



API Reference

MachineLearning



API Version 2014-12-12

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MachineLearning: API Reference

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Welcome

Definition of the public APIs exposed by Amazon Machine Learning

This document was last published on March 20, 2024.

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](#)
- [AWS SDK for Java V2](#)

- [AWS SDK for JavaScript V3](#)
- [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: .*\\$.*|^\$

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

InternalServerError

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

HTTP Status Code: 500

InvalidArgumentException

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](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [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: .*\\$.*|^\$

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.

DataSourceld

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

InternalServerError

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

HTTP Status Code: 500

InvalidArgumentException

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-XXXXX",  
    "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](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [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

InternalServerError

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

HTTP Status Code: 500

InvalidArgumentException

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](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [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

[DataSourceld](#)

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: .*\\$.*|^\$

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

InternalServerError

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

HTTP Status Code: 500

InvalidArgumentException

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>.amazonaws.com
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=content-type;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](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [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: .*\\$.*|^\$

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

InternalServerError

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

HTTP Status Code: 500

InvalidArgumentException

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>.amazonaws.com
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=content-type;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](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [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: .*\\$.*|^\$

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

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

InternalServerError

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

HTTP Status Code: 500

InvalidArgumentException

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](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [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

InvalidArgumentException

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](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [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

InvalidArgumentException

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](#)

- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [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.

DataSourceld

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

InvalidArgumentException

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](#)

- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [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

InvalidArgumentException

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](#)

- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [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

InvalidArgumentException

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](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [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](#).

InternalServerError

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

HTTP Status Code: 500

InvalidArgumentException

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](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [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](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [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    "GE": "string",  
    "GT": "string",  
    "LE": "string",  
    "Limit    "LT": "string",  
    "NE": "string",  
    "NextToken    "Prefix    "SortOrder}
```

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: .*\\$.*|^\$

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

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

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: . *\\$. * | ^\$

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: . *\\$. * | ^\$

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

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

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

InvalidArgumentException

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>.amazonaws.com
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=content-type;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](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)

- [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: .*\\$|^\\$

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: .*\\$. * | ^\$

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: .*\\$. * | ^\$

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

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

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

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: .*\\$.* | ^\$

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

InvalidArgumentException

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",
            "LastUpdatedAt": 1428018286.654,
            "Name": "exampleDatasource2",
            "Status": "COMPLETED",
            "ComputeTime": "185200",
            "FinishedAt": "1428018286.654",
            "StartedAt": "1428008287.324"
        }
    ]
}
```

```
        "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](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [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    "GE": "string",  
    "GT": "string",  
    "LE": "string",  
    "Limit    "LT": "string",  
    "NE": "string",  
    "NextToken    "Prefix    "SortOrder}
```

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: .*\\$.*|^\$

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

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

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: .*\\$.*|^\$

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: .*\\$.*|^\$

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: .*\\$.*|^\$

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

InvalidArgumentException

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](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [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    "GE": "string",  
    "GT": "string",  
    "LE": "string",  
    "Limit    "LT": "string",  
    "NE": "string",  
    "NextToken    "Prefix    "SortOrder}
```

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: .*\\$.*|^\$

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

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

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

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

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

InvalidArgumentException

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](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [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": [  
    {  
        "Keystring",  
        "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

InvalidArgumentException

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>.amazonaws.com
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=content-type;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](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [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,  
    "LastModifiedAt": number,  
    "LastModifiedByIamUser": "string",  
    "Status": "PENDING'|'IN_PROGRESS'|'COMPLETED'|'FAILED'|'SKIPPED",  
    "StatusDetail": "string",  
    "TotalRecordCount": 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://([/]+)(/.*)?

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

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](#).

InternalServerError

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

HTTP Status Code: 500

InvalidArgumentException

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/username.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](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [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,  
    "RDSDMetadata": {  
        "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

DataSourceInBytes

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: .*\\$.* | ^\$

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](#).

InternalServerError

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

HTTP Status Code: 500

InvalidArgumentException

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}}",
    "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/hostname.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](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [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://([^\?]+)(/.*)?

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: .*\\$.*|^\$

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](#).

InternalServerError

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

HTTP Status Code: 500

InvalidArgumentException

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/hostname.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](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [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://([/]+)(/.*)?`

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

InvalidArgumentException

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\": {},  
    \"assignments\": {},  
    \"dependencies\": {},  
    \"outputs\": [\"x\"]  
  },  
  "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](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [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](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [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: .*\\$. *|^\$

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

InvalidArgumentException

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>.amazonaws.com
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=content-type;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](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [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: .*\\$.*|^\$

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.

DataSourceld

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

InvalidArgumentException

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>.amazonaws.com
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=content-type;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](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [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: .*\\$.*|^\$

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

InvalidArgumentException

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>.amazonaws.com
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=content-type;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](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [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: .*\\$.*|^\$

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

InvalidArgumentException

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](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [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](#)
- [RDSDataSpec](#)
- [RDSMetadata](#)
- [RealtimeEndpointInfo](#)
- [RedshiftDatabase](#)
- [RedshiftDatabaseCredentials](#)
- [RedshiftDataSpec](#)
- [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 Batch Prediction.

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://([/]+)(/.*)?`

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: .*\\$.*|^\$

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 Go](#)
- [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://([^\/]+)(/.*)?`

Required: No

DataRearrangement

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

Type: String

Required: No

DataServiceInBytes

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: . *\\$. * | ^\$

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 Go](#)
- [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://([/]+)(/.*)?

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: .*\\$.*|^\$

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 Go](#)
- [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://([^\?]+)(/.*)?

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 Go](#)
- [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 Go](#)
- [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 Go](#)
- [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 Go](#)
- [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 Go](#)
- [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://([^\/]+)(/.*)?

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 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

The Amazon S3 location of the DataSchema.

Type: String

Length Constraints: Maximum length of 2048.

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

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 Go](#)
- [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 Go](#)
- [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 Go](#)
- [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 Go](#)
- [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 Go](#)
- [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://([^\/]+)(/.*)?

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

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 Go](#)
- [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 Go](#)
- [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://([/]*)(/.*)?

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

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 Go](#)
- [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 Go](#)
- [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

ValidationException

The input fails to satisfy the constraints specified by an AWS service.

HTTP Status Code: 400