine Learning (Amazon ML) submitted a request to generate batch predictions.
- INPROGRESS - The batch predictions are in progress.
- FAILED - The request to perform a batch prediction did not run to completion. It is not usable.
- COMPLETED - The batch prediction process completed successfully.
- DELETED - The BatchPrediction is marked as deleted. It is not usable.

Type: String

Valid Values: PENDING | INPROGRESS | FAILED | COMPLETED | DELETED

TotalRecordCount

The number of total records that Amazon Machine Learning saw while processing the BatchPrediction.

Type: Long

Errors

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

InternalServerErrorException

An error on the server occurred when trying to process a request.

HTTP Status Code: 500

InvalidInputException

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

ResourceNotFoundException

A specified resource cannot be located.

HTTP Status Code: 400

Examples

The following is a sample request and response of the `GetBatchPrediction` operation.

This example illustrates one usage of `GetBatchPrediction`.

Sample Request

```
POST / HTTP/1.1
Host: machinelearning.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AmazonML_20141212.GetBatchPrediction
{"BatchPredictionId": "EXAMPLE-bp-2014-09-12-15-14-04-156"}
```

Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
{
  "BatchPredictionDataSourceId": "EXAMPLE-tr-ds-2014-09-12-15-14-04-989",
  "BatchPredictionId": "EXAMPLE-bp-2014-09-12-15-14-04-156",
  "CreatedAt": 1410560632.327,
  "CreatedByIamUser": "arn:aws:iam::<awsAccountId>:user/user",
```

```
"InputDataLocationS3": "s3://eml-test-EXAMPLE/example.csv",
"LastUpdatedAt":1410560632.327,
"LogUri": "https://s3bucket/locationToLogs/logname.tar.gz",
"Name":"EXAMPLE",
"OutputUri":"s3://eml-test-EXAMPLE/test-outputs/EXAMPLE-bp-2014-09-12-15-14-04-156/
results",
"MLModelId":"EXAMPLE-pr-2014-09-12-15-14-04-924",
"Status":"COMPLETED",
"ComputeTime":"185200",
"FinishedAt":1410560632.327,
"StartedAt":1410560632.327,
"TotalRecordCount":"21154",
"InvalidRecordCount":"0"
}
```

See Also

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

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

GetDataSource

Returns a DataSource that includes metadata and data file information, as well as the current status of the DataSource.

GetDataSource provides results in normal or verbose format. The verbose format adds the schema description and the list of files pointed to by the DataSource to the normal format.

Request Syntax

```
{  
  "DataSourceId": "string",  
  "Verbose": 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.

[DataSourceId](#)

The ID assigned to the DataSource at creation.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Required: Yes

[Verbose](#)

Specifies whether the GetDataSource operation should return DataSourceSchema.

If true, DataSourceSchema is returned.

If false, DataSourceSchema is not returned.

Type: Boolean

Required: No

Response Syntax

```
{
  "ComputeStatistics": boolean,
  "ComputeTime": number,
  "CreatedAt": number,
  "CreatedByIamUser": "string",
  "DataLocationS3": "string",
  "DataRearrangement": "string",
  "DataSizeInBytes": number,
  "DataSourceId": "string",
  "DataSourceSchema": "string",
  "FinishedAt": number,
  "LastUpdatedAt": number,
  "LogUri": "string",
  "Message": "string",
  "Name": "string",
  "NumberOfFiles": number,
  "RDSMetadata": {
    "Database": {
      "DatabaseName": "string",
      "InstanceIdentifier": "string"
    },
    "DatabaseUserName": "string",
    "DataPipelineId": "string",
    "ResourceRole": "string",
    "SelectSqlQuery": "string",
    "ServiceRole": "string"
  },
  "RedshiftMetadata": {
    "DatabaseUserName": "string",
    "RedshiftDatabase": {
      "ClusterIdentifier": "string",
      "DatabaseName": "string"
    },
    "SelectSqlQuery": "string"
  },
  "RoleARN": "string",
  "StartedAt": 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.

ComputeStatistics

The parameter is `true` if statistics need to be generated from the observation data.

Type: Boolean

ComputeTime

The approximate CPU time in milliseconds that Amazon Machine Learning spent processing the `DataSource`, normalized and scaled on computation resources. `ComputeTime` is only available if the `DataSource` is in the `COMPLETED` state and the `ComputeStatistics` is set to `true`.

Type: Long

CreatedAt

The time that the `DataSource` was created. The time is expressed in epoch time.

Type: Timestamp

CreatedByIamUser

The AWS user account from which the `DataSource` was created. The account type can be either an AWS root account or an AWS Identity and Access Management (IAM) user account.

Type: String

Pattern: `arn:aws:iam::[0-9]+:((user/.+)|(root))`

DataLocationS3

The location of the data file or directory in Amazon Simple Storage Service (Amazon S3).

Type: String

Length Constraints: Maximum length of 2048.

Pattern: `s3://([^/]+)(/.*)?`

DataRearrangement

A JSON string that represents the splitting and rearrangement requirement used when this DataSource was created.

Type: String

DataSizeInBytes

The total size of observations in the data files.

Type: Long

DataSourceId

The ID assigned to the DataSource at creation. This value should be identical to the value of the DataSourceId in the request.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9_.-]+`

DataSourceSchema

The schema used by all of the data files of this DataSource.

Note: This parameter is provided as part of the verbose format.

Type: String

Length Constraints: Maximum length of 131071.

FinishedAt

The epoch time when Amazon Machine Learning marked the DataSource as COMPLETED or FAILED. FinishedAt is only available when the DataSource is in the COMPLETED or FAILED state.

Type: Timestamp

LastUpdatedAt

The time of the most recent edit to the DataSource. The time is expressed in epoch time.

Type: Timestamp

LogUri

A link to the file containing logs of CreateDataSourceFrom* operations.

Type: String

Message

The user-supplied description of the most recent details about creating the DataSource.

Type: String

Length Constraints: Maximum length of 10240.

Name

A user-supplied name or description of the DataSource.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: .*\\S.*|^\$

NumberOfFiles

The number of data files referenced by the DataSource.

Type: Long

RDSMetadata

The datasource details that are specific to Amazon RDS.

Type: [RDSMetadata](#) object

RedshiftMetadata

Describes the DataSource details specific to Amazon Redshift.

Type: [RedshiftMetadata](#) object

RoleARN

The Amazon Resource Name (ARN) of an [AWS IAM Role](#), such as the following:
arn:aws:iam::account:role/rolename.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 110.

StartedAt

The epoch time when Amazon Machine Learning marked the DataSource as INPROGRESS. StartedAt isn't available if the DataSource is in the PENDING state.

Type: Timestamp

Status

The current status of the DataSource. This element can have one of the following values:

- PENDING - Amazon ML submitted a request to create a DataSource.
- INPROGRESS - The creation process is underway.
- FAILED - The request to create a DataSource did not run to completion. It is not usable.
- COMPLETED - The creation process completed successfully.
- DELETED - The DataSource is marked as deleted. It is not usable.

Type: String

Valid Values: PENDING | INPROGRESS | FAILED | COMPLETED | DELETED

Errors

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

InternalServerErrorException

An error on the server occurred when trying to process a request.

HTTP Status Code: 500

InvalidInputException

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

ResourceNotFoundException

A specified resource cannot be located.

HTTP Status Code: 400

Examples

The following is a sample request and response of the `GetDataSource` operation.

This example illustrates one usage of `GetDataSource`.

Sample Request

```
POST / HTTP/1.1
Host: machinelearning.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AmazonML_20141212.GetDataSource
{"DataSourceId": "17SdAv6WC6r5vACAxF7U", "Verbose": true}
```

Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
{
  {
    "CreatedAt":141045168.275,
    "CreatedByIamUser":"arn:aws:iam::<awsAccountId>:user/testuser",
    "DataLocationS3":"s3://eml-test-EXAMPLE /data.csv",
    "DataRearrangement": "{\\"splitting\\":{\\"percentBegin\\":10,\\"percentEnd\\":60}}",
    "DataSizeInBytes":0,"DataSourceId":"17SdAv6WC6r5vACAxF7U",
    "DataSourceSchema":
    {
      \\"version\\":\\"1.0\\",
      \\"recordAnnotationFieldName\\":null,
      \\"recordWeightFieldName\\":\\"weight\\",
```

```
\ "targetFieldName\" : \"label\",
\ "dataFormat\" : \"CSV\",
\ "dataFileContainsHeader\" : false,
\ "attributes\" :
[
  { \ "attributeName\" : \"obsId\", \ "attributeType\" : \"NUMERIC\" },
  { \ "attributeName\" : \"label\", \ "attributeType\" : \"BINARY\" },
  { \ "attributeName\" : \"weight\", \ "attributeType\" : \"NUMERIC\" },
  { \ "attributeName\" : \"x\", \ "attributeType\" : \"TEXT\" }
],
\ "excludedAttributeNames\" : []
}],
"DataStatisticsStatus" : "COMPLETED",
"LastUpdatedAt" : 141045168.275,
"LogUri" : "https://s3bucket/locationToLogs/logname.tar.gz",
"Name" : "EXAMPLE",
"Status" : "COMPLETED",
"ComputeTime" : "185200",
"FinishedAt" : 141045168.275,
"StartedAt" : 141045168.275
}
}
```

See Also

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

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

GetEvaluation

Returns an Evaluation that includes metadata as well as the current status of the Evaluation.

Request Syntax

```
{  
  "EvaluationId": "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.

[EvaluationId](#)

The ID of the Evaluation to retrieve. The evaluation of each MLModel is recorded and cataloged. The ID provides the means to access the information.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Required: Yes

Response Syntax

```
{  
  "ComputeTime": number,  
  "CreatedAt": number,  
  "CreatedByIamUser": "string",  
  "EvaluationDataSourceId": "string",  
  "EvaluationId": "string",  
  "FinishedAt": number,  
  "InputDataLocationS3": "string",  
  "LastUpdatedAt": number,  
}
```

```
"LogUri": "string",
"Message": "string",
"MLModelId": "string",
"Name": "string",
"PerformanceMetrics": {
  "Properties": {
    "string" : "string"
  }
},
"StartedAt": 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.

ComputeTime

The approximate CPU time in milliseconds that Amazon Machine Learning spent processing the Evaluation, normalized and scaled on computation resources. ComputeTime is only available if the Evaluation is in the COMPLETED state.

Type: Long

CreatedAt

The time that the Evaluation was created. The time is expressed in epoch time.

Type: Timestamp

CreatedByIamUser

The AWS user account that invoked the evaluation. The account type can be either an AWS root account or an AWS Identity and Access Management (IAM) user account.

Type: String

Pattern: `arn:aws:iam::[0-9]+:((user/.+)|(root))`

EvaluationDataSourceId

The DataSource used for this evaluation.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

EvaluationId

The evaluation ID which is same as the EvaluationId in the request.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

FinishedAt

The epoch time when Amazon Machine Learning marked the Evaluation as COMPLETED or FAILED. FinishedAt is only available when the Evaluation is in the COMPLETED or FAILED state.

Type: Timestamp

InputDataLocationS3

The location of the data file or directory in Amazon Simple Storage Service (Amazon S3).

Type: String

Length Constraints: Maximum length of 2048.

Pattern: s3://([^\s/]+)(/.*)?

LastUpdatedAt

The time of the most recent edit to the Evaluation. The time is expressed in epoch time.

Type: Timestamp

LogUri

A link to the file that contains logs of the CreateEvaluation operation.

Type: String

Message

A description of the most recent details about evaluating the `MLModel`.

Type: String

Length Constraints: Maximum length of 10240.

MLModelId

The ID of the `MLModel` that was the focus of the evaluation.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9_.-]+`

Name

A user-supplied name or description of the `Evaluation`.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `.*\S.*|^$`

PerformanceMetrics

Measurements of how well the `MLModel` performed using observations referenced by the `DataSource`. One of the following metric is returned based on the type of the `MLModel`:

- **BinaryAUC:** A binary `MLModel` uses the Area Under the Curve (AUC) technique to measure performance.
- **RegressionRMSE:** A regression `MLModel` uses the Root Mean Square Error (RMSE) technique to measure performance. RMSE measures the difference between predicted and actual values for a single variable.
- **MulticlassAvgFScore:** A multiclass `MLModel` uses the F1 score technique to measure performance.

For more information about performance metrics, please see the [Amazon Machine Learning Developer Guide](#).

Type: [PerformanceMetrics](#) object

StartedAt

The epoch time when Amazon Machine Learning marked the Evaluation as INPROGRESS. StartedAt isn't available if the Evaluation is in the PENDING state.

Type: Timestamp

Status

The status of the evaluation. This element can have one of the following values:

- PENDING - Amazon Machine Language (Amazon ML) submitted a request to evaluate an MLModel.
- INPROGRESS - The evaluation is underway.
- FAILED - The request to evaluate an MLModel did not run to completion. It is not usable.
- COMPLETED - The evaluation process completed successfully.
- DELETED - The Evaluation is marked as deleted. It is not usable.

Type: String

Valid Values: PENDING | INPROGRESS | FAILED | COMPLETED | DELETED

Errors

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

InternalServerErrorException

An error on the server occurred when trying to process a request.

HTTP Status Code: 500

InvalidInputException

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

ResourceNotFoundException

A specified resource cannot be located.

HTTP Status Code: 400

Examples

The following is a sample request and response of the `GetEvaluation` operation.

This example illustrates one usage of `GetEvaluation`.

Sample Request

```
POST / HTTP/1.1
Host: machinelearning.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AmazonML_20141212.GetEvaluation
{"EvaluationId": "ev-2014-09-12-15-14-04-924"}
```

Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
{
  "CreatedAt":1410560805.669,
  "CreatedByIamUser":"arn:aws:iam::<awsAccountId>:user/user",
  "EvaluationDataSourceId":"EXAMPLE-ev-ds-2014-09-12-15-14-04-411",
  "EvaluationId":"ev-2014-09-12-15-14-04-924",
  "InputDataLocationS3": "s3://eml-test-EXAMPLE/example.csv",
  "LastUpdatedAt":1410560805.669,
  "LogUri": "https://s3bucket/locationToLogs/logname.tar.gz",
  "Name":"EXAMPLE",
  "PerformanceMetrics":{"Properties":{}},
  "MLModelId":"EXAMPLE-pr-2014-09-12-15-14-04-924",
  "Status":"COMPLETED",
```

```
"ComputeTime":"185200",  
"FinishedAt":1410560805.669,  
"StartedAt":1410560805.669  
}
```

See Also

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

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

GetMLModel

Returns an `MLModel` that includes detailed metadata, data source information, and the current status of the `MLModel`.

`GetMLModel` provides results in normal or verbose format.

Request Syntax

```
{  
  "MLModelId": "string",  
  "Verbose": 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.

MLModelId

The ID assigned to the `MLModel` at creation.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Required: Yes

Verbose

Specifies whether the `GetMLModel` operation should return `Recipe`.

If true, `Recipe` is returned.

If false, `Recipe` is not returned.

Type: Boolean

Required: No

Response Syntax

```
{
  "ComputeTime": number,
  "CreatedAt": number,
  "CreatedByIamUser": "string",
  "EndpointInfo": {
    "CreatedAt": number,
    "EndpointStatus": "string",
    "EndpointUrl": "string",
    "PeakRequestsPerSecond": number
  },
  "FinishedAt": number,
  "InputDataLocationS3": "string",
  "LastUpdatedAt": number,
  "LogUri": "string",
  "Message": "string",
  "MLModelId": "string",
  "MLModelType": "string",
  "Name": "string",
  "Recipe": "string",
  "Schema": "string",
  "ScoreThreshold": number,
  "ScoreThresholdLastUpdatedAt": number,
  "SizeInBytes": number,
  "StartedAt": number,
  "Status": "string",
  "TrainingDataSourceId": "string",
  "TrainingParameters": {
    "string" : "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.

ComputeTime

The approximate CPU time in milliseconds that Amazon Machine Learning spent processing the `MLModel`, normalized and scaled on computation resources. `ComputeTime` is only available if the `MLModel` is in the `COMPLETED` state.

Type: Long

CreatedAt

The time that the `MLModel` was created. The time is expressed in epoch time.

Type: Timestamp

CreatedByIamUser

The AWS user account from which the `MLModel` was created. The account type can be either an AWS root account or an AWS Identity and Access Management (IAM) user account.

Type: String

Pattern: `arn:aws:iam::[0-9]+:((user/.+)|(root))`

EndpointInfo

The current endpoint of the `MLModel`

Type: [RealtimeEndpointInfo](#) object

FinishedAt

The epoch time when Amazon Machine Learning marked the `MLModel` as `COMPLETED` or `FAILED`. `FinishedAt` is only available when the `MLModel` is in the `COMPLETED` or `FAILED` state.

Type: Timestamp

InputDataLocationS3

The location of the data file or directory in Amazon Simple Storage Service (Amazon S3).

Type: String

Length Constraints: Maximum length of 2048.

Pattern: `s3://([^\s/]+)(/.*)?`

LastUpdatedAt

The time of the most recent edit to the `MLModel`. The time is expressed in epoch time.

Type: Timestamp

LogUri

A link to the file that contains logs of the `CreateMLModel` operation.

Type: String

Message

A description of the most recent details about accessing the `MLModel`.

Type: String

Length Constraints: Maximum length of 10240.

MLModelId

The `MLModel` ID, which is same as the `MLModelId` in the request.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9_.-]+`

MLModelType

Identifies the `MLModel` category. The following are the available types:

- REGRESSION -- Produces a numeric result. For example, "What price should a house be listed at?"
- BINARY -- Produces one of two possible results. For example, "Is this an e-commerce website?"
- MULTICLASS -- Produces one of several possible results. For example, "Is this a HIGH, LOW or MEDIUM risk trade?"

Type: String

Valid Values: REGRESSION | BINARY | MULTICLASS

Name

A user-supplied name or description of the `MLModel`.

Type: String

Length Constraints: Maximum length of 1024.

Recipe

The recipe to use when training the `MLModel`. The `Recipe` provides detailed information about the observation data to use during training, and manipulations to perform on the observation data during training.

Note: This parameter is provided as part of the verbose format.

Type: String

Length Constraints: Maximum length of 131071.

Schema

The schema used by all of the data files referenced by the `DataSource`.

Note: This parameter is provided as part of the verbose format.

Type: String

Length Constraints: Maximum length of 131071.

ScoreThreshold

The scoring threshold is used in binary classification `MLModel` models. It marks the boundary between a positive prediction and a negative prediction.

Output values greater than or equal to the threshold receive a positive result from the `MLModel`, such as `true`. Output values less than the threshold receive a negative response from the `MLModel`, such as `false`.

Type: Float

ScoreThresholdLastUpdatedAt

The time of the most recent edit to the `ScoreThreshold`. The time is expressed in epoch time.

Type: Timestamp

SizeInBytes

Long integer type that is a 64-bit signed number.

Type: Long

StartedAt

The epoch time when Amazon Machine Learning marked the `MLModel` as `INPROGRESS`. `StartedAt` isn't available if the `MLModel` is in the `PENDING` state.

Type: Timestamp

Status

The current status of the `MLModel`. This element can have one of the following values:

- `PENDING` - Amazon Machine Learning (Amazon ML) submitted a request to describe a `MLModel`.
- `INPROGRESS` - The request is processing.
- `FAILED` - The request did not run to completion. The ML model isn't usable.
- `COMPLETED` - The request completed successfully.
- `DELETED` - The `MLModel` is marked as deleted. It isn't usable.

Type: String

Valid Values: `PENDING` | `INPROGRESS` | `FAILED` | `COMPLETED` | `DELETED`

TrainingDataSourceId

The ID of the training `DataSource`.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9_.-]+`

TrainingParameters

A list of the training parameters in the `MLModel`. The list is implemented as a map of key-value pairs.

The following is the current set of training parameters:

- `sgd.maxMLModelSizeInBytes` - The maximum allowed size of the model. Depending on the input data, the size of the model might affect its performance.

The value is an integer that ranges from 100000 to 2147483648. The default value is 33554432.

- `sgd.maxPasses` - The number of times that the training process traverses the observations to build the `MLModel`. The value is an integer that ranges from 1 to 100. The default value is 10.
- `sgd.shuffleType` - Whether Amazon ML shuffles the training data. Shuffling data improves a model's ability to find the optimal solution for a variety of data types. The valid values are `auto` and `none`. The default value is `none`. We strongly recommend that you shuffle your data.
- `sgd.l1RegularizationAmount` - The coefficient regularization L1 norm. It controls overfitting the data by penalizing large coefficients. This tends to drive coefficients to zero, resulting in a sparse feature set. If you use this parameter, start by specifying a small value, such as `1.0E-08`.

The value is a double that ranges from 0 to `MAX_DOUBLE`. The default is to not use L1 normalization. This parameter can't be used when L2 is specified. Use this parameter sparingly.

- `sgd.l2RegularizationAmount` - The coefficient regularization L2 norm. It controls overfitting the data by penalizing large coefficients. This tends to drive coefficients to small, nonzero values. If you use this parameter, start by specifying a small value, such as `1.0E-08`.

The value is a double that ranges from 0 to `MAX_DOUBLE`. The default is to not use L2 normalization. This parameter can't be used when L1 is specified. Use this parameter sparingly.

Type: String to string map

Errors

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

InternalServerError

An error on the server occurred when trying to process a request.

HTTP Status Code: 500

InvalidInputException

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

ResourceNotFoundException

A specified resource cannot be located.

HTTP Status Code: 400

Examples

The following is a sample request and response of the GetMLModel operation.

This example illustrates one usage of GetMLModel.

Sample Request

```
POST / HTTP/1.1
Host: machinelearning.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AmazonML_20141212.GetMLModel
{"MLModelId": "EXAMPLE-pr-2014-09-12-15-14-04-924", "Verbose": true}
```

Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
{
  "CreatedAt":1410560408.264,
  "CreatedByIamUser":"arn:aws:iam::<awsAccountId>:user/user",
  "HasCalibration":false,
  "LastUpdatedAt":1410560416.338,
  "LogUri": "https://s3bucket/locationToLogs/logname.tar.gz",
  "Name":"Name-ml-model",
  "Algorithm": "sgd",
  "MLModelId":"ml-model",
```

```

"EndpointInfo": {
  "CreatedAt": 1424378682.266,
  "EndpointStatus": "READY",
  "EndpointUrl": "<realtime endpoint from Amazon Machine Learning for ml-model>",
  "PeakRequestsPerSecond": 200}
"MLModelType": "BINARY",
"Recipe": "{
  \"groups\": {},
  \\n\\\"assignments\\\": {},
  \\n\\\"dependencies\\\": {},
  \\n\\\"outputs\\\": [\\n    \\\"'x'\\\"\\n]
}\\n\",
\"Schema\": \"{
\\\"version\\\":\\\"1.0\\\",
\\\"rowId\\\":null,
\\\"rowWeight\\\":null,
\\\"targetAttributeName\\\":\\\"y\\\",
\\\"dataFormat\\\":\\\"CSV\\\",
\\\"dataFileContainsHeader\\\":false,
\\\"attributes\\\":[{\\\"attributeName\\\":\\\"age\\\",
\\\"attributeType\\\":\\\"NUMERIC\\\",
{\\\"attributeName\\\":\\\"job\\\",
\\\"attributeType\\\":\\\"CATEGORICAL\\\",
{\\\"attributeName\\\":\\\"contact\\\",
\\\"attributeType\\\":\\\"CATEGORICAL\\\",
{\\\"attributeName\\\":\\\"month\\\",
\\\"attributeType\\\":\\\"CATEGORICAL\\\",
{\\\"attributeName\\\":\\\"day_of_week\\\",
\\\"attributeType\\\":\\\"CATEGORICAL\\\",
{\\\"attributeName\\\":\\\"duration\\\",
\\\"attributeType\\\":\\\"NUMERIC\\\",
{\\\"attributeName\\\":\\\"poutcome\\\",
\\\"attributeType\\\":\\\"CATEGORICAL\\\",
{\\\"attributeName\\\":\\\"nr_employed\\\",
\\\"attributeType\\\":\\\"NUMERIC\\\",
{\\\"attributeName\\\":\\\"y\\\",
\\\"attributeType\\\":\\\"BINARY\\\"}],
\\\"excludedAttributeNames\\\":[]}\"
\"SizeInBytes\": 400374,
\"Status\": \"COMPLETED\",
\"ComputeTime\": \"185200\",
\"FinishedAt\": 1410560416.338,
\"StartedAt\": 1410560409.264,
\"TrainingDataSourceId\": \"EXAMPLE-tr-ds-2014-09-12-15-14-04-989\",

```

```
"TrainingParameters":{
  "algorithm":"sgd",
  "sgd.l1":"0.0",
  "sgd.l2":"0.0",
  "sgd.likelihood":"logreg",
  "sgd.passes":"1"
}
```

See Also

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

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

Predict

Generates a prediction for the observation using the specified ML Model.

Note: Not all response parameters will be populated. Whether a response parameter is populated depends on the type of model requested.

Request Syntax

```
{
  "MLModelId": "string",
  "PredictEndpoint": "string",
  "Record": {
    "string" : "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.

MLModelId

A unique identifier of the MLModel.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Required: Yes

PredictEndpoint

The predicted endpoint for the input.

Type: String

Required: Yes

Record

A map of variable name-value pairs that represent an observation.

Type: String to string map

Required: Yes

Response Syntax

```
{
  "Prediction": {
    "details": {
      "string" : "string"
    },
    "predictedLabel": "string",
    "predictedScores": {
      "string" : number
    },
    "predictedValue": 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.

Prediction

The output from a Predict operation:

- Details - Contains the following attributes:
DetailsAttributes.PREDICTIVE_MODEL_TYPE - REGRESSION | BINARY | MULTICLASS
DetailsAttributes.ALGORITHM - SGD
- PredictedLabel - Present for either a BINARY or MULTICLASS MLModel request.
- PredictedScores - Contains the raw classification score corresponding to each label.
- PredictedValue - Present for a REGRESSION MLModel request.

Type: [Prediction](#) object

Errors

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

InternalServerError

An error on the server occurred when trying to process a request.

HTTP Status Code: 500

InvalidInputException

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

LimitExceededException

The subscriber exceeded the maximum number of operations. This exception can occur when listing objects such as DataSource.

HTTP Status Code: 400

PredictorNotMountedException

The exception is thrown when a predict request is made to an unmounted MLModel.

HTTP Status Code: 400

ResourceNotFoundException

A specified resource cannot be located.

HTTP Status Code: 400

Examples

The following is a sample request and response of the Predict operation.

This example illustrates one usage of Predict.

Sample Request

```
POST / HTTP/1.1
```

```
Host: <hostname from the GetMLModel response EndpointUrl object>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AmazonML_20141212.Predict
{"MLModelId" : "exampleMLModelId",
  "Record" : {
    "ExampleData" : "exampleValue"
  },
  "PredictEndpoint" : "<realtime endpoint from Amazon Machine Learning for
exampleMLModelId>"
}
```

Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
{"PredictedLabel" : "0"
  "PredictedScores" : {
    "0" : "0.446588516"
  },
  "Details" : {
    "PredictiveModelType" : "BINARY",
    "Algorithm" : "SGD"
  }
}
```

See Also

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

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

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

UpdateBatchPrediction

Updates the BatchPredictionName of a BatchPrediction.

You can use the GetBatchPrediction operation to view the contents of the updated data element.

Request Syntax

```
{  
  "BatchPredictionId": "string",  
  "BatchPredictionName": "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.

[BatchPredictionId](#)

The ID assigned to the BatchPrediction during creation.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Required: Yes

[BatchPredictionName](#)

A new user-supplied name or description of the BatchPrediction.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: .*\\S.*|^\$

Required: Yes

Response Syntax

```
{  
  "BatchPredictionId": "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.

[BatchPredictionId](#)

The ID assigned to the BatchPrediction during creation. This value should be identical to the value of the BatchPredictionId in the request.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Errors

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

InternalServerError

An error on the server occurred when trying to process a request.

HTTP Status Code: 500

InvalidInputException

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

ResourceNotFoundException

A specified resource cannot be located.

HTTP Status Code: 400

Examples

The following is a sample request and response of the `UpdateBatchPrediction` operation.

This example illustrates one usage of `UpdateBatchPrediction`.

Sample Request

```
POST / HTTP/1.1
Host: machinelearning.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
  requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AmazonML_20141212.UpdateBatchPrediction
{
  "BatchPredictionId": "bp-exampleBatchPredictionId",
  "BatchPredictionName": "bp-exampleBatchPredictionName"
}
```

Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
{"BatchPredictionId": "bp-exampleBatchPredictionId"}
```

See Also

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

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

UpdateDataSource

Updates the DataSourceName of a DataSource.

You can use the GetDataSource operation to view the contents of the updated data element.

Request Syntax

```
{  
  "DataSourceId": "string",  
  "DataSourceName": "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.

DataSourceId

The ID assigned to the DataSource during creation.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Required: Yes

DataSourceName

A new user-supplied name or description of the DataSource that will replace the current description.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: .*\\S.*|^\$

Required: Yes

Response Syntax

```
{  
  "DataSourceId": "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.

[DataSourceId](#)

The ID assigned to the DataSource during creation. This value should be identical to the value of the DataSourceID in the request.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Errors

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

InternalServerError

An error on the server occurred when trying to process a request.

HTTP Status Code: 500

InvalidInputException

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

ResourceNotFoundException

A specified resource cannot be located.

HTTP Status Code: 400

Examples

The following is a sample request and response of the `UpdateDataSource` operation.

This example illustrates one usage of `UpdateDataSource`.

Sample Request

```
POST / HTTP/1.1
Host: machinelearning.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
  requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AmazonML_20141212.UpdateDataSource
{
  "DataSourceId": "ds-exampleDataSourceId",
  "DataSourceName": "ds-exampleDataSourceName"
}
```

Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
{"DataSourceId": "ds-exampleDataSourceId"}
```

See Also

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

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

UpdateEvaluation

Updates the EvaluationName of an Evaluation.

You can use the GetEvaluation operation to view the contents of the updated data element.

Request Syntax

```
{  
  "EvaluationId": "string",  
  "EvaluationName": "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.

EvaluationId

The ID assigned to the Evaluation during creation.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Required: Yes

EvaluationName

A new user-supplied name or description of the Evaluation that will replace the current content.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: .*\\S.*|^\$

Required: Yes

Response Syntax

```
{  
  "EvaluationId": "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.

EvaluationId

The ID assigned to the Evaluation during creation. This value should be identical to the value of the Evaluation in the request.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Errors

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

InternalServerError

An error on the server occurred when trying to process a request.

HTTP Status Code: 500

InvalidInputException

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

ResourceNotFoundException

A specified resource cannot be located.

HTTP Status Code: 400

Examples

The following is a sample request and response of the `UpdateEvaluation` operation.

This example illustrates one usage of `UpdateEvaluation`.

Sample Request

```
POST / HTTP/1.1
Host: machinelearning.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AmazonML_20141212.UpdateEvaluation
{
  "EvaluationId": "ev-exampleEvaluationId",
  "EvaluationName": "ev-exampleEvaluationName"
}
```

Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
{"EvaluationId": "ev-exampleEvaluationId"}
```

See Also

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

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

UpdateMLModel

Updates the MLModelName and the ScoreThreshold of an MLModel.

You can use the GetMLModel operation to view the contents of the updated data element.

Request Syntax

```
{
  "MLModelId": "string",
  "MLModelName": "string",
  "ScoreThreshold": 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.

MLModelId

The ID assigned to the MLModel during creation.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Required: Yes

MLModelName

A user-supplied name or description of the MLModel.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: .*\\S.*|^\$

Required: No

ScoreThreshold

The `ScoreThreshold` used in binary classification `MLModel` that marks the boundary between a positive prediction and a negative prediction.

Output values greater than or equal to the `ScoreThreshold` receive a positive result from the `MLModel`, such as `true`. Output values less than the `ScoreThreshold` receive a negative response from the `MLModel`, such as `false`.

Type: Float

Required: No

Response Syntax

```
{
  "MLModelId": "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.

MLModelId

The ID assigned to the `MLModel` during creation. This value should be identical to the value of the `MLModelID` in the request.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9_.-]+`

Errors

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

InternalServerError

An error on the server occurred when trying to process a request.

HTTP Status Code: 500

InvalidInputException

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

ResourceNotFoundException

A specified resource cannot be located.

HTTP Status Code: 400

Examples

The following is a sample request and response of the UpdateMLModel operation.

This example illustrates one usage of UpdateMLModel.

Sample Request

```
POST / HTTP/1.1
Host: machinelearning.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AmazonML_20141212.UpdateMLModel
{
  "MLModelId": "ml-exampleModelId",
  "MLModelName": "ml-exampleModelName",
  "ScoreThreshold": 0.8
}
```

Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
{"MLModelId": "pr-exampleModelId"}
```

See Also

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

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

Data Types

The Amazon Machine Learning 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:

- [BatchPrediction](#)
- [DataSource](#)
- [Evaluation](#)
- [MLModel](#)
- [PerformanceMetrics](#)
- [Prediction](#)
- [RDSDatabase](#)
- [RDSDatabaseCredentials](#)
- [RDSDatabaseSpec](#)
- [RDSMetadata](#)
- [RealtimeEndpointInfo](#)
- [RedshiftDatabase](#)
- [RedshiftDatabaseCredentials](#)
- [RedshiftDatabaseSpec](#)
- [RedshiftMetadata](#)
- [S3DataSpec](#)
- [Tag](#)

BatchPrediction

Represents the output of a `GetBatchPrediction` operation.

The content consists of the detailed metadata, the status, and the data file information of a `BatchPrediction`.

Contents

BatchPredictionDataSourceId

The ID of the `DataSource` that points to the group of observations to predict.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9_.-]+`

Required: No

BatchPredictionId

The ID assigned to the `BatchPrediction` at creation. This value should be identical to the value of the `BatchPredictionID` in the request.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9_.-]+`

Required: No

ComputeTime

Long integer type that is a 64-bit signed number.

Type: Long

Required: No

CreatedAt

The time that the `BatchPrediction` was created. The time is expressed in epoch time.

Type: Timestamp

Required: No

CreatedByIamUser

The AWS user account that invoked the BatchPrediction. The account type can be either an AWS root account or an AWS Identity and Access Management (IAM) user account.

Type: String

Pattern: `arn:aws:iam:[0-9]+:((user/.+)|(root))`

Required: No

FinishedAt

A timestamp represented in epoch time.

Type: Timestamp

Required: No

InputDataLocationS3

The location of the data file or directory in Amazon Simple Storage Service (Amazon S3).

Type: String

Length Constraints: Maximum length of 2048.

Pattern: `s3://([^\s]+)(/.*)?`

Required: No

InvalidRecordCount

Long integer type that is a 64-bit signed number.

Type: Long

Required: No

LastUpdatedAt

The time of the most recent edit to the BatchPrediction. The time is expressed in epoch time.

Type: Timestamp

Required: No

Message

A description of the most recent details about processing the batch prediction request.

Type: String

Length Constraints: Maximum length of 10240.

Required: No

MLModelId

The ID of the `MLModel` that generated predictions for the `BatchPrediction` request.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9_.-]+`

Required: No

Name

A user-supplied name or description of the `BatchPrediction`.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `.*\S.*|^$`

Required: No

OutputUri

The location of an Amazon S3 bucket or directory to receive the operation results. The following substrings are not allowed in the `s3` key portion of the `outputURI` field: `:', '//'`, `'/.'`, `'/../'`.

Type: String

Length Constraints: Maximum length of 2048.

Pattern: `s3://([^/]+)(/.*)?`

Required: No

StartedAt

A timestamp represented in epoch time.

Type: Timestamp

Required: No

Status

The status of the BatchPrediction. This element can have one of the following values:

- PENDING - Amazon Machine Learning (Amazon ML) submitted a request to generate predictions for a batch of observations.
- INPROGRESS - The process is underway.
- FAILED - The request to perform a batch prediction did not run to completion. It is not usable.
- COMPLETED - The batch prediction process completed successfully.
- DELETED - The BatchPrediction is marked as deleted. It is not usable.

Type: String

Valid Values: PENDING | INPROGRESS | FAILED | COMPLETED | DELETED

Required: No

TotalRecordCount

Long integer type that is a 64-bit signed number.

Type: Long

Required: No

See Also

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

- [AWS SDK for C++](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

DataSource

Represents the output of the `GetDataSource` operation.

The content consists of the detailed metadata and data file information and the current status of the `DataSource`.

Contents

ComputeStatistics

The parameter is `true` if statistics need to be generated from the observation data.

Type: Boolean

Required: No

ComputeTime

Long integer type that is a 64-bit signed number.

Type: Long

Required: No

CreatedAt

The time that the `DataSource` was created. The time is expressed in epoch time.

Type: Timestamp

Required: No

CreatedByIamUser

The AWS user account from which the `DataSource` was created. The account type can be either an AWS root account or an AWS Identity and Access Management (IAM) user account.

Type: String

Pattern: `arn:aws:iam::[0-9]+:((user/.+)|(root))`

Required: No

DataLocationS3

The location and name of the data in Amazon Simple Storage Service (Amazon S3) that is used by a DataSource.

Type: String

Length Constraints: Maximum length of 2048.

Pattern: s3://([^\s/]+)(/.*)?

Required: No

DataRearrangement

A JSON string that represents the splitting and rearrangement requirement used when this DataSource was created.

Type: String

Required: No

DataSourceSizeInBytes

The total number of observations contained in the data files that the DataSource references.

Type: Long

Required: No

DataSourceId

The ID that is assigned to the DataSource during creation.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Required: No

FinishedAt

A timestamp represented in epoch time.

Type: Timestamp

Required: No

LastUpdatedAt

The time of the most recent edit to the BatchPrediction. The time is expressed in epoch time.

Type: Timestamp

Required: No

Message

A description of the most recent details about creating the DataSource.

Type: String

Length Constraints: Maximum length of 10240.

Required: No

Name

A user-supplied name or description of the DataSource.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `.*\S.*|^$`

Required: No

NumberOfFiles

The number of data files referenced by the DataSource.

Type: Long

Required: No

RDSMetadata

The datasource details that are specific to Amazon RDS.

Type: [RDSMetadata](#) object

Required: No

RedshiftMetadata

Describes the DataSource details specific to Amazon Redshift.

Type: [RedshiftMetadata](#) object

Required: No

RoleARN

The Amazon Resource Name (ARN) of an [AWS IAM Role](#), such as the following:
arn:aws:iam::account:role/rolename.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 110.

Required: No

StartedAt

A timestamp represented in epoch time.

Type: Timestamp

Required: No

Status

The current status of the DataSource. This element can have one of the following values:

- PENDING - Amazon Machine Learning (Amazon ML) submitted a request to create a DataSource.
- INPROGRESS - The creation process is underway.
- FAILED - The request to create a DataSource did not run to completion. It is not usable.
- COMPLETED - The creation process completed successfully.
- DELETED - The DataSource is marked as deleted. It is not usable.

Type: String

Valid Values: PENDING | INPROGRESS | FAILED | COMPLETED | DELETED

Required: No

See Also

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

- [AWS SDK for C++](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

Evaluation

Represents the output of `GetEvaluation` operation.

The content consists of the detailed metadata and data file information and the current status of the `Evaluation`.

Contents

ComputeTime

Long integer type that is a 64-bit signed number.

Type: Long

Required: No

CreatedAt

The time that the `Evaluation` was created. The time is expressed in epoch time.

Type: Timestamp

Required: No

CreatedByIamUser

The AWS user account that invoked the evaluation. The account type can be either an AWS root account or an AWS Identity and Access Management (IAM) user account.

Type: String

Pattern: `arn:aws:iam:[0-9]+:(user/.+)|(root))`

Required: No

EvaluationDataSourceId

The ID of the `DataSource` that is used to evaluate the `MLModel`.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9_.-]+`

Required: No

EvaluationId

The ID that is assigned to the `Evaluation` at creation.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9_.-]+`

Required: No

FinishedAt

A timestamp represented in epoch time.

Type: Timestamp

Required: No

InputDataLocationS3

The location and name of the data in Amazon Simple Storage Server (Amazon S3) that is used in the evaluation.

Type: String

Length Constraints: Maximum length of 2048.

Pattern: `s3://([^\s/]+)(/.*)?`

Required: No

LastUpdatedAt

The time of the most recent edit to the `Evaluation`. The time is expressed in epoch time.

Type: Timestamp

Required: No

Message

A description of the most recent details about evaluating the `MLModel`.

Type: String

Length Constraints: Maximum length of 10240.

Required: No

MLModelId

The ID of the `MLModel` that is the focus of the evaluation.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9_.-]+`

Required: No

Name

A user-supplied name or description of the `Evaluation`.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `.*\S.*|^$`

Required: No

PerformanceMetrics

Measurements of how well the `MLModel` performed, using observations referenced by the `DataSource`. One of the following metrics is returned, based on the type of the `MLModel`:

- **BinaryAUC:** A binary `MLModel` uses the Area Under the Curve (AUC) technique to measure performance.
- **RegressionRMSE:** A regression `MLModel` uses the Root Mean Square Error (RMSE) technique to measure performance. RMSE measures the difference between predicted and actual values for a single variable.
- **MulticlassAvgFScore:** A multiclass `MLModel` uses the F1 score technique to measure performance.

For more information about performance metrics, please see the [Amazon Machine Learning Developer Guide](#).

Type: [PerformanceMetrics](#) object

Required: No

StartedAt

A timestamp represented in epoch time.

Type: Timestamp

Required: No

Status

The status of the evaluation. This element can have one of the following values:

- PENDING - Amazon Machine Learning (Amazon ML) submitted a request to evaluate an `MLModel`.
- INPROGRESS - The evaluation is underway.
- FAILED - The request to evaluate an `MLModel` did not run to completion. It is not usable.
- COMPLETED - The evaluation process completed successfully.
- DELETED - The Evaluation is marked as deleted. It is not usable.

Type: String

Valid Values: PENDING | INPROGRESS | FAILED | COMPLETED | DELETED

Required: No

See Also

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

- [AWS SDK for C++](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

MLModel

Represents the output of a `GetMLModel` operation.

The content consists of the detailed metadata and the current status of the `MLModel`.

Contents

Algorithm

The algorithm used to train the `MLModel`. The following algorithm is supported:

- `SGD` -- Stochastic gradient descent. The goal of `SGD` is to minimize the gradient of the loss function.

Type: String

Valid Values: `sgd`

Required: No

ComputeTime

Long integer type that is a 64-bit signed number.

Type: Long

Required: No

CreatedAt

The time that the `MLModel` was created. The time is expressed in epoch time.

Type: Timestamp

Required: No

CreatedByIamUser

The AWS user account from which the `MLModel` was created. The account type can be either an AWS root account or an AWS Identity and Access Management (IAM) user account.

Type: String

Pattern: `arn:aws:iam::[0-9]+:((user/.+)|(root))`

Required: No

EndpointInfo

The current endpoint of the `MLModel`.

Type: [RealtimeEndpointInfo](#) object

Required: No

FinishedAt

A timestamp represented in epoch time.

Type: Timestamp

Required: No

InputDataLocationS3

The location of the data file or directory in Amazon Simple Storage Service (Amazon S3).

Type: String

Length Constraints: Maximum length of 2048.

Pattern: `s3://([^\s]+)(/.*)?`

Required: No

LastUpdatedAt

The time of the most recent edit to the `MLModel`. The time is expressed in epoch time.

Type: Timestamp

Required: No

Message

A description of the most recent details about accessing the `MLModel`.

Type: String

Length Constraints: Maximum length of 10240.

Required: No

MLModelId

The ID assigned to the `MLModel` at creation.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9_.-]+`

Required: No

MLModelType

Identifies the `MLModel` category. The following are the available types:

- REGRESSION - Produces a numeric result. For example, "What price should a house be listed at?"
- BINARY - Produces one of two possible results. For example, "Is this a child-friendly web site?"
- MULTICLASS - Produces one of several possible results. For example, "Is this a HIGH-, LOW-, or MEDIUM-risk trade?"

Type: String

Valid Values: REGRESSION | BINARY | MULTICLASS

Required: No

Name

A user-supplied name or description of the `MLModel`.

Type: String

Length Constraints: Maximum length of 1024.

Required: No

ScoreThreshold

The score threshold for the `MLModel`.

Type: Float

Required: No

ScoreThresholdLastUpdatedAt

The time of the most recent edit to the ScoreThreshold. The time is expressed in epoch time.

Type: Timestamp

Required: No

SizeInBytes

Long integer type that is a 64-bit signed number.

Type: Long

Required: No

StartedAt

A timestamp represented in epoch time.

Type: Timestamp

Required: No

Status

The current status of an MLModel. This element can have one of the following values:

- PENDING - Amazon Machine Learning (Amazon ML) submitted a request to create an MLModel.
- INPROGRESS - The creation process is underway.
- FAILED - The request to create an MLModel didn't run to completion. The model isn't usable.
- COMPLETED - The creation process completed successfully.
- DELETED - The MLModel is marked as deleted. It isn't usable.

Type: String

Valid Values: PENDING | INPROGRESS | FAILED | COMPLETED | DELETED

Required: No

TrainingDataSourceId

The ID of the training DataSource. The CreateMLModel operation uses the TrainingDataSourceId.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: [a-zA-Z0-9_.-]+

Required: No

TrainingParameters

A list of the training parameters in the MLModel. The list is implemented as a map of key-value pairs.

The following is the current set of training parameters:

- `sgd.maxMLModelSizeInBytes` - The maximum allowed size of the model. Depending on the input data, the size of the model might affect its performance.

The value is an integer that ranges from 100000 to 2147483648. The default value is 33554432.

- `sgd.maxPasses` - The number of times that the training process traverses the observations to build the MLModel. The value is an integer that ranges from 1 to 100. The default value is 10.
- `sgd.shuffleType` - Whether Amazon ML shuffles the training data. Shuffling the data improves a model's ability to find the optimal solution for a variety of data types. The valid values are auto and none. The default value is none.
- `sgd.l1RegularizationAmount` - The coefficient regularization L1 norm, which controls overfitting the data by penalizing large coefficients. This parameter tends to drive coefficients to zero, resulting in sparse feature set. If you use this parameter, start by specifying a small value, such as `1.0E-08`.

The value is a double that ranges from 0 to MAX_DOUBLE. The default is to not use L1 normalization. This parameter can't be used when L2 is specified. Use this parameter sparingly.

- `sgd.l2RegularizationAmount` - The coefficient regularization L2 norm, which controls overfitting the data by penalizing large coefficients. This tends to drive coefficients to small, nonzero values. If you use this parameter, start by specifying a small value, such as `1.0E-08`.

The value is a double that ranges from 0 to `MAX_DOUBLE`. The default is to not use L2 normalization. This parameter can't be used when L1 is specified. Use this parameter sparingly.

Type: String to string map

Required: No

See Also

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

- [AWS SDK for C++](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

PerformanceMetrics

Measurements of how well the `MLModel` performed on known observations. One of the following metrics is returned, based on the type of the `MLModel`:

- **BinaryAUC**: The binary `MLModel` uses the Area Under the Curve (AUC) technique to measure performance.
- **RegressionRMSE**: The regression `MLModel` uses the Root Mean Square Error (RMSE) technique to measure performance. RMSE measures the difference between predicted and actual values for a single variable.
- **MulticlassAvgFScore**: The multiclass `MLModel` uses the F1 score technique to measure performance.

For more information about performance metrics, please see the [Amazon Machine Learning Developer Guide](#).

Contents

Properties

Specific performance metric information.

Type: String to string map

Required: No

See Also

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

- [AWS SDK for C++](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

Prediction

The output from a Predict operation:

- **Details** - Contains the following attributes: `DetailsAttributes.PREDICTIVE_MODEL_TYPE` - REGRESSION | BINARY | MULTICLASS `DetailsAttributes.ALGORITHM` - SGD
- **PredictedLabel** - Present for either a BINARY or MULTICLASS `MLModel` request.
- **PredictedScores** - Contains the raw classification score corresponding to each label.
- **PredictedValue** - Present for a REGRESSION `MLModel` request.

Contents

details

Provides any additional details regarding the prediction.

Type: String to string map

Valid Keys: `PredictiveModelType` | `Algorithm`

Value Length Constraints: Minimum length of 1.

Required: No

predictedLabel

The prediction label for either a BINARY or MULTICLASS `MLModel`.

Type: String

Length Constraints: Minimum length of 1.

Required: No

predictedScores

Provides the raw classification score corresponding to each label.

Type: String to float map

Key Length Constraints: Minimum length of 1.

Required: No

predictedValue

The prediction value for REGRESSION MLModel.

Type: Float

Required: No

See Also

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

- [AWS SDK for C++](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

RDSDatabase

The database details of an Amazon RDS database.

Contents

DatabaseName

The name of a database hosted on an RDS DB instance.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Required: Yes

InstanceIdentifier

The ID of an RDS DB instance.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 63.

Required: Yes

See Also

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

- [AWS SDK for C++](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

RDSDatabaseCredentials

The database credentials to connect to a database on an RDS DB instance.

Contents

Password

The password to be used by Amazon ML to connect to a database on an RDS DB instance. The password should have sufficient permissions to execute the `RDSSelectQuery` query.

Type: String

Length Constraints: Minimum length of 8. Maximum length of 128.

Required: Yes

Username

The username to be used by Amazon ML to connect to database on an Amazon RDS instance. The username should have sufficient permissions to execute an `RDSSelectSqlQuery` query.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 128.

Required: Yes

See Also

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

- [AWS SDK for C++](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

RDSDataSpec

The data specification of an Amazon Relational Database Service (Amazon RDS) DataSource.

Contents

DatabaseCredentials

The AWS Identity and Access Management (IAM) credentials that are used connect to the Amazon RDS database.

Type: [RDSDatabaseCredentials](#) object

Required: Yes

DatabaseInformation

Describes the DatabaseName and InstanceIdentifier of an Amazon RDS database.

Type: [RDSDatabase](#) object

Required: Yes

ResourceRole

The role (DataPipelineDefaultResourceRole) assumed by an Amazon Elastic Compute Cloud (Amazon EC2) instance to carry out the copy operation from Amazon RDS to an Amazon S3 task. For more information, see [Role templates](#) for data pipelines.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Required: Yes

S3StagingLocation

The Amazon S3 location for staging Amazon RDS data. The data retrieved from Amazon RDS using SelectSqlQuery is stored in this location.

Type: String

Length Constraints: Maximum length of 2048.

Pattern: s3://([^\s/]+)(/.*)?

Required: Yes

SecurityGroupIds

The security group IDs to be used to access a VPC-based RDS DB instance. Ensure that there are appropriate ingress rules set up to allow access to the RDS DB instance. This attribute is used by Data Pipeline to carry out the copy operation from Amazon RDS to an Amazon S3 task.

Type: Array of strings

Length Constraints: Minimum length of 1. Maximum length of 255.

Required: Yes

SelectSqlQuery

The query that is used to retrieve the observation data for the DataSource.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 16777216.

Required: Yes

ServiceRole

The role (DataPipelineDefaultRole) assumed by AWS Data Pipeline service to monitor the progress of the copy task from Amazon RDS to Amazon S3. For more information, see [Role templates](#) for data pipelines.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Required: Yes

SubnetId

The subnet ID to be used to access a VPC-based RDS DB instance. This attribute is used by Data Pipeline to carry out the copy task from Amazon RDS to Amazon S3.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 255.

Required: Yes

DataRearrangement

A JSON string that represents the splitting and rearrangement processing to be applied to a DataSource. If the DataRearrangement parameter is not provided, all of the input data is used to create the Datasource.

There are multiple parameters that control what data is used to create a datasource:

- **percentBegin**

Use percentBegin to indicate the beginning of the range of the data used to create the Datasource. If you do not include percentBegin and percentEnd, Amazon ML includes all of the data when creating the datasource.

- **percentEnd**

Use percentEnd to indicate the end of the range of the data used to create the Datasource. If you do not include percentBegin and percentEnd, Amazon ML includes all of the data when creating the datasource.

- **complement**

The complement parameter instructs Amazon ML to use the data that is not included in the range of percentBegin to percentEnd to create a datasource. The complement parameter is useful if you need to create complementary datasources for training and evaluation. To create a complementary datasource, use the same values for percentBegin and percentEnd, along with the complement parameter.

For example, the following two datasources do not share any data, and can be used to train and evaluate a model. The first datasource has 25 percent of the data, and the second one has 75 percent of the data.

Datasource for evaluation: {"splitting":{"percentBegin":0, "percentEnd":25}}

Datasource for training: {"splitting":{"percentBegin":0, "percentEnd":25, "complement":"true"}}

- **strategy**

To change how Amazon ML splits the data for a datasource, use the strategy parameter.

The default value for the `strategy` parameter is `sequential`, meaning that Amazon ML takes all of the data records between the `percentBegin` and `percentEnd` parameters for the `datasource`, in the order that the records appear in the input data.

The following two `DataRearrangement` lines are examples of sequentially ordered training and evaluation `datasources`:

```
Datasource for evaluation: {"splitting":{"percentBegin":70, "percentEnd":100,
"strategy":"sequential"}}
```

```
Datasource for training: {"splitting":{"percentBegin":70, "percentEnd":100,
"strategy":"sequential", "complement":"true"}}
```

To randomly split the input data into the proportions indicated by the `percentBegin` and `percentEnd` parameters, set the `strategy` parameter to `random` and provide a string that is used as the seed value for the random data splitting (for example, you can use the S3 path to your data as the random seed string). If you choose the random split strategy, Amazon ML assigns each row of data a pseudo-random number between 0 and 100, and then selects the rows that have an assigned number between `percentBegin` and `percentEnd`. Pseudo-random numbers are assigned using both the input seed string value and the byte offset as a seed, so changing the data results in a different split. Any existing ordering is preserved. The random splitting strategy ensures that variables in the training and evaluation data are distributed similarly. It is useful in the cases where the input data may have an implicit sort order, which would otherwise result in training and evaluation `datasources` containing non-similar data records.

The following two `DataRearrangement` lines are examples of non-sequentially ordered training and evaluation `datasources`:

```
Datasource for evaluation: {"splitting":{"percentBegin":70, "percentEnd":100,
"strategy":"random", "strategyParams": {"randomSeed":"RANDOMSEED"}}
```

```
Datasource for training: {"splitting":{"percentBegin":70, "percentEnd":100,
"strategy":"random", "strategyParams": {"randomSeed":"RANDOMSEED"},
"complement":"true"}}
```

Type: String

Required: No

DataSchema

A JSON string that represents the schema for an Amazon RDS DataSource. The DataSchema defines the structure of the observation data in the data file(s) referenced in the DataSource.

A DataSchema is not required if you specify a DataSchemaUri

Define your DataSchema as a series of key-value pairs. `attributes` and `excludedAttributeName`s have an array of key-value pairs for their value. Use the following format to define your DataSchema.

```
{ "version": "1.0",  
  
  "recordAnnotationFieldName": "F1",  
  
  "recordWeightFieldName": "F2",  
  
  "targetAttributeName": "F3",  
  
  "dataFormat": "CSV",  
  
  "dataFileContainsHeader": true,  
  
  "attributes": [  
  
    { "attributeName": "F1", "attributeType": "TEXT" }, { "attributeName": "F2", "attributeType":  
    "NUMERIC" }, { "attributeName": "F3", "attributeType": "CATEGORICAL" }, { "attributeName":  
    "F4", "attributeType": "NUMERIC" }, { "attributeName": "F5", "attributeType":  
    "CATEGORICAL" }, { "attributeName": "F6", "attributeType": "TEXT" }, { "attributeName": "F7",  
    "attributeType": "WEIGHTED_INT_SEQUENCE" }, { "attributeName": "F8", "attributeType":  
    "WEIGHTED_STRING_SEQUENCE" } ],  
  
  "excludedAttributeNames": [ "F6" ] }
```

Type: String

Length Constraints: Maximum length of 131071.

Required: No

DataSchemaUri

The Amazon S3 location of the DataSchema.

Type: String

Length Constraints: Maximum length of 2048.

Pattern: s3://([^\s]+)(/.*)?

Required: No

See Also

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

- [AWS SDK for C++](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

RDSMetadata

The datasource details that are specific to Amazon RDS.

Contents

Database

The database details required to connect to an Amazon RDS.

Type: [RDSDatabase](#) object

Required: No

DatabaseUserName

The username to be used by Amazon ML to connect to database on an Amazon RDS instance. The username should have sufficient permissions to execute an `RDSSelectSqlQuery` query.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 128.

Required: No

DataPipelineId

The ID of the Data Pipeline instance that is used to carry to copy data from Amazon RDS to Amazon S3. You can use the ID to find details about the instance in the Data Pipeline console.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Required: No

ResourceRole

The role (`DataPipelineDefaultResourceRole`) assumed by an Amazon EC2 instance to carry out the copy task from Amazon RDS to Amazon S3. For more information, see [Role templates](#) for data pipelines.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Required: No

SelectSqlQuery

The SQL query that is supplied during [CreateDataSourceFromRDS](#). Returns only if Verbose is true in GetDataSourceInput.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 16777216.

Required: No

ServiceRole

The role (DataPipelineDefaultRole) assumed by the Data Pipeline service to monitor the progress of the copy task from Amazon RDS to Amazon S3. For more information, see [Role templates](#) for data pipelines.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Required: No

See Also

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

- [AWS SDK for C++](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

RealtimeEndpointInfo

Describes the real-time endpoint information for an `MLModel`.

Contents

CreatedAt

The time that the request to create the real-time endpoint for the `MLModel` was received. The time is expressed in epoch time.

Type: Timestamp

Required: No

EndpointStatus

The current status of the real-time endpoint for the `MLModel`. This element can have one of the following values:

- NONE - Endpoint does not exist or was previously deleted.
- READY - Endpoint is ready to be used for real-time predictions.
- UPDATING - Updating/creating the endpoint.

Type: String

Valid Values: NONE | READY | UPDATING | FAILED

Required: No

EndpointUrl

The URI that specifies where to send real-time prediction requests for the `MLModel`.

Note: The application must wait until the real-time endpoint is ready before using this URI.

Type: String

Length Constraints: Maximum length of 2048.

Pattern: `https://[a-zA-Z0-9-.*]*\.amazon(aws)?\.com[/]?`

Required: No

PeakRequestsPerSecond

The maximum processing rate for the real-time endpoint for `MLModel`, measured in incoming requests per second.

Type: Integer

Required: No

See Also

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

- [AWS SDK for C++](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

RedshiftDatabase

Describes the database details required to connect to an Amazon Redshift database.

Contents

ClusterIdentifier

The ID of an Amazon Redshift cluster.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 63.

Required: Yes

DatabaseName

The name of a database hosted on an Amazon Redshift cluster.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 127.

Required: Yes

See Also

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

- [AWS SDK for C++](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

RedshiftDatabaseCredentials

Describes the database credentials for connecting to a database on an Amazon Redshift cluster.

Contents

Password

A password to be used by Amazon ML to connect to a database on an Amazon Redshift cluster. The password should have sufficient permissions to execute a `RedshiftSelectSqlQuery` query. The password should be valid for an Amazon Redshift [USER](#).

Type: String

Length Constraints: Minimum length of 8. Maximum length of 64.

Required: Yes

Username

A username to be used by Amazon Machine Learning (Amazon ML) to connect to a database on an Amazon Redshift cluster. The username should have sufficient permissions to execute the `RedshiftSelectSqlQuery` query. The username should be valid for an Amazon Redshift [USER](#).

Type: String

Length Constraints: Minimum length of 1. Maximum length of 128.

Required: Yes

See Also

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

- [AWS SDK for C++](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

RedshiftDataSpec

Describes the data specification of an Amazon Redshift DataSource.

Contents

DatabaseCredentials

Describes AWS Identity and Access Management (IAM) credentials that are used connect to the Amazon Redshift database.

Type: [RedshiftDatabaseCredentials](#) object

Required: Yes

DatabaseInformation

Describes the DatabaseName and ClusterIdentifier for an Amazon Redshift DataSource.

Type: [RedshiftDatabase](#) object

Required: Yes

S3StagingLocation

Describes an Amazon S3 location to store the result set of the SelectSqlQuery query.

Type: String

Length Constraints: Maximum length of 2048.

Pattern: s3://([^\s/]+)(/.*)?

Required: Yes

SelectSqlQuery

Describes the SQL Query to execute on an Amazon Redshift database for an Amazon Redshift DataSource.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 16777216.

Required: Yes

DataRearrangement

A JSON string that represents the splitting and rearrangement processing to be applied to a DataSource. If the DataRearrangement parameter is not provided, all of the input data is used to create the DataSource.

There are multiple parameters that control what data is used to create a datasource:

- **percentBegin**

Use percentBegin to indicate the beginning of the range of the data used to create the DataSource. If you do not include percentBegin and percentEnd, Amazon ML includes all of the data when creating the datasource.

- **percentEnd**

Use percentEnd to indicate the end of the range of the data used to create the DataSource. If you do not include percentBegin and percentEnd, Amazon ML includes all of the data when creating the datasource.

- **complement**

The complement parameter instructs Amazon ML to use the data that is not included in the range of percentBegin to percentEnd to create a datasource. The complement parameter is useful if you need to create complementary datasources for training and evaluation. To create a complementary datasource, use the same values for percentBegin and percentEnd, along with the complement parameter.

For example, the following two datasources do not share any data, and can be used to train and evaluate a model. The first datasource has 25 percent of the data, and the second one has 75 percent of the data.

Datasource for evaluation: {"splitting":{"percentBegin":0, "percentEnd":25}}

Datasource for training: {"splitting":{"percentBegin":0, "percentEnd":25, "complement":"true"}}

- **strategy**

To change how Amazon ML splits the data for a datasource, use the strategy parameter.

The default value for the `strategy` parameter is `sequential`, meaning that Amazon ML takes all of the data records between the `percentBegin` and `percentEnd` parameters for the `datasource`, in the order that the records appear in the input data.

The following two `DataRearrangement` lines are examples of sequentially ordered training and evaluation `datasources`:

```
Datasource for evaluation: {"splitting":{"percentBegin":70, "percentEnd":100,
"strategy":"sequential"}}
```

```
Datasource for training: {"splitting":{"percentBegin":70, "percentEnd":100,
"strategy":"sequential", "complement":"true"}}
```

To randomly split the input data into the proportions indicated by the `percentBegin` and `percentEnd` parameters, set the `strategy` parameter to `random` and provide a string that is used as the seed value for the random data splitting (for example, you can use the S3 path to your data as the random seed string). If you choose the random split strategy, Amazon ML assigns each row of data a pseudo-random number between 0 and 100, and then selects the rows that have an assigned number between `percentBegin` and `percentEnd`. Pseudo-random numbers are assigned using both the input seed string value and the byte offset as a seed, so changing the data results in a different split. Any existing ordering is preserved. The random splitting strategy ensures that variables in the training and evaluation data are distributed similarly. It is useful in the cases where the input data may have an implicit sort order, which would otherwise result in training and evaluation `datasources` containing non-similar data records.

The following two `DataRearrangement` lines are examples of non-sequentially ordered training and evaluation `datasources`:

```
Datasource for evaluation: {"splitting":{"percentBegin":70, "percentEnd":100,
"strategy":"random", "strategyParams": {"randomSeed":"RANDOMSEED"}}
```

```
Datasource for training: {"splitting":{"percentBegin":70, "percentEnd":100,
"strategy":"random", "strategyParams": {"randomSeed":"RANDOMSEED"},
"complement":"true"}}
```

Type: String

Required: No

DataSchema

A JSON string that represents the schema for an Amazon Redshift DataSource. The DataSchema defines the structure of the observation data in the data file(s) referenced in the DataSource.

A DataSchema is not required if you specify a DataSchemaUri.

Define your DataSchema as a series of key-value pairs. attributes and excludedAttributeNames have an array of key-value pairs for their value. Use the following format to define your DataSchema.

```
{ "version": "1.0",  
  
  "recordAnnotationFieldName": "F1",  
  
  "recordWeightFieldName": "F2",  
  
  "targetAttributeName": "F3",  
  
  "dataFormat": "CSV",  
  
  "dataFileContainsHeader": true,  
  
  "attributes": [  
  
    { "attributeName": "F1", "attributeType": "TEXT" }, { "attributeName": "F2", "attributeType":  
    "NUMERIC" }, { "attributeName": "F3", "attributeType": "CATEGORICAL" }, { "attributeName":  
    "F4", "attributeType": "NUMERIC" }, { "attributeName": "F5", "attributeType":  
    "CATEGORICAL" }, { "attributeName": "F6", "attributeType": "TEXT" }, { "attributeName": "F7",  
    "attributeType": "WEIGHTED_INT_SEQUENCE" }, { "attributeName": "F8", "attributeType":  
    "WEIGHTED_STRING_SEQUENCE" } ],  
  
  "excludedAttributeNames": [ "F6" ] }
```

Type: String

Length Constraints: Maximum length of 131071.

Required: No

DataSchemaUri

Describes the schema location for an Amazon Redshift DataSource.

Type: String

Length Constraints: Maximum length of 2048.

Pattern: `s3://([^\s]+)(/.*)?`

Required: No

See Also

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

- [AWS SDK for C++](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

RedshiftMetadata

Describes the DataSource details specific to Amazon Redshift.

Contents

DatabaseUserName

A username to be used by Amazon Machine Learning (Amazon ML) to connect to a database on an Amazon Redshift cluster. The username should have sufficient permissions to execute the RedshiftSelectSqlQuery query. The username should be valid for an Amazon Redshift [USER](#).

Type: String

Length Constraints: Minimum length of 1. Maximum length of 128.

Required: No

RedshiftDatabase

Describes the database details required to connect to an Amazon Redshift database.

Type: [RedshiftDatabase](#) object

Required: No

SelectSqlQuery

The SQL query that is specified during [CreateDataSourceFromRedshift](#). Returns only if Verbose is true in GetDataSourceInput.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 16777216.

Required: No

See Also

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

- [AWS SDK for C++](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

S3DataSpec

Describes the data specification of a DataSource.

Contents

DataLocationS3

The location of the data file(s) used by a DataSource. The URI specifies a data file or an Amazon Simple Storage Service (Amazon S3) directory or bucket containing data files.

Type: String

Length Constraints: Maximum length of 2048.

Pattern: `s3://([^\s/]+)(/.*)?`

Required: Yes

DataRearrangement

A JSON string that represents the splitting and rearrangement processing to be applied to a DataSource. If the DataRearrangement parameter is not provided, all of the input data is used to create the Datasource.

There are multiple parameters that control what data is used to create a datasource:

- **percentBegin**

Use percentBegin to indicate the beginning of the range of the data used to create the Datasource. If you do not include percentBegin and percentEnd, Amazon ML includes all of the data when creating the datasource.

- **percentEnd**

Use percentEnd to indicate the end of the range of the data used to create the Datasource. If you do not include percentBegin and percentEnd, Amazon ML includes all of the data when creating the datasource.

- **complement**

The complement parameter instructs Amazon ML to use the data that is not included in the range of percentBegin to percentEnd to create a datasource. The complement

parameter is useful if you need to create complementary datasources for training and evaluation. To create a complementary datasource, use the same values for `percentBegin` and `percentEnd`, along with the `complement` parameter.

For example, the following two datasources do not share any data, and can be used to train and evaluate a model. The first datasource has 25 percent of the data, and the second one has 75 percent of the data.

Datasource for evaluation: `{"splitting":{"percentBegin":0, "percentEnd":25}}`

Datasource for training: `{"splitting":{"percentBegin":0, "percentEnd":25, "complement":"true"}}`

- **strategy**

To change how Amazon ML splits the data for a datasource, use the `strategy` parameter.

The default value for the `strategy` parameter is `sequential`, meaning that Amazon ML takes all of the data records between the `percentBegin` and `percentEnd` parameters for the datasource, in the order that the records appear in the input data.

The following two `DataRearrangement` lines are examples of sequentially ordered training and evaluation datasources:

Datasource for evaluation: `{"splitting":{"percentBegin":70, "percentEnd":100, "strategy":"sequential"}}`

Datasource for training: `{"splitting":{"percentBegin":70, "percentEnd":100, "strategy":"sequential", "complement":"true"}}`

To randomly split the input data into the proportions indicated by the `percentBegin` and `percentEnd` parameters, set the `strategy` parameter to `random` and provide a string that is used as the seed value for the random data splitting (for example, you can use the S3 path to your data as the random seed string). If you choose the random split strategy, Amazon ML assigns each row of data a pseudo-random number between 0 and 100, and then selects the rows that have an assigned number between `percentBegin` and `percentEnd`. Pseudo-random numbers are assigned using both the input seed string value and the byte offset as a seed, so changing the data results in a different split. Any existing ordering is preserved. The random splitting strategy ensures that variables in the training and evaluation data are distributed similarly. It is useful in the cases where the input data may have an implicit sort

order, which would otherwise result in training and evaluation datasources containing non-similar data records.

The following two `DataRearrangement` lines are examples of non-sequentially ordered training and evaluation datasources:

```
Datasource for evaluation: {"splitting":{"percentBegin":70, "percentEnd":100,  
"strategy":"random", "strategyParams": { "randomSeed":"RANDOMSEED"}}}
```

```
Datasource for training: {"splitting":{"percentBegin":70, "percentEnd":100,  
"strategy":"random", "strategyParams": {"randomSeed":"RANDOMSEED"},  
"complement":"true"}}
```

Type: String

Required: No

DataSchema

A JSON string that represents the schema for an Amazon S3 `DataSource`. The `DataSchema` defines the structure of the observation data in the data file(s) referenced in the `DataSource`.

You must provide either the `DataSchema` or the `DataSchemaLocationS3`.

Define your `DataSchema` as a series of key-value pairs. `attributes` and `excludedAttributeName`s have an array of key-value pairs for their value. Use the following format to define your `DataSchema`.

```
{ "version": "1.0",  
  
  "recordAnnotationFieldName": "F1",  
  
  "recordWeightFieldName": "F2",  
  
  "targetAttributeName": "F3",  
  
  "dataFormat": "CSV",  
  
  "dataFileContainsHeader": true,  
  
  "attributes": [  
  
    { "attributeName": "F1", "attributeType": "TEXT" }, { "attributeName": "F2", "attributeType":  
    "NUMERIC" }, { "attributeName": "F3", "attributeType": "CATEGORICAL" }, { "attributeName":
```

```
"F4", "attributeType": "NUMERIC" }, { "attributeName": "F5", "attributeType":  
"CATEGORICAL" }, { "attributeName": "F6", "attributeType": "TEXT" }, { "attributeName": "F7",  
"attributeType": "WEIGHTED_INT_SEQUENCE" }, { "attributeName": "F8", "attributeType":  
"WEIGHTED_STRING_SEQUENCE" } ],  
  
"excludedAttributeNames": [ "F6" ] }
```

Type: String

Length Constraints: Maximum length of 131071.

Required: No

DataSchemaLocationS3

Describes the schema location in Amazon S3. You must provide either the DataSchema or the DataSchemaLocationS3.

Type: String

Length Constraints: Maximum length of 2048.

Pattern: s3://([^\s/]+)(/.*)?

Required: No

See Also

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

- [AWS SDK for C++](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

Tag

A custom key-value pair associated with an ML object, such as an ML model.

Contents

Key

A unique identifier for the tag. Valid characters include Unicode letters, digits, white space, `_`, `.`, `/`, `=`, `+`, `-`, `%`, and `@`.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 128.

Pattern: `^([\p{L}\p{Z}\p{N}_.: /+=\ -@]*)$`

Required: No

Value

An optional string, typically used to describe or define the tag. Valid characters include Unicode letters, digits, white space, `_`, `.`, `/`, `=`, `+`, `-`, `%`, and `@`.

Type: String

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

Pattern: `^([\p{L}\p{Z}\p{N}_.: /+=\ -@]*)$`

Required: No

See Also

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

- [AWS SDK for C++](#)
- [AWS SDK for Java V2](#)
- [AWS 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 AWS 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 AWS 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 AWS 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 AWS Security Token Service (AWS STS). For a list of services that support temporary security credentials from AWS STS, see [AWS services that work with IAM](#) in the *IAM User Guide*.

Condition: If you're using temporary security credentials from AWS 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 AWS 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 AWS 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 AWS 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 AWS 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 AWS 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 AWS service.

HTTP Status Code: 400