
Amazon Elastic Block Store

API Reference

API Version 2019-11-02



Amazon Elastic Block Store: API Reference

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Welcome

You can use the Amazon Elastic Block Store (Amazon EBS) direct APIs to create EBS snapshots, write data directly to your snapshots, read data on your snapshots, and identify the differences or changes between two snapshots. If you're an independent software vendor (ISV) who offers backup services for Amazon EBS, the EBS direct APIs make it more efficient and cost-effective to track incremental changes on your EBS volumes through snapshots. This can be done without having to create new volumes from snapshots, and then use Amazon Elastic Compute Cloud (Amazon EC2) instances to compare the differences.

You can create incremental snapshots directly from data on-premises into EBS volumes and the cloud to use for quick disaster recovery. With the ability to write and read snapshots, you can write your on-premises data to an EBS snapshot during a disaster. Then after recovery, you can restore it back to AWS or on-premises from the snapshot. You no longer need to build and maintain complex mechanisms to copy data to and from Amazon EBS.

This API reference provides detailed information about the actions, data types, parameters, and errors of the EBS direct APIs. For more information about the elements that make up the EBS direct APIs, and examples of how to use them effectively, see [Accessing the Contents of an EBS Snapshot](#) in the *Amazon Elastic Compute Cloud User Guide*. For more information about the supported AWS Regions, endpoints, and service quotas for the EBS direct APIs, see [Amazon Elastic Block Store Endpoints and Quotas](#) in the *AWS General Reference*.

This document was last published on May 12, 2021.

Actions

The following actions are supported:

- [CompleteSnapshot](#) (p. 3)
- [GetSnapshotBlock](#) (p. 6)
- [ListChangedBlocks](#) (p. 9)
- [ListSnapshotBlocks](#) (p. 12)
- [PutSnapshotBlock](#) (p. 15)
- [StartSnapshot](#) (p. 19)

CompleteSnapshot

Seals and completes the snapshot after all of the required blocks of data have been written to it. Completing the snapshot changes the status to `completed`. You cannot write new blocks to a snapshot after it has been completed.

Request Syntax

```
POST /snapshots/completion/snapshotId HTTP/1.1
x-amz-ChangedBlocksCount: ChangedBlocksCount
x-amz-Checksum: Checksum
x-amz-Checksum-Algorithm: ChecksumAlgorithm
x-amz-Checksum-Aggregation-Method: ChecksumAggregationMethod
```

URI Request Parameters

The request uses the following URI parameters.

ChangedBlocksCount (p. 3)

The number of blocks that were written to the snapshot.

Valid Range: Minimum value of 0.

Required: Yes

Checksum (p. 3)

An aggregated Base-64 SHA256 checksum based on the checksums of each written block.

To generate the aggregated checksum using the linear aggregation method, arrange the checksums for each written block in ascending order of their block index, concatenate them to form a single string, and then generate the checksum on the entire string using the SHA256 algorithm.

Length Constraints: Maximum length of 64.

Pattern: `^[A-Za-z0-9+/=]+$`

ChecksumAggregationMethod (p. 3)

The aggregation method used to generate the checksum. Currently, the only supported aggregation method is `LINEAR`.

Length Constraints: Maximum length of 32.

Pattern: `^[A-Za-z0-9]+$`

Valid Values: `LINEAR`

ChecksumAlgorithm (p. 3)

The algorithm used to generate the checksum. Currently, the only supported algorithm is `SHA256`.

Length Constraints: Maximum length of 32.

Pattern: `^[A-Za-z0-9]+$`

Valid Values: `SHA256`

[snapshotId \(p. 3\)](#)

The ID of the snapshot.

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

Pattern: `^snap-[0-9a-f]+$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 202
Content-type: application/json

{
  "Status": "string"
}
```

Response Elements

If the action is successful, the service sends back an HTTP 202 response.

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

[Status \(p. 4\)](#)

The status of the snapshot.

Type: String

Length Constraints: Maximum length of 32.

Valid Values: `completed` | `pending` | `error`

Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 31\)](#).

AccessDeniedException

You do not have sufficient access to perform this action.

HTTP Status Code: 403

InternalServerErrorException

An internal error has occurred.

HTTP Status Code: 500

RequestThrottledException

The number of API requests has exceed the maximum allowed API request throttling limit.

HTTP Status Code: 400

ResourceNotFoundException

The specified resource does not exist.

HTTP Status Code: 404

ServiceQuotaExceededException

Your current service quotas do not allow you to perform this action.

HTTP Status Code: 402

ValidationException

The input fails to satisfy the constraints of the EBS direct APIs.

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

GetSnapshotBlock

Returns the data in a block in an Amazon Elastic Block Store snapshot.

Request Syntax

```
GET /snapshots/snapshotId/blocks/blockIndex?blockToken=BlockToken HTTP/1.1
```

URI Request Parameters

The request uses the following URI parameters.

blockIndex (p. 6)

The block index of the block from which to get data.

Obtain the `BlockIndex` by running the `ListChangedBlocks` or `ListSnapshotBlocks` operations.

Valid Range: Minimum value of 0.

Required: Yes

BlockToken (p. 6)

The block token of the block from which to get data.

Obtain the `BlockToken` by running the `ListChangedBlocks` or `ListSnapshotBlocks` operations.

Length Constraints: Maximum length of 256.

Pattern: `^[A-Za-z0-9+/=]+$`

Required: Yes

snapshotId (p. 6)

The ID of the snapshot containing the block from which to get data.

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

Pattern: `^snap-[0-9a-f]+$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
x-amz-Data-Length: DataLength
x-amz-Checksum: Checksum
x-amz-Checksum-Algorithm: ChecksumAlgorithm
```

BlockData

Response Elements

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

The response returns the following HTTP headers.

Checksum (p. 6)

The checksum generated for the block, which is Base64 encoded.

Length Constraints: Maximum length of 64.

Pattern: `^[A-Za-z0-9+/=]+$`

ChecksumAlgorithm (p. 6)

The algorithm used to generate the checksum for the block, such as SHA256.

Length Constraints: Maximum length of 32.

Pattern: `^[A-Za-z0-9]+$`

Valid Values: `SHA256`

DataLength (p. 6)

The size of the data in the block.

The response returns the following as the HTTP body.

BlockData (p. 6)

The data content of the block.

Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 31\)](#).

AccessDeniedException

You do not have sufficient access to perform this action.

HTTP Status Code: 403

InternalServerError

An internal error has occurred.

HTTP Status Code: 500

RequestThrottledException

The number of API requests has exceed the maximum allowed API request throttling limit.

HTTP Status Code: 400

ResourceNotFoundException

The specified resource does not exist.

HTTP Status Code: 404

ServiceQuotaExceededException

Your current service quotas do not allow you to perform this action.

HTTP Status Code: 402

ValidationException

The input fails to satisfy the constraints of the EBS direct APIs.

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

ListChangedBlocks

Returns information about the blocks that are different between two Amazon Elastic Block Store snapshots of the same volume/snapshot lineage.

Request Syntax

```
GET /snapshots/secondSnapshotId/changedblocks?  
firstSnapshotId=FirstSnapshotId&maxResults=MaxResults&pageToken=NextToken&startingBlockIndex=StartingBlockIndex  
HTTP/1.1
```

URI Request Parameters

The request uses the following URI parameters.

FirstSnapshotId (p. 9)

The ID of the first snapshot to use for the comparison.

Important

The `FirstSnapshotId` parameter must be specified with a `SecondSnapshotId` parameter; otherwise, an error occurs.

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

Pattern: `^snap-[0-9a-f]+$`

MaxResults (p. 9)

The number of results to return.

Valid Range: Minimum value of 100. Maximum value of 10000.

NextToken (p. 9)

The token to request the next page of results.

Length Constraints: Maximum length of 256.

Pattern: `^[A-Za-z0-9+/=]+$`

secondSnapshotId (p. 9)

The ID of the second snapshot to use for the comparison.

Important

The `SecondSnapshotId` parameter must be specified with a `FirstSnapshotId` parameter; otherwise, an error occurs.

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

Pattern: `^snap-[0-9a-f]+$`

Required: Yes

StartingBlockIndex (p. 9)

The block index from which the comparison should start.

The list in the response will start from this block index or the next valid block index in the snapshots.

Valid Range: Minimum value of 0.

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
Content-type: application/json

{
  "BlockSize": number,
  "ChangedBlocks": [
    {
      "BlockIndex": number,
      "FirstBlockToken": "string",
      "SecondBlockToken": "string"
    }
  ],
  "ExpiryTime": number,
  "NextToken": "string",
  "VolumeSize": 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.

BlockSize (p. 10)

The size of the block.

Type: Integer

ChangedBlocks (p. 10)

An array of objects containing information about the changed blocks.

Type: Array of [ChangedBlock \(p. 27\)](#) objects

ExpiryTime (p. 10)

The time when the `BlockToken` expires.

Type: Timestamp

NextToken (p. 10)

The token to use to retrieve the next page of results. This value is null when there are no more results to return.

Type: String

Length Constraints: Maximum length of 256.

Pattern: `^[A-Za-z0-9+/=]+$`

VolumeSize (p. 10)

The size of the volume in GB.

Type: Long

Valid Range: Minimum value of 1.

Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 31\)](#).

AccessDeniedException

You do not have sufficient access to perform this action.

HTTP Status Code: 403

InternalServerErrorException

An internal error has occurred.

HTTP Status Code: 500

RequestThrottledException

The number of API requests has exceed the maximum allowed API request throttling limit.

HTTP Status Code: 400

ResourceNotFoundException

The specified resource does not exist.

HTTP Status Code: 404

ServiceQuotaExceededException

Your current service quotas do not allow you to perform this action.

HTTP Status Code: 402

ValidationException

The input fails to satisfy the constraints of the EBS direct APIs.

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

ListSnapshotBlocks

Returns information about the blocks in an Amazon Elastic Block Store snapshot.

Request Syntax

```
GET /snapshots/snapshotId/blocks?  
maxResults=MaxResults&pageToken=NextToken&startingBlockIndex=StartingBlockIndex HTTP/1.1
```

URI Request Parameters

The request uses the following URI parameters.

MaxResults (p. 12)

The number of results to return.

Valid Range: Minimum value of 100. Maximum value of 10000.

NextToken (p. 12)

The token to request the next page of results.

Length Constraints: Maximum length of 256.

Pattern: `^[A-Za-z0-9+/=]+$`

snapshotId (p. 12)

The ID of the snapshot from which to get block indexes and block tokens.

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

Pattern: `^snap-[0-9a-f]+$`

Required: Yes

StartingBlockIndex (p. 12)

The block index from which the list should start. The list in the response will start from this block index or the next valid block index in the snapshot.

Valid Range: Minimum value of 0.

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200  
Content-type: application/json  
  
{  
  "Blocks": [  
    {
```



```
        "BlockIndex": number,  
        "BlockToken": "string"  
    }  
],  
"BlockSize": number,  
"ExpiryTime": number,  
"NextToken": "string",  
"VolumeSize": 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.

Blocks (p. 12)

An array of objects containing information about the blocks.

Type: Array of [Block \(p. 26\)](#) objects

BlockSize (p. 12)

The size of the block.

Type: Integer

ExpiryTime (p. 12)

The time when the `BlockToken` expires.

Type: Timestamp

NextToken (p. 12)

The token to use to retrieve the next page of results. This value is null when there are no more results to return.

Type: String

Length Constraints: Maximum length of 256.

Pattern: `^[A-Za-z0-9+/=]+$`

VolumeSize (p. 12)

The size of the volume in GB.

Type: Long

Valid Range: Minimum value of 1.

Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 31\)](#).

AccessDeniedException

You do not have sufficient access to perform this action.

HTTP Status Code: 403

InternalServerErrorException

An internal error has occurred.

HTTP Status Code: 500

RequestThrottledException

The number of API requests has exceed the maximum allowed API request throttling limit.

HTTP Status Code: 400

ResourceNotFoundException

The specified resource does not exist.

HTTP Status Code: 404

ServiceQuotaExceededException

Your current service quotas do not allow you to perform this action.

HTTP Status Code: 402

ValidationException

The input fails to satisfy the constraints of the EBS direct APIs.

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

PutSnapshotBlock

Writes a block of data to a snapshot. If the specified block contains data, the existing data is overwritten. The target snapshot must be in the `pending` state.

Data written to a snapshot must be aligned with 512-byte sectors.

Request Syntax

```
PUT /snapshots/snapshotId/blocks/blockIndex HTTP/1.1
x-amz-Data-Length: DataLength
x-amz-Progress: Progress
x-amz-Checksum: Checksum
x-amz-Checksum-Algorithm: ChecksumAlgorithm

BlockData
```

URI Request Parameters

The request uses the following URI parameters.

blockIndex (p. 15)

The block index of the block in which to write the data. A block index is a logical index in units of 512 KiB blocks. To identify the block index, divide the logical offset of the data in the logical volume by the block size (logical offset of data/524288). The logical offset of the data must be 512 KiB aligned.

Valid Range: Minimum value of 0.

Required: Yes

Checksum (p. 15)

A Base64-encoded SHA256 checksum of the data. Only SHA256 checksums are supported.

Length Constraints: Maximum length of 64.

Pattern: `^[A-Za-z0-9+/=]+$`

Required: Yes

ChecksumAlgorithm (p. 15)

The algorithm used to generate the checksum. Currently, the only supported algorithm is `SHA256`.

Length Constraints: Maximum length of 32.

Pattern: `^[A-Za-z0-9]+$`

Valid Values: `SHA256`

Required: Yes

DataLength (p. 15)

The size of the data to write to the block, in bytes. Currently, the only supported size is 524288.

Valid values: 524288

Required: Yes

Progress (p. 15)

The progress of the write process, as a percentage.

Valid Range: Minimum value of 0. Maximum value of 100.

snapshotId (p. 15)

The ID of the snapshot.

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

Pattern: `^snap-[0-9a-f]+$`

Required: Yes

Request Body

The request accepts the following binary data.

BlockData (p. 15)

The data to write to the block.

The block data is not signed as part of the Signature Version 4 signing process. As a result, you must generate and provide a Base64-encoded SHA256 checksum for the block data using the **x-amz-Checksum** header. Also, you must specify the checksum algorithm using the **x-amz-Checksum-Algorithm** header. The checksum that you provide is part of the Signature Version 4 signing process. It is validated against a checksum generated by Amazon EBS to ensure the validity and authenticity of the data. If the checksums do not correspond, the request fails. For more information, see [Using checksums with the EBS direct APIs](#) in the *Amazon Elastic Compute Cloud User Guide*.

Required: Yes

Response Syntax

```
HTTP/1.1 201
x-amz-Checksum: Checksum
x-amz-Checksum-Algorithm: ChecksumAlgorithm
```

Response Elements

If the action is successful, the service sends back an HTTP 201 response.

The response returns the following HTTP headers.

Checksum (p. 16)

The SHA256 checksum generated for the block data by Amazon EBS.

Length Constraints: Maximum length of 64.

Pattern: `^[A-Za-z0-9+/=]+$`

ChecksumAlgorithm (p. 16)

The algorithm used by Amazon EBS to generate the checksum.

Length Constraints: Maximum length of 32.

Pattern: `^[A-Za-z0-9]+$`

Valid Values: `SHA256`

Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 31\)](#).

AccessDeniedException

You do not have sufficient access to perform this action.

HTTP Status Code: 403

InternalServerErrorException

An internal error has occurred.

HTTP Status Code: 500

RequestThrottledException

The number of API requests has exceed the maximum allowed API request throttling limit.

HTTP Status Code: 400

ResourceNotFoundException

The specified resource does not exist.

HTTP Status Code: 404

ServiceQuotaExceededException

Your current service quotas do not allow you to perform this action.

HTTP Status Code: 402

ValidationException

The input fails to satisfy the constraints of the EBS direct APIs.

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

StartSnapshot

Creates a new Amazon EBS snapshot. The new snapshot enters the pending state after the request completes.

After creating the snapshot, use [PutSnapshotBlock](#) to write blocks of data to the snapshot.

Request Syntax

```
POST /snapshots HTTP/1.1
Content-type: application/json

{
  "ClientToken": "string",
  "Description": "string",
  "Encrypted": boolean,
  "KmsKeyArn": "string",
  "ParentSnapshotId": "string",
  "Tags": [
    {
      "Key": "string",
      "Value": "string"
    }
  ],
  "Timeout": number,
  "VolumeSize": number
}
```

URI Request Parameters

The request does not use any URI parameters.

Request Body

The request accepts the following data in JSON format.

ClientToken (p. 19)

A unique, case-sensitive identifier that you provide to ensure the idempotency of the request. Idempotency ensures that an API request completes only once. With an idempotent request, if the original request completes successfully. The subsequent retries with the same client token return the result from the original successful request and they have no additional effect.

If you do not specify a client token, one is automatically generated by the AWS SDK.

For more information, see [Idempotency for StartSnapshot API](#) in the *Amazon Elastic Compute Cloud User Guide*.

Type: String

Length Constraints: Maximum length of 255.

Pattern: ^[\S]+\$

Required: No

Description (p. 19)

A description for the snapshot.

Type: String

Length Constraints: Maximum length of 255.

Pattern: `^[\S\s]+$`

Required: No

Encrypted (p. 19)

Indicates whether to encrypt the snapshot. To create an encrypted snapshot, specify `true`. To create an unencrypted snapshot, omit this parameter.

If you specify a value for **ParentSnapshotId**, omit this parameter.

If you specify `true`, the snapshot is encrypted using the CMK specified using the **KmsKeyArn** parameter. If no value is specified for **KmsKeyArn**, the default CMK for your account is used. If no default CMK has been specified for your account, the AWS managed CMK is used. To set a default CMK for your account, use [ModifyEbsDefaultKmsKeyId](#).

If your account is enabled for encryption by default, you cannot set this parameter to `false`. In this case, you can omit this parameter.

For more information, see [Using encryption](#) in the *Amazon Elastic Compute Cloud User Guide*.

Type: Boolean

Required: No

KmsKeyArn (p. 19)

The Amazon Resource Name (ARN) of the AWS Key Management Service (AWS KMS) customer master key (CMK) to be used to encrypt the snapshot. If you do not specify a CMK, the default AWS managed CMK is used.

If you specify a **ParentSnapshotId**, omit this parameter; the snapshot will be encrypted using the same CMK that was used to encrypt the parent snapshot.

If **Encrypted** is set to `true`, you must specify a CMK ARN.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Pattern: `arn:aws[a-z\-\]*:kms:.*:[0-9]{12}:key/.*`

Required: No

ParentSnapshotId (p. 19)

The ID of the parent snapshot. If there is no parent snapshot, or if you are creating the first snapshot for an on-premises volume, omit this parameter.

If your account is enabled for encryption by default, you cannot use an unencrypted snapshot as a parent snapshot. You must first create an encrypted copy of the parent snapshot using [CopySnapshot](#).

Type: String

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

Pattern: `^snap-[0-9a-f]+$`

Required: No

Tags (p. 19)

The tags to apply to the snapshot.

Type: Array of [Tag \(p. 28\)](#) objects

Required: No

Timeout (p. 19)

The amount of time (in minutes) after which the snapshot is automatically cancelled if:

- No blocks are written to the snapshot.
- The snapshot is not completed after writing the last block of data.

If no value is specified, the timeout defaults to 60 minutes.

Type: Integer

Valid Range: Minimum value of 10. Maximum value of 60.

Required: No

VolumeSize (p. 19)

The size of the volume, in GiB. The maximum size is 16384 GiB (16 TiB).

Type: Long

Valid Range: Minimum value of 1.

Required: Yes

Response Syntax

```
HTTP/1.1 201  
Content-type: application/json
```

```
{  
  "BlockSize": number,  
  "Description": "string",  
  "KmsKeyArn": "string",  
  "OwnerId": "string",  
  "ParentSnapshotId": "string",  
  "SnapshotId": "string",  
  "StartTime": number,  
  "Status": "string",  
  "Tags": [  
    {  
      "Key": "string",  
      "Value": "string"  
    }  
  ],  
  "VolumeSize": number  
}
```

Response Elements

If the action is successful, the service sends back an HTTP 201 response.

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

BlockSize (p. 21)

The size of the blocks in the snapshot, in bytes.

Type: Integer

Description (p. 21)

The description of the snapshot.

Type: String

Length Constraints: Maximum length of 255.

Pattern: `^[\S \s]+$`

KmsKeyArn (p. 21)

The Amazon Resource Name (ARN) of the AWS Key Management Service (AWS KMS) customer master key (CMK) used to encrypt the snapshot.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Pattern: `arn:aws[a-z-]*:kms:.*:[0-9]{1,2}:key/.*`

OwnerId (p. 21)

The AWS account ID of the snapshot owner.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 24.

Pattern: `\S+`

ParentSnapshotId (p. 21)

The ID of the parent snapshot.

Type: String

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

Pattern: `^snap-[0-9a-f]+$`

SnapshotId (p. 21)

The ID of the snapshot.

Type: String

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

Pattern: `^snap-[0-9a-f]+$`

StartTime (p. 21)

The timestamp when the snapshot was created.

Type: Timestamp

Status (p. 21)

The status of the snapshot.

Type: String

Length Constraints: Maximum length of 32.

Valid Values: `completed` | `pending` | `error`

Tags (p. 21)

The tags applied to the snapshot. You can specify up to 50 tags per snapshot. For more information, see [Tagging your Amazon EC2 resources](#) in the *Amazon Elastic Compute Cloud User Guide*.

Type: Array of [Tag \(p. 28\)](#) objects

VolumeSize (p. 21)

The size of the volume, in GiB.

Type: Long

Valid Range: Minimum value of 1.

Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 31\)](#).

AccessDeniedException

You do not have sufficient access to perform this action.

HTTP Status Code: 403

ConcurrentLimitExceededException

You have reached the limit for concurrent API requests. For more information, see [Optimizing performance of the EBS direct APIs](#) in the *Amazon Elastic Compute Cloud User Guide*.

HTTP Status Code: 400

ConflictException

The request uses the same client token as a previous, but non-identical request.

HTTP Status Code: 503

InternalServerErrorException

An internal error has occurred.

HTTP Status Code: 500

RequestThrottledException

The number of API requests has exceed the maximum allowed API request throttling limit.

HTTP Status Code: 400

ResourceNotFoundException

The specified resource does not exist.

HTTP Status Code: 404

ServiceQuotaExceededException

Your current service quotas do not allow you to perform this action.

HTTP Status Code: 402

ValidationException

The input fails to satisfy the constraints of the EBS direct APIs.

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

Data Types

The Amazon Elastic Block Store 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:

- [Block \(p. 26\)](#)
- [ChangedBlock \(p. 27\)](#)
- [Tag \(p. 28\)](#)

Block

A block of data in an Amazon Elastic Block Store snapshot.

Contents

BlockIndex

The block index.

Type: Integer

Valid Range: Minimum value of 0.

Required: No

BlockToken

The block token for the block index.

Type: String

Length Constraints: Maximum length of 256.

Pattern: `^[A-Za-z0-9+/=]+$`

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](#)

ChangedBlock

A block of data in an Amazon Elastic Block Store snapshot that is different from another snapshot of the same volume/snapshot lineage.

Contents

BlockIndex

The block index.

Type: Integer

Valid Range: Minimum value of 0.

Required: No

FirstBlockToken

The block token for the block index of the `FirstSnapshotId` specified in the `ListChangedBlocks` operation. This value is absent if the first snapshot does not have the changed block that is on the second snapshot.

Type: String

Length Constraints: Maximum length of 256.

Pattern: `^[A-Za-z0-9+/=]+$`

Required: No

SecondBlockToken

The block token for the block index of the `SecondSnapshotId` specified in the `ListChangedBlocks` operation.

Type: String

Length Constraints: Maximum length of 256.

Pattern: `^[A-Za-z0-9+/=]+$`

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

Describes a tag.

Contents

Key

The key of the tag.

Type: String

Length Constraints: Maximum length of 127.

Pattern: `^\S\S]+$`

Required: No

Value

The value of the tag.

Type: String

Length Constraints: Maximum length of 255.

Pattern: `^\S\S]+$`

Required: No

See Also

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

- [AWS SDK for C++](#)
- [AWS SDK for 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 [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

NotAuthorized

You do not have permission to perform this action.

HTTP Status Code: 400

OptInRequired

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

HTTP Status Code: 403

RequestExpired

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

HTTP Status Code: 400

ServiceUnavailable

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

HTTP Status Code: 503

ThrottlingException

The request was denied due to request throttling.

HTTP Status Code: 400

ValidationError

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

HTTP Status Code: 400