
Amazon Athena

Amazon Athena Documentation

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Amazon Athena: Amazon Athena Documentation

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Table of Contents

Welcome	1
Actions	2
BatchGetNamedQuery	3
Request Syntax	3
Request Parameters	3
Response Syntax	3
Response Elements	3
Errors	4
See Also	4
BatchGetQueryExecution	5
Request Syntax	5
Request Parameters	5
Response Syntax	5
Response Elements	6
Errors	6
See Also	6
CreateNamedQuery	8
Request Syntax	8
Request Parameters	8
Response Syntax	9
Response Elements	9
Errors	9
See Also	10
DeleteNamedQuery	11
Request Syntax	11
Request Parameters	11
Response Elements	11
Errors	11
See Also	11
GetNamedQuery	13
Request Syntax	13
Request Parameters	13
Response Syntax	13
Response Elements	13
Errors	13
See Also	14
GetQueryExecution	15
Request Syntax	15
Request Parameters	15
Response Syntax	15
Response Elements	16
Errors	16
See Also	16
GetQueryResults	17
Request Syntax	17
Request Parameters	17
Response Syntax	17
Response Elements	18
Errors	18
See Also	18
ListNamedQueries	20
Request Syntax	20
Request Parameters	20
Response Syntax	20

Response Elements	20
Errors	21
See Also	21
ListQueryExecutions	22
Request Syntax	22
Request Parameters	22
Response Syntax	22
Response Elements	22
Errors	23
See Also	23
StartQueryExecution	24
Request Syntax	24
Request Parameters	24
Response Syntax	25
Response Elements	25
Errors	25
See Also	25
StopQueryExecution	27
Request Syntax	27
Request Parameters	27
Response Elements	27
Errors	27
See Also	27
Data Types	29
ColumnInfo	30
Contents	30
See Also	31
Datum	32
Contents	32
See Also	32
EncryptionConfiguration	33
Contents	33
See Also	33
NamedQuery	34
Contents	34
See Also	34
QueryExecution	36
Contents	36
See Also	36
QueryExecutionContext	38
Contents	38
See Also	38
QueryExecutionStatistics	39
Contents	39
See Also	39
QueryExecutionStatus	40
Contents	40
See Also	40
ResultConfiguration	41
Contents	41
See Also	41
ResultSet	42
Contents	42
See Also	42
ResultSetMetadata	43
Contents	43
See Also	43

Row	44
Contents	44
See Also	44
UnprocessedNamedQueryId	45
Contents	45
See Also	45
UnprocessedQueryExecutionId	46
Contents	46
See Also	46
Common Parameters	47
Common Errors	49

Welcome

Amazon Athena is an interactive query service that lets you use standard SQL to analyze data directly in Amazon S3. You can point Athena at your data in Amazon S3 and run ad-hoc queries and get results in seconds. Athena is serverless, so there is no infrastructure to set up or manage. You pay only for the queries you run. Athena scales automatically—executing queries in parallel—so results are fast, even with large datasets and complex queries. For more information, see [What is Amazon Athena](#) in the *Amazon Athena User Guide*.

If you connect to Athena using the JDBC driver, use version 1.1.0 of the driver or later with the Amazon Athena API. Earlier version drivers do not support the API. For more information and to download the driver, see [Accessing Amazon Athena with JDBC](#).

For code samples using the AWS SDK for Java, see [Examples and Code Samples](#) in the *Amazon Athena User Guide*.

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Actions

The following actions are supported:

- [BatchGetNamedQuery](#) (p. 3)
- [BatchGetQueryExecution](#) (p. 5)
- [CreateNamedQuery](#) (p. 8)
- [DeleteNamedQuery](#) (p. 11)
- [GetNamedQuery](#) (p. 13)
- [GetQueryExecution](#) (p. 15)
- [GetQueryResults](#) (p. 17)
- [ListNamedQueries](#) (p. 20)
- [ListQueryExecutions](#) (p. 22)
- [StartQueryExecution](#) (p. 24)
- [StopQueryExecution](#) (p. 27)

BatchGetNamedQuery

Returns the details of a single named query or a list of up to 50 queries, which you provide as an array of query ID strings. Use [ListNamedQueries \(p. 20\)](#) to get the list of named query IDs. If information could not be retrieved for a submitted query ID, information about the query ID submitted is listed under [UnprocessedNamedQueryId \(p. 45\)](#). Named queries are different from executed queries. Use [BatchGetQueryExecution \(p. 5\)](#) to get details about each unique query execution, and [ListQueryExecutions \(p. 22\)](#) to get a list of query execution IDs.

Request Syntax

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

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters \(p. 47\)](#).

The request accepts the following data in JSON format.

NamedQueryIds (p. 3)

An array of query IDs.

Type: Array of strings

Array Members: Minimum number of 1 item. Maximum number of 50 items.

Required: Yes

Response Syntax

```
{  
  "NamedQueries": [  
    {  
      "Database": "string",  
      "Description": "string",  
      "Name": "string",  
      "NamedQueryId": "string",  
      "QueryString": "string"  
    }  
  ],  
  "UnprocessedNamedQueryIds": [  
    {  
      "ErrorCode": "string",  
      "ErrorMessage": "string",  
      "NamedQueryId": "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.

NamedQueries (p. 3)

Information about the named query IDs submitted.

Type: Array of [NamedQuery \(p. 34\)](#) objects

UnprocessedNamedQueryIds (p. 3)

Information about provided query IDs.

Type: Array of [UnprocessedNamedQueryId \(p. 45\)](#) objects

Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 49\)](#).

InternalServerErrorException

Indicates a platform issue, which may be due to a transient condition or outage.

HTTP Status Code: 500

InvalidRequestException

Indicates that something is wrong with the input to the request. For example, a required parameter may be missing or out of range.

HTTP Status Code: 400

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

BatchGetQueryExecution

Returns the details of a single query execution or a list of up to 50 query executions, which you provide as an array of query execution ID strings. To get a list of query execution IDs, use [ListQueryExecutions](#) (p. 22). Query executions are different from named (saved) queries. Use [BatchGetNamedQuery](#) (p. 3) to get details about named queries.

Request Syntax

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

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#) (p. 47).

The request accepts the following data in JSON format.

QueryExecutionIds (p. 5)

An array of query execution IDs.

Type: Array of strings

Array Members: Minimum number of 1 item. Maximum number of 50 items.

Required: Yes

Response Syntax

```
{  
  "QueryExecutions": [  
    {  
      "Query": "string",  
      "QueryExecutionContext": {  
        "Database": "string"  
      },  
      "QueryExecutionId": "string",  
      "ResultConfiguration": {  
        "EncryptionConfiguration": {  
          "EncryptionOption": "string",  
          "KmsKey": "string"  
        },  
        "OutputLocation": "string"  
      },  
      "Statistics": {  
        "DataScannedInBytes": number,  
        "EngineExecutionTimeInMillis": number  
      },  
      "Status": {  
        "CompletionDateTime": number,  
        "State": "string",  
        "StateChangeReason": "string",  
        "SubmissionDateTime": number  
      }  
    }  
  ]  
}
```

```
    }  
  ],  
  "UnprocessedQueryExecutionIds": [  
    {  
      "ErrorCode": "string",  
      "ErrorMessage": "string",  
      "QueryExecutionId": "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.

QueryExecutions (p. 5)

Information about a query execution.

Type: Array of [QueryExecution \(p. 36\)](#) objects

UnprocessedQueryExecutionIds (p. 5)

Information about the query executions that failed to run.

Type: Array of [UnprocessedQueryExecutionId \(p. 46\)](#) objects

Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 49\)](#).

InternalServerError

Indicates a platform issue, which may be due to a transient condition or outage.

HTTP Status Code: 500

InvalidRequestException

Indicates that something is wrong with the input to the request. For example, a required parameter may be missing or out of range.

HTTP Status Code: 400

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

- [AWS SDK for Python](#)
- [AWS SDK for Ruby V2](#)

CreateNamedQuery

Creates a named query.

For code samples using the AWS SDK for Java, see [Examples and Code Samples](#) in the *Amazon Athena User Guide*.

Request Syntax

```
{
  "ClientRequestToken": "string",
  "Database": "string",
  "Description": "string",
  "Name": "string",
  "QueryString": "string"
}
```

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#) (p. 47).

The request accepts the following data in JSON format.

[ClientRequestToken](#) (p. 8)

A unique case-sensitive string used to ensure the request to create the query is idempotent (executes only once). If another `CreateNamedQuery` request is received, the same response is returned and another query is not created. If a parameter has changed, for example, the `QueryString`, an error is returned.

Important

This token is listed as not required because AWS SDKs (for example the AWS SDK for Java) auto-generate the token for users. If you are not using the AWS SDK or the AWS CLI, you must provide this token or the action will fail.

Type: String

Length Constraints: Minimum length of 32. Maximum length of 128.

Required: No

[Database](#) (p. 8)

The database to which the query belongs.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 32.

Required: Yes

[Description](#) (p. 8)

A brief explanation of the query.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Required: No

Name (p. 8)

The plain language name for the query.

Type: String

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

Required: Yes

QueryString (p. 8)

The text of the query itself. In other words, all query statements.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 262144.

Required: Yes

Response Syntax

```
{  
  "NamedQueryId": "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.

NamedQueryId (p. 9)

The unique ID of the query.

Type: String

Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 49\)](#).

InternalServerErrorException

Indicates a platform issue, which may be due to a transient condition or outage.

HTTP Status Code: 500

InvalidRequestException

Indicates that something is wrong with the input to the request. For example, a required parameter may be missing or out of range.

HTTP Status Code: 400

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

DeleteNamedQuery

Deletes a named query.

For code samples using the AWS SDK for Java, see [Examples and Code Samples](#) in the *Amazon Athena User Guide*.

Request Syntax

```
{  
  "NamedQueryId": "string"  
}
```

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#) (p. 47).

The request accepts the following data in JSON format.

NamedQueryId (p. 11)

The unique ID of the query to delete.

Type: String

Required: Yes

Response Elements

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

Errors

For information about the errors that are common to all actions, see [Common Errors](#) (p. 49).

InternalServerErrorException

Indicates a platform issue, which may be due to a transient condition or outage.

HTTP Status Code: 500

InvalidRequestException

Indicates that something is wrong with the input to the request. For example, a required parameter may be missing or out of range.

HTTP Status Code: 400

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

GetNamedQuery

Returns information about a single query.

Request Syntax

```
{  
  "NamedQueryId": "string"  
}
```

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters \(p. 47\)](#).

The request accepts the following data in JSON format.

NamedQueryId (p. 13)

The unique ID of the query. Use [ListNamedQueries \(p. 20\)](#) to get query IDs.

Type: String

Required: Yes

Response Syntax

```
{  
  "NamedQuery": {  
    "Database": "string",  
    "Description": "string",  
    "Name": "string",  
    "NamedQueryId": "string",  
    "QueryString": "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.

NamedQuery (p. 13)

Information about the query.

Type: [NamedQuery \(p. 34\)](#) object

Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 49\)](#).

InternalServerErrorException

Indicates a platform issue, which may be due to a transient condition or outage.

HTTP Status Code: 500

InvalidRequestException

Indicates that something is wrong with the input to the request. For example, a required parameter may be missing or out of range.

HTTP Status Code: 400

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

GetQueryExecution

Returns information about a single execution of a query. Each time a query executes, information about the query execution is saved with a unique ID.

Request Syntax

```
{  
  "QueryExecutionId": "string"  
}
```

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#) (p. 47).

The request accepts the following data in JSON format.

QueryExecutionId (p. 15)

The unique ID of the query execution.

Type: String

Required: Yes

Response Syntax

```
{  
  "QueryExecution": {  
    "Query": "string",  
    "QueryExecutionContext": {  
      "Database": "string"  
    },  
    "QueryExecutionId": "string",  
    "ResultConfiguration": {  
      "EncryptionConfiguration": {  
        "EncryptionOption": "string",  
        "KmsKey": "string"  
      },  
      "OutputLocation": "string"  
    },  
    "Statistics": {  
      "DataScannedInBytes": number,  
      "EngineExecutionTimeInMillis": number  
    },  
    "Status": {  
      "CompletionDateTime": number,  
      "State": "string",  
      "StateChangeReason": "string",  
      "SubmissionDateTime": 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.

QueryExecution (p. 15)

Information about the query execution.

Type: [QueryExecution](#) (p. 36) object

Errors

For information about the errors that are common to all actions, see [Common Errors](#) (p. 49).

InternalServerErrorException

Indicates a platform issue, which may be due to a transient condition or outage.

HTTP Status Code: 500

InvalidRequestException

Indicates that something is wrong with the input to the request. For example, a required parameter may be missing or out of range.

HTTP Status Code: 400

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

GetQueryResults

Returns the results of a single query execution specified by `QueryExecutionId`. This request does not execute the query but returns results. Use [StartQueryExecution \(p. 24\)](#) to run a query.

Request Syntax

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

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters \(p. 47\)](#).

The request accepts the following data in JSON format.

MaxResults (p. 17)

The maximum number of results (rows) to return in this request.

Type: Integer

Valid Range: Minimum value of 0. Maximum value of 1000.

Required: No

NextToken (p. 17)

The token that specifies where to start pagination if a previous request was truncated.

Type: String

Required: No

QueryExecutionId (p. 17)

The unique ID of the query execution.

Type: String

Required: Yes

Response Syntax

```
{
  "NextToken": "string",
  "ResultSet": {
    "ResultSetMetadata": {
      "ColumnInfo": [
        {
          "CaseSensitive": boolean,
          "CatalogName": "string",
          "Label": "string",
          "Name": "string",
```

```
        "Nullable": "string",
        "Precision": number,
        "Scale": number,
        "SchemaName": "string",
        "TableName": "string",
        "Type": "string"
    }
  ],
},
"Rows": [
  {
    "Data": [
      {
        "VarCharValue": "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 (p. 17)

A token to be used by the next request if this request is truncated.

Type: String

ResultSet (p. 17)

The results of the query execution.

Type: [ResultSet](#) (p. 42) object

Errors

For information about the errors that are common to all actions, see [Common Errors](#) (p. 49).

InternalServerErrorException

Indicates a platform issue, which may be due to a transient condition or outage.

HTTP Status Code: 500

InvalidRequestException

Indicates that something is wrong with the input to the request. For example, a required parameter may be missing or out of range.

HTTP Status Code: 400

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

ListNamedQueries

Provides a list of all available query IDs.

For code samples using the AWS SDK for Java, see [Examples and Code Samples](#) in the *Amazon Athena User Guide*.

Request Syntax

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

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#) (p. 47).

The request accepts the following data in JSON format.

MaxResults (p. 20)

The maximum number of queries to return in this request.

Type: Integer

Valid Range: Minimum value of 0. Maximum value of 50.

Required: No

NextToken (p. 20)

The token that specifies where to start pagination if a previous request was truncated.

Type: String

Required: No

Response Syntax

```
{  
  "NamedQueryIds": [ "string" ],  
  "NextToken": "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.

NamedQueryIds (p. 20)

The list of unique query IDs.

Type: Array of strings

Array Members: Minimum number of 1 item. Maximum number of 50 items.

NextToken (p. 20)

A token to be used by the next request if this request is truncated.

Type: String

Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 49\)](#).

InternalServerErrorException

Indicates a platform issue, which may be due to a transient condition or outage.

HTTP Status Code: 500

InvalidRequestException

Indicates that something is wrong with the input to the request. For example, a required parameter may be missing or out of range.

HTTP Status Code: 400

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

ListQueryExecutions

Provides a list of all available query execution IDs.

For code samples using the AWS SDK for Java, see [Examples and Code Samples](#) in the *Amazon Athena User Guide*.

Request Syntax

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

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#) (p. 47).

The request accepts the following data in JSON format.

MaxResults (p. 22)

The maximum number of query executions to return in this request.

Type: Integer

Valid Range: Minimum value of 0. Maximum value of 50.

Required: No

NextToken (p. 22)

The token that specifies where to start pagination if a previous request was truncated.

Type: String

Required: No

Response Syntax

```
{  
  "NextToken": "string",  
  "QueryExecutionIds": [ "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 (p. 22)

A token to be used by the next request if this request is truncated.

Type: String

[QueryExecutionIds \(p. 22\)](#)

The unique IDs of each query execution as an array of strings.

Type: Array of strings

Array Members: Minimum number of 1 item. Maximum number of 50 items.

Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 49\)](#).

InternalServerErrorException

Indicates a platform issue, which may be due to a transient condition or outage.

HTTP Status Code: 500

InvalidRequestException

Indicates that something is wrong with the input to the request. For example, a required parameter may be missing or out of range.

HTTP Status Code: 400

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

StartQueryExecution

Runs (executes) the SQL query statements contained in the `Query` string.

For code samples using the AWS SDK for Java, see [Examples and Code Samples](#) in the *Amazon Athena User Guide*.

Request Syntax

```
{
  "ClientRequestToken": "string",
  "QueryExecutionContext": {
    "Database": "string"
  },
  "QueryString": "string",
  "ResultConfiguration": {
    "EncryptionConfiguration": {
      "EncryptionOption": "string",
      "KmsKey": "string"
    },
    "OutputLocation": "string"
  }
}
```

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#) (p. 47).

The request accepts the following data in JSON format.

ClientRequestToken (p. 24)

A unique case-sensitive string used to ensure the request to create the query is idempotent (executes only once). If another `StartQueryExecution` request is received, the same response is returned and another query is not created. If a parameter has changed, for example, the `QueryString`, an error is returned.

Important

This token is listed as not required because AWS SDKs (for example the AWS SDK for Java) auto-generate the token for users. If you are not using the AWS SDK or the AWS CLI, you must provide this token or the action will fail.

Type: String

Length Constraints: Minimum length of 32. Maximum length of 128.

Required: No

QueryExecutionContext (p. 24)

The database within which the query executes.

Type: [QueryExecutionContext](#) (p. 38) object

Required: No

QueryString (p. 24)

The SQL query statements to be executed.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 262144.

Required: Yes

ResultConfiguration (p. 24)

Specifies information about where and how to save the results of the query execution.

Type: [ResultConfiguration \(p. 41\)](#) object

Required: Yes

Response Syntax

```
{  
  "QueryExecutionId": "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.

QueryExecutionId (p. 25)

The unique ID of the query that ran as a result of this request.

Type: String

Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 49\)](#).

InternalServerErrorException

Indicates a platform issue, which may be due to a transient condition or outage.

HTTP Status Code: 500

InvalidRequestException

Indicates that something is wrong with the input to the request. For example, a required parameter may be missing or out of range.

HTTP Status Code: 400

TooManyRequestsException

Indicates that the request was throttled.

HTTP Status Code: 400

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

StopQueryExecution

Stops a query execution.

For code samples using the AWS SDK for Java, see [Examples and Code Samples](#) in the *Amazon Athena User Guide*.

Request Syntax

```
{  
  "QueryExecutionId": "string"  
}
```

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#) (p. 47).

The request accepts the following data in JSON format.

QueryExecutionId (p. 27)

The unique ID of the query execution to stop.

Type: String

Required: Yes

Response Elements

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

Errors

For information about the errors that are common to all actions, see [Common Errors](#) (p. 49).

InternalServerErrorException

Indicates a platform issue, which may be due to a transient condition or outage.

HTTP Status Code: 500

InvalidRequestException

Indicates that something is wrong with the input to the request. For example, a required parameter may be missing or out of range.

HTTP Status Code: 400

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

Data Types

The Amazon Athena 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:

- [ColumnInfo](#) (p. 30)
- [Datum](#) (p. 32)
- [EncryptionConfiguration](#) (p. 33)
- [NamedQuery](#) (p. 34)
- [QueryExecution](#) (p. 36)
- [QueryExecutionContext](#) (p. 38)
- [QueryExecutionStatistics](#) (p. 39)
- [QueryExecutionStatus](#) (p. 40)
- [ResultConfiguration](#) (p. 41)
- [ResultSet](#) (p. 42)
- [ResultSetMetadata](#) (p. 43)
- [Row](#) (p. 44)
- [UnprocessedNamedQueryId](#) (p. 45)
- [UnprocessedQueryExecutionId](#) (p. 46)

ColumnInfo

Information about the columns in a query execution result.

Contents

CaseSensitive

Indicates whether values in the column are case-sensitive.

Type: Boolean

Required: No

CatalogName

The catalog to which the query results belong.

Type: String

Required: No

Label

A column label.

Type: String

Required: No

Name

The name of the column.

Type: String

Required: Yes

Nullable

Indicates the column's nullable status.

Type: String

Valid Values: `NOT_NULL` | `NULLABLE` | `UNKNOWN`

Required: No

Precision

For `DECIMAL` data types, specifies the total number of digits, up to 38. For performance reasons, we recommend up to 18 digits.

Type: Integer

Required: No

Scale

For `DECIMAL` data types, specifies the total number of digits in the fractional part of the value. Defaults to 0.

Type: Integer

Required: No

SchemaName

The schema name (database name) to which the query results belong.

Type: String

Required: No

TableName

The table name for the query results.

Type: String

Required: No

Type

The data type of the column.

Type: String

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

Datum

A piece of data (a field in the table).

Contents

VarCharValue

The value of the datum.

Type: String

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

EncryptionConfiguration

If query results are encrypted in Amazon S3, indicates the encryption option used (for example, `SSE-KMS` or `CSE-KMS`) and key information.

Contents

EncryptionOption

Indicates whether Amazon S3 server-side encryption with Amazon S3-managed keys (`SSE-S3`), server-side encryption with KMS-managed keys (`SSE-KMS`), or client-side encryption with KMS-managed keys (`CSE-KMS`) is used.

Type: String

Valid Values: `SSE_S3` | `SSE_KMS` | `CSE_KMS`

Required: Yes

KmsKey

For `SSE-KMS` and `CSE-KMS`, this is the KMS key ARN or ID.

Type: String

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

NamedQuery

A query, where `queryString` is the SQL query statements that comprise the query.

Contents

Database

The database to which the query belongs.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 32.

Required: Yes

Description

A brief description of the query.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Required: No

Name

The plain-language name of the query.

Type: String

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

Required: Yes

NamedQueryId

The unique identifier of the query.

Type: String

Required: No

QueryString

The SQL query statements that comprise the query.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 262144.

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

QueryExecution

Information about a single instance of a query execution.

Contents

Query

The SQL query statements which the query execution ran.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 262144.

Required: No

QueryExecutionContext

The database in which the query execution occurred.

Type: [QueryExecutionContext \(p. 38\)](#) object

Required: No

QueryExecutionId

The unique identifier for each query execution.

Type: String

Required: No

ResultConfiguration

The location in Amazon S3 where query results were stored and the encryption option, if any, used for query results.

Type: [ResultConfiguration \(p. 41\)](#) object

Required: No

Statistics

The amount of data scanned during the query execution and the amount of time that it took to execute.

Type: [QueryExecutionStatistics \(p. 39\)](#) object

Required: No

Status

The completion date, current state, submission time, and state change reason (if applicable) for the query execution.

Type: [QueryExecutionStatus \(p. 40\)](#) object

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

QueryExecutionContext

The database in which the query execution occurs.

Contents

Database

The name of the database.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 32.

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

QueryExecutionStatistics

The amount of data scanned during the query execution and the amount of time that it took to execute.

Contents

DataScannedInBytes

The number of bytes in the data that was queried.

Type: Long

Required: No

EngineExecutionTimeInMillis

The number of milliseconds that the query took to execute.

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

QueryExecutionStatus

The completion date, current state, submission time, and state change reason (if applicable) for the query execution.

Contents

CompletionDateTime

The date and time that the query completed.

Type: Timestamp

Required: No

State

The state of query execution. `SUBMITTED` indicates that the query is queued for execution. `RUNNING` indicates that the query is scanning data and returning results. `SUCCEEDED` indicates that the query completed without error. `FAILED` indicates that the query experienced an error and did not complete processing. `CANCELLED` indicates that user input interrupted query execution.

Type: String

Valid Values: `QUEUED` | `RUNNING` | `SUCCEEDED` | `FAILED` | `CANCELLED`

Required: No

StateChangeReason

Further detail about the status of the query.

Type: String

Required: No

SubmissionDateTime

The date and time that the query was submitted.

Type: Timestamp

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

ResultConfiguration

The location in Amazon S3 where query results are stored and the encryption option, if any, used for query results.

Contents

EncryptionConfiguration

If query results are encrypted in Amazon S3, indicates the encryption option used (for example, SSE-KMS or CSE-KMS) and key information.

Type: [EncryptionConfiguration \(p. 33\)](#) object

Required: No

OutputLocation

The location in Amazon S3 where your query results are stored, such as `s3://path/to/query/bucket/`. For more information, see [Queries and Query Result Files](#).

Type: String

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

ResultSet

The metadata and rows that comprise a query result set. The metadata describes the column structure and data types.

Contents

ResultSetMetadata

The metadata that describes the column structure and data types of a table of query results.

Type: [ResultSetMetadata \(p. 43\)](#) object

Required: No

Rows

The rows in the table.

Type: Array of [Row \(p. 44\)](#) objects

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

ResultSetMetadata

The metadata that describes the column structure and data types of a table of query results.

Contents

ColumnInfo

Information about the columns in a query execution result.

Type: Array of [ColumnInfo](#) (p. 30) objects

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

Row

The rows that comprise a query result table.

Contents

Data

The data that populates a row in a query result table.

Type: Array of [Datum \(p. 32\)](#) objects

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

UnprocessedNamedQueryId

Information about a named query ID that could not be processed.

Contents

ErrorCode

The error code returned when the processing request for the named query failed, if applicable.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 256.

Required: No

ErrorMessage

The error message returned when the processing request for the named query failed, if applicable.

Type: String

Required: No

NamedQueryId

The unique identifier of the named query.

Type: String

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

UnprocessedQueryExecutionId

Describes a query execution that failed to process.

Contents

ErrorCode

The error code returned when the query execution failed to process, if applicable.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 256.

Required: No

ErrorMessage

The error message returned when the query execution failed to process, if applicable.

Type: String

Required: No

QueryExecutionId

The unique identifier of the query execution.

Type: String

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

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 [Signature Version 4 Signing Process](#) in the *Amazon Web Services General Reference*.

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 [Task 2: Create a String to Sign for Signature Version 4](#) in the *Amazon Web Services General Reference*.

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'THHMMSS'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 [Handling Dates in Signature Version 4](#) in the *Amazon Web Services General Reference*.

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 Security Token Service, go to [AWS Services That Work with IAM](#) in the *IAM User Guide*.

Condition: If you're using temporary security credentials from the AWS Security Token Service, 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 [Task 1: Create a Canonical Request For Signature Version 4](#) in the *Amazon Web Services General Reference*.

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

InvalidParameterCombination

Parameters that must not be used together were used together.

HTTP Status Code: 400

InvalidParameterValue

An invalid or out-of-range value was supplied for the input parameter.

HTTP Status Code: 400

InvalidQueryParameter

The AWS query string is malformed or does not adhere to AWS standards.

HTTP Status Code: 400

MalformedQueryString

The query string contains a syntax error.

HTTP Status Code: 404

MissingAction

The request is missing an action or a required parameter.

HTTP Status Code: 400

MissingAuthenticationToken

The request must contain either a valid (registered) AWS access key ID or X.509 certificate.

HTTP Status Code: 403

MissingParameter

A required parameter for the specified action is not supplied.

HTTP Status Code: 400

OptInRequired

The AWS access key ID needs a subscription for the service.

HTTP Status Code: 403

RequestExpired

The request reached the service more than 15 minutes after the date stamp on the request or more than 15 minutes after the request expiration date (such as for pre-signed URLs), or the date stamp on the request is more than 15 minutes in the future.

HTTP Status Code: 400

ServiceUnavailable

The request has failed due to a temporary failure of the server.

HTTP Status Code: 503

ThrottlingException

The request was denied due to request throttling.

HTTP Status Code: 400

ValidationError

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

HTTP Status Code: 400