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# AWS CloudTrail

## API Reference

### API Version 2013-11-01



## **AWS CloudTrail: API Reference**

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# Welcome

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This is the CloudTrail API Reference. It provides descriptions of actions, data types, common parameters, and common errors for CloudTrail.

CloudTrail is a web service that records AWS API calls for your AWS account and delivers log files to an Amazon S3 bucket. The recorded information includes the identity of the user, the start time of the AWS API call, the source IP address, the request parameters, and the response elements returned by the service.

**Note**

As an alternative to the API, you can use one of the AWS SDKs, which consist of libraries and sample code for various programming languages and platforms (Java, Ruby, .NET, iOS, Android, etc.). The SDKs provide a convenient way to create programmatic access to AWS CloudTrail. For example, the SDKs take care of cryptographically signing requests, managing errors, and retrying requests automatically. For information about the AWS SDKs, including how to download and install them, see the [Tools for Amazon Web Services page](#).

See the [AWS CloudTrail User Guide](#) for information about the data that is included with each AWS API call listed in the log files.

This document was last published on December 9, 2016.

# Actions

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The following actions are supported:

- [AddTags](#) (p. 3)
- [CreateTrail](#) (p. 5)
- [DeleteTrail](#) (p. 10)
- [DescribeTrails](#) (p. 11)
- [GetEventSelectors](#) (p. 13)
- [GetTrailStatus](#) (p. 15)
- [ListPublicKeys](#) (p. 18)
- [ListTags](#) (p. 20)
- [LookupEvents](#) (p. 22)
- [PutEventSelectors](#) (p. 25)
- [RemoveTags](#) (p. 28)
- [StartLogging](#) (p. 30)
- [StopLogging](#) (p. 32)
- [UpdateTrail](#) (p. 34)

## AddTags

Adds one or more tags to a trail, up to a limit of 50. Tags must be unique per trail. Overwrites an existing tag's value when a new value is specified for an existing tag key. If you specify a key without a value, the tag will be created with the specified key and a value of null. You can tag a trail that applies to all regions only from the region in which the trail was created (that is, from its home region).

## Request Syntax

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

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters \(p. 50\)](#).

The request accepts the following data in JSON format.

### ResourceId (p. 3)

Specifies the ARN of the trail to which one or more tags will be added. The format of a trail ARN is:

```
arn:aws:cloudtrail:us-east-1:123456789012:trail/MyTrail
```

Type: String

Required: Yes

### TagsList (p. 3)

Contains a list of CloudTrail tags, up to a limit of 50

Type: array of [Tag \(p. 47\)](#) objects

Required: No

## Response Elements

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

## Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 52\)](#).

### CloudTrailARNInvalidException

This exception is thrown when an operation is called with an invalid trail ARN. The format of a trail ARN is:

```
arn:aws:cloudtrail:us-east-1:123456789012:trail/MyTrail
```

HTTP Status Code: 400

### InvalidTagParameterException

This exception is thrown when the key or value specified for the tag does not match the regular expression `^([\p{L}\p{Z}\p{N}_:/=+\-@]*)$`.

HTTP Status Code: 400

**InvalidTrailNameException**

This exception is thrown when the provided trail name is not valid. Trail names must meet the following requirements:

- Contain only ASCII letters (a-z, A-Z), numbers (0-9), periods (.), underscores (\_), or dashes (-)
- Start with a letter or number, and end with a letter or number
- Be between 3 and 128 characters
- Have no adjacent periods, underscores or dashes. Names like `my-_namespace` and `my--namespace` are invalid.
- Not be in IP address format (for example, 192.168.5.4)

HTTP Status Code: 400

**OperationNotPermittedException**

This exception is thrown when the requested operation is not permitted.

HTTP Status Code: 400

**ResourceNotFoundException**

This exception is thrown when the specified resource is not found.

HTTP Status Code: 400

**ResourceTypeNotSupportedException**

This exception is thrown when the specified resource type is not supported by CloudTrail.

HTTP Status Code: 400

**TagsLimitExceededException**

The number of tags per trail has exceeded the permitted amount. Currently, the limit is 50.

HTTP Status Code: 400

**UnsupportedOperationException**

This exception is thrown when the requested operation is not supported.

HTTP Status Code: 400



# CreateTrail

Creates a trail that specifies the settings for delivery of log data to an Amazon S3 bucket. A maximum of five trails can exist in a region, irrespective of the region in which they were created.

## Request Syntax

```
{
  "CloudWatchLogsLogGroupArn": "string",
  "CloudWatchLogsRoleArn": "string",
  "EnableLogFileValidation": boolean,
  "IncludeGlobalServiceEvents": boolean,
  "IsMultiRegionTrail": boolean,
  "KmsKeyId": "string",
  "Name": "string",
  "S3BucketName": "string",
  "S3KeyPrefix": "string",
  "SnsTopicName": "string"
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#) (p. 50).

The request accepts the following data in JSON format.

### CloudWatchLogsLogGroupArn (p. 5)

Specifies a log group name using an Amazon Resource Name (ARN), a unique identifier that represents the log group to which CloudTrail logs will be delivered. Not required unless you specify CloudWatchLogsRoleArn.

Type: String

Required: No

### CloudWatchLogsRoleArn (p. 5)

Specifies the role for the CloudWatch Logs endpoint to assume to write to a user's log group.

Type: String

Required: No

### EnableLogFileValidation (p. 5)

Specifies whether log file integrity validation is enabled. The default is false.

#### Note

When you disable log file integrity validation, the chain of digest files is broken after one hour. CloudTrail will not create digest files for log files that were delivered during a period in which log file integrity validation was disabled. For example, if you enable log file integrity validation at noon on January 1, disable it at noon on January 2, and re-enable it at noon on January 10, digest files will not be created for the log files delivered from noon on January 2 to noon on January 10. The same applies whenever you stop CloudTrail logging or delete a trail.

Type: Boolean

Required: No

### IncludeGlobalServiceEvents (p. 5)

Specifies whether the trail is publishing events from global services such as IAM to the log files.

Type: Boolean

Required: No

#### **IsMultiRegionTrail** (p. 5)

Specifies whether the trail is created in the current region or in all regions. The default is false.

Type: Boolean

Required: No

#### **KmsKeyId** (p. 5)

Specifies the KMS key ID to use to encrypt the logs delivered by CloudTrail. The value can be an alias name prefixed by "alias/", a fully specified ARN to an alias, a fully specified ARN to a key, or a globally unique identifier.

Examples:

- alias/MyAliasName
- arn:aws:kms:us-east-1:123456789012:alias/MyAliasName
- arn:aws:kms:us-east-1:123456789012:key/12345678-1234-1234-1234-123456789012
- 12345678-1234-1234-1234-123456789012

Type: String

Required: No

#### **Name** (p. 5)

Specifies the name of the trail. The name must meet the following requirements:

- Contain only ASCII letters (a-z, A-Z), numbers (0-9), periods (.), underscores (\_), or dashes (-)
- Start with a letter or number, and end with a letter or number
- Be between 3 and 128 characters
- Have no adjacent periods, underscores or dashes. Names like `my-_namespace` and `my--namespace` are invalid.
- Not be in IP address format (for example, 192.168.5.4)

Type: String

Required: Yes

#### **S3BucketName** (p. 5)

Specifies the name of the Amazon S3 bucket designated for publishing log files. See [Amazon S3 Bucket Naming Requirements](#).

Type: String

Required: Yes

#### **S3KeyPrefix** (p. 5)

Specifies the Amazon S3 key prefix that comes after the name of the bucket you have designated for log file delivery. For more information, see [Finding Your CloudTrail Log Files](#). The maximum length is 200 characters.

Type: String

Required: No

#### **SnsTopicName** (p. 5)

Specifies the name of the Amazon SNS topic defined for notification of log file delivery. The maximum length is 256 characters.

Type: String

Required: No

## Response Syntax

```
{  
  "CloudWatchLogsLogGroupArn": "string",  
  "CloudWatchLogsRoleArn": "string",  
  "IncludeGlobalServiceEvents": boolean,  
  "IsMultiRegionTrail": boolean,
```

```
"KmsKeyId": "string",  
"LogFileValidationEnabled": boolean,  
"Name": "string",  
"S3BucketName": "string",  
"S3KeyPrefix": "string",  
"SnsTopicARN": "string",  
"SnsTopicName": "string",  
"TrailARN": "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.

### **CloudWatchLogsLogGroupArn (p. 6)**

Specifies the Amazon Resource Name (ARN) of the log group to which CloudTrail logs will be delivered.

Type: String

### **CloudWatchLogsRoleArn (p. 6)**

Specifies the role for the CloudWatch Logs endpoint to assume to write to a user's log group.

Type: String

### **IncludeGlobalServiceEvents (p. 6)**

Specifies whether the trail is publishing events from global services such as IAM to the log files.

Type: Boolean

### **IsMultiRegionTrail (p. 6)**

Specifies whether the trail exists in one region or in all regions.

Type: Boolean

### **KmsKeyId (p. 6)**

Specifies the KMS key ID that encrypts the logs delivered by CloudTrail. The value is a fully specified ARN to a KMS key in the format:

```
arn:aws:kms:us-  
east-1:123456789012:key/12345678-1234-1234-1234-123456789012
```

Type: String

### **LogFileValidationEnabled (p. 6)**

Specifies whether log file integrity validation is enabled.

Type: Boolean

### **Name (p. 6)**

Specifies the name of the trail.

Type: String

### **S3BucketName (p. 6)**

Specifies the name of the Amazon S3 bucket designated for publishing log files.

Type: String

### **S3KeyPrefix (p. 6)**

Specifies the Amazon S3 key prefix that comes after the name of the bucket you have designated for log file delivery. For more information, see [Finding Your CloudTrail Log Files](#).

Type: String

### **SnsTopicARN (p. 6)**

Specifies the ARN of the Amazon SNS topic that CloudTrail uses to send notifications when log files are delivered. The format of a topic ARN is:

```
arn:aws:sns:us-east-1:123456789012:MyTopic
```

Type: String

### **SnsTopicName (p. 6)**

This field is deprecated. Use [CreateTrail:SnsTopicARN \(p. 7\)](#).

Type: String

### **TrailARN (p. 6)**

Specifies the ARN of the trail that was created. The format of a trail ARN is:

```
arn:aws:cloudtrail:us-east-1:123456789012:trail/MyTrail
```

Type: String

## Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 52\)](#).

### **CloudWatchLogsDeliveryUnavailableException**

Cannot set a CloudWatch Logs delivery for this region.

HTTP Status Code: 400

### **InsufficientEncryptionPolicyException**

This exception is thrown when the policy on the S3 bucket or KMS key is not sufficient.

HTTP Status Code: 400

### **InsufficientS3BucketPolicyException**

This exception is thrown when the policy on the S3 bucket is not sufficient.

HTTP Status Code: 400

### **InsufficientSnsTopicPolicyException**

This exception is thrown when the policy on the SNS topic is not sufficient.

HTTP Status Code: 400

### **InvalidCloudWatchLogsLogGroupArnException**

This exception is thrown when the provided CloudWatch log group is not valid.

HTTP Status Code: 400

### **InvalidCloudWatchLogsRoleArnException**

This exception is thrown when the provided role is not valid.

HTTP Status Code: 400

### **InvalidKmsKeyIdException**

This exception is thrown when the KMS key ARN is invalid.

HTTP Status Code: 400

### **InvalidParameterCombinationException**

This exception is thrown when the combination of parameters provided is not valid.

HTTP Status Code: 400

### **InvalidS3BucketNameException**

This exception is thrown when the provided S3 bucket name is not valid.

HTTP Status Code: 400

### **InvalidS3PrefixException**

This exception is thrown when the provided S3 prefix is not valid.

HTTP Status Code: 400

### **InvalidSnsTopicNameException**

This exception is thrown when the provided SNS topic name is not valid.

HTTP Status Code: 400

### **InvalidTrailNameException**

This exception is thrown when the provided trail name is not valid. Trail names must meet the following requirements:

- Contain only ASCII letters (a-z, A-Z), numbers (0-9), periods (.), underscores (\_), or dashes (-)
- Start with a letter or number, and end with a letter or number

- Be between 3 and 128 characters
- Have no adjacent periods, underscores or dashes. Names like `my-_namespace` and `my--namespace` are invalid.
- Not be in IP address format (for example, 192.168.5.4)

HTTP Status Code: 400

**KmsException**

This exception is thrown when there is an issue with the specified KMS key and the trail can't be updated.

HTTP Status Code: 400

**KmsKeyDisabledException**

This exception is deprecated.

HTTP Status Code: 400

**KmsKeyNotFoundExcpetion**

This exception is thrown when the KMS key does not exist, or when the S3 bucket and the KMS key are not in the same region.

HTTP Status Code: 400

**MaximumNumberOfTrailsExceededException**

This exception is thrown when the maximum number of trails is reached.

HTTP Status Code: 400

**OperationNotPermittedException**

This exception is thrown when the requested operation is not permitted.

HTTP Status Code: 400

**S3BucketDoesNotExistException**

This exception is thrown when the specified S3 bucket does not exist.

HTTP Status Code: 400

**TrailAlreadyExistsException**

This exception is thrown when the specified trail already exists.

HTTP Status Code: 400

**TrailNotProvidedException**

This exception is deprecated.

HTTP Status Code: 400

**UnsupportedOperationException**

This exception is thrown when the requested operation is not supported.

HTTP Status Code: 400

# DeleteTrail

Deletes a trail. This operation must be called from the region in which the trail was created. `DeleteTrail` cannot be called on the shadow trails (replicated trails in other regions) of a trail that is enabled in all regions.

## Request Syntax

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

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#) (p. 50).

The request accepts the following data in JSON format.

### Name (p. 10)

Specifies the name or the CloudTrail ARN of the trail to be deleted. The format of a trail ARN is:  
`arn:aws:cloudtrail:us-east-1:123456789012:trail/MyTrail`

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. 52).

### InvalidHomeRegionException

This exception is thrown when an operation is called on a trail from a region other than the region in which the trail was created.

HTTP Status Code: 400

### InvalidTrailNameException

This exception is thrown when the provided trail name is not valid. Trail names must meet the following requirements:

- Contain only ASCII letters (a-z, A-Z), numbers (0-9), periods (.), underscores (\_), or dashes (-)
- Start with a letter or number, and end with a letter or number
- Be between 3 and 128 characters
- Have no adjacent periods, underscores or dashes. Names like `my-_namespace` and `my--namespace` are invalid.
- Not be in IP address format (for example, 192.168.5.4)

HTTP Status Code: 400

### TrailNotFoundException

This exception is thrown when the trail with the given name is not found.

HTTP Status Code: 400

# DescribeTrails

Retrieves settings for the trail associated with the current region for your account.

## Request Syntax

```
{  
  "includeShadowTrails": boolean,  
  "trailNameList": [ "string" ]  
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#) (p. 50).

The request accepts the following data in JSON format.

### **includeShadowTrails** (p. 11)

Specifies whether to include shadow trails in the response. A shadow trail is the replication in a region of a trail that was created in a different region. The default is true.

Type: Boolean

Required: No

### **trailNameList** (p. 11)

Specifies a list of trail names, trail ARNs, or both, of the trails to describe. The format of a trail ARN is:

```
arn:aws:cloudtrail:us-east-1:123456789012:trail/MyTrail
```

If an empty list is specified, information for the trail in the current region is returned.

- If an empty list is specified and `IncludeShadowTrails` is false, then information for all trails in the current region is returned.
- If an empty list is specified and `IncludeShadowTrails` is null or true, then information for all trails in the current region and any associated shadow trails in other regions is returned.

#### **Note**

If one or more trail names are specified, information is returned only if the names match the names of trails belonging only to the current region. To return information about a trail in another region, you must specify its trail ARN.

Type: array of Strings

Required: No

## Response Syntax

```
{  
  "trailList": [  
    {  
      "CloudWatchLogsLogGroupArn": "string",  
      "CloudWatchLogsRoleArn": "string",  
      "HasCustomEventSelectors": boolean,  
      "HomeRegion": "string",  
      "IncludeGlobalServiceEvents": boolean,  
      "IsMultiRegionTrail": boolean,  
      "KmsKeyId": "string",  
      "LogFileValidationEnabled": boolean,  
    }  
  ]  
}
```

```
    "Name": "string",  
    "S3BucketName": "string",  
    "S3KeyPrefix": "string",  
    "SnsTopicARN": "string",  
    "SnsTopicName": "string",  
    "TrailARN": "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.

### **trailList (p. 11)**

The list of trail objects.

Type: array of [Trail \(p. 48\)](#) objects

## Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 52\)](#).

### **OperationNotPermittedException**

This exception is thrown when the requested operation is not permitted.

HTTP Status Code: 400

### **UnsupportedOperationException**

This exception is thrown when the requested operation is not supported.

HTTP Status Code: 400



# GetEventSelectors

Describes the settings for the event selectors that you configured for your trail. The information returned for your event selectors includes the following:

- The S3 objects that you are logging for data events.
- If your event selector includes management events.
- If your event selector includes read-only events, write-only events, or all.

For more information, see [Configuring Event Selectors for Trails](#) in the *AWS CloudTrail User Guide*.

## Request Syntax

```
{
  "TrailName": "string"
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#) (p. 50).

The request accepts the following data in JSON format.

### TrailName (p. 13)

Specifies the name of the trail or trail ARN. If you specify a trail name, the string must meet the following requirements:

- Contain only ASCII letters (a-z, A-Z), numbers (0-9), periods (.), underscores (\_), or dashes (-)
- Start with a letter or number, and end with a letter or number
- Be between 3 and 128 characters
- Have no adjacent periods, underscores or dashes. Names like `my-_namespace` and `my--namespace` are invalid.
- Not be in IP address format (for example, 192.168.5.4)

If you specify a trail ARN, it must be in the format:

```
arn:aws:cloudtrail:us-east-1:123456789012:trail/MyTrail
```

Type: String

Required: No

## Response Syntax

```
{
  "EventSelectors": [
    {
      "DataResources": [
        {
          "Type": "string",
          "Values": [ "string" ]
        }
      ],
      "IncludeManagementEvents": boolean,
      "ReadWriteType": "string"
    }
  ]
}
```

```
  ],  
  "TrailARN": "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.

### EventSelectors (p. 13)

The event selectors that are configured for the trail.  
Type: array of [EventSelector \(p. 42\)](#) objects

### TrailARN (p. 13)

The specified trail ARN that has the event selectors.  
Type: String

## Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 52\)](#).

### InvalidTrailNameException

This exception is thrown when the provided trail name is not valid. Trail names must meet the following requirements:

- Contain only ASCII letters (a-z, A-Z), numbers (0-9), periods (.), underscores (\_), or dashes (-)
- Start with a letter or number, and end with a letter or number
- Be between 3 and 128 characters
- Have no adjacent periods, underscores or dashes. Names like `my-_namespace` and `my--namespace` are invalid.
- Not be in IP address format (for example, 192.168.5.4)

HTTP Status Code: 400

### OperationNotPermittedException

This exception is thrown when the requested operation is not permitted.

HTTP Status Code: 400

### TrailNotFoundException

This exception is thrown when the trail with the given name is not found.

HTTP Status Code: 400

### UnsupportedOperationException

This exception is thrown when the requested operation is not supported.

HTTP Status Code: 400

# GetTrailStatus

Returns a JSON-formatted list of information about the specified trail. Fields include information on delivery errors, Amazon SNS and Amazon S3 errors, and start and stop logging times for each trail. This operation returns trail status from a single region. To return trail status from all regions, you must call the operation on each region.

## Request Syntax

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

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#) (p. 50).

The request accepts the following data in JSON format.

### Name (p. 15)

Specifies the name or the CloudTrail ARN of the trail for which you are requesting status. To get the status of a shadow trail (a replication of the trail in another region), you must specify its ARN. The format of a trail ARN is:

```
arn:aws:cloudtrail:us-east-1:123456789012:trail/MyTrail
```

Type: String

Required: Yes

## Response Syntax

```
{  
  "IsLogging": boolean,  
  "LatestCloudWatchLogsDeliveryError": "string",  
  "LatestCloudWatchLogsDeliveryTime": number,  
  "LatestDeliveryAttemptSucceeded": "string",  
  "LatestDeliveryAttemptTime": "string",  
  "LatestDeliveryError": "string",  
  "LatestDeliveryTime": number,  
  "LatestDigestDeliveryError": "string",  
  "LatestDigestDeliveryTime": number,  
  "LatestNotificationAttemptSucceeded": "string",  
  "LatestNotificationAttemptTime": "string",  
  "LatestNotificationError": "string",  
  "LatestNotificationTime": number,  
  "StartLoggingTime": number,  
  "StopLoggingTime": number,  
  "TimeLoggingStarted": "string",  
  "TimeLoggingStopped": "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.

**IsLogging (p. 15)**

Whether the CloudTrail is currently logging AWS API calls.

Type: Boolean

**LatestCloudWatchLogsDeliveryError (p. 15)**

Displays any CloudWatch Logs error that CloudTrail encountered when attempting to deliver logs to CloudWatch Logs.

Type: String

**LatestCloudWatchLogsDeliveryTime (p. 15)**

Displays the most recent date and time when CloudTrail delivered logs to CloudWatch Logs.

Type: Timestamp

**LatestDeliveryAttemptSucceeded (p. 15)**

This field is deprecated.

Type: String

**LatestDeliveryAttemptTime (p. 15)**

This field is deprecated.

Type: String

**LatestDeliveryError (p. 15)**

Displays any Amazon S3 error that CloudTrail encountered when attempting to deliver log files to the designated bucket. For more information see the topic [Error Responses](#) in the Amazon S3 API Reference.

**Note**

This error occurs only when there is a problem with the destination S3 bucket and will not occur for timeouts. To resolve the issue, create a new bucket and call `UpdateTrail` to specify the new bucket, or fix the existing objects so that CloudTrail can again write to the bucket.

Type: String

**LatestDeliveryTime (p. 15)**

Specifies the date and time that CloudTrail last delivered log files to an account's Amazon S3 bucket.

Type: Timestamp

**LatestDigestDeliveryError (p. 15)**

Displays any Amazon S3 error that CloudTrail encountered when attempting to deliver a digest file to the designated bucket. For more information see the topic [Error Responses](#) in the Amazon S3 API Reference.

**Note**

This error occurs only when there is a problem with the destination S3 bucket and will not occur for timeouts. To resolve the issue, create a new bucket and call `UpdateTrail` to specify the new bucket, or fix the existing objects so that CloudTrail can again write to the bucket.

Type: String

**LatestDigestDeliveryTime (p. 15)**

Specifies the date and time that CloudTrail last delivered a digest file to an account's Amazon S3 bucket.

Type: Timestamp

**LatestNotificationAttemptSucceeded (p. 15)**

This field is deprecated.

Type: String

**LatestNotificationAttemptTime (p. 15)**

This field is deprecated.

Type: String

#### **LatestNotificationError (p. 15)**

Displays any Amazon SNS error that CloudTrail encountered when attempting to send a notification. For more information about Amazon SNS errors, see the [Amazon SNS Developer Guide](#).

Type: String

#### **LatestNotificationTime (p. 15)**

Specifies the date and time of the most recent Amazon SNS notification that CloudTrail has written a new log file to an account's Amazon S3 bucket.

Type: Timestamp

#### **StartLoggingTime (p. 15)**

Specifies the most recent date and time when CloudTrail started recording API calls for an AWS account.

Type: Timestamp

#### **StopLoggingTime (p. 15)**

Specifies the most recent date and time when CloudTrail stopped recording API calls for an AWS account.

Type: Timestamp

#### **TimeLoggingStarted (p. 15)**

This field is deprecated.

Type: String

#### **TimeLoggingStopped (p. 15)**

This field is deprecated.

Type: String

## Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 52\)](#).

#### **InvalidTrailNameException**

This exception is thrown when the provided trail name is not valid. Trail names must meet the following requirements:

- Contain only ASCII letters (a-z, A-Z), numbers (0-9), periods (.), underscores (\_), or dashes (-)
- Start with a letter or number, and end with a letter or number
- Be between 3 and 128 characters
- Have no adjacent periods, underscores or dashes. Names like `my-_namespace` and `my--namespace` are invalid.
- Not be in IP address format (for example, 192.168.5.4)

HTTP Status Code: 400

#### **TrailNotFoundException**

This exception is thrown when the trail with the given name is not found.

HTTP Status Code: 400

## ListPublicKeys

Returns all public keys whose private keys were used to sign the digest files within the specified time range. The public key is needed to validate digest files that were signed with its corresponding private key.

### Note

CloudTrail uses different private/public key pairs per region. Each digest file is signed with a private key unique to its region. Therefore, when you validate a digest file from a particular region, you must look in the same region for its corresponding public key.

## Request Syntax

```
{
  "EndTime": number,
  "NextToken": "string",
  "StartTime": number
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#) (p. 50).

The request accepts the following data in JSON format.

### EndTime (p. 18)

Optionally specifies, in UTC, the end of the time range to look up public keys for CloudTrail digest files. If not specified, the current time is used.

Type: Timestamp

Required: No

### NextToken (p. 18)

Reserved for future use.

Type: String

Required: No

### StartTime (p. 18)

Optionally specifies, in UTC, the start of the time range to look up public keys for CloudTrail digest files. If not specified, the current time is used, and the current public key is returned.

Type: Timestamp

Required: No

## Response Syntax

```
{
  "NextToken": "string",
  "PublicKeyList": [
    {
      "Fingerprint": "string",
      "ValidityEndTime": number,
      "ValidityStartTime": number,
      "Value": blob
    }
  ]
}
```

```
}
```

## 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. 18)

Reserved for future use.

Type: String

### **PublicKeyList** (p. 18)

Contains an array of [PublicKey](#) objects.

#### **Note**

The returned public keys may have validity time ranges that overlap.

Type: array of [PublicKey](#) (p. 44) objects

## Errors

For information about the errors that are common to all actions, see [Common Errors](#) (p. 52).

### **InvalidTimeRangeException**

Occurs if the timestamp values are invalid. Either the start time occurs after the end time or the time range is outside the range of possible values.

HTTP Status Code: 400

### **InvalidTokenException**

Reserved for future use.

HTTP Status Code: 400

### **OperationNotPermittedException**

This exception is thrown when the requested operation is not permitted.

HTTP Status Code: 400

### **UnsupportedOperationException**

This exception is thrown when the requested operation is not supported.

HTTP Status Code: 400

## ListTags

Lists the tags for the trail in the current region.

### Request Syntax

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

### Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#) (p. 50).

The request accepts the following data in JSON format.

#### NextToken (p. 20)

Reserved for future use.

Type: String

Required: No

#### ResourceIdList (p. 20)

Specifies a list of trail ARNs whose tags will be listed. The list has a limit of 20 ARNs. The format of a trail ARN is:

```
arn:aws:cloudtrail:us-east-1:123456789012:trail/MyTrail
```

Type: array of Strings

Required: Yes

### Response Syntax

```
{
  "NextToken": "string",
  "ResourceTagList": [
    {
      "ResourceId": "string",
      "TagsList": [
        {
          "Key": "string",
          "Value": "string"
        }
      ]
    }
  ]
}
```

### Response Elements

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

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

#### NextToken (p. 20)

Reserved for future use.



Type: String

**ResourceTagList (p. 20)**

A list of resource tags.

Type: array of [ResourceTag \(p. 46\)](#) objects

## Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 52\)](#).

**CloudTrailARNInvalidException**

This exception is thrown when an operation is called with an invalid trail ARN. The format of a trail ARN is:

```
arn:aws:cloudtrail:us-east-1:123456789012:trail/MyTrail
```

HTTP Status Code: 400

**InvalidTokenException**

Reserved for future use.

HTTP Status Code: 400

**InvalidTrailNameException**

This exception is thrown when the provided trail name is not valid. Trail names must meet the following requirements:

- Contain only ASCII letters (a-z, A-Z), numbers (0-9), periods (.), underscores (\_), or dashes (-)
- Start with a letter or number, and end with a letter or number
- Be between 3 and 128 characters
- Have no adjacent periods, underscores or dashes. Names like `my-_namespace` and `my--namespace` are invalid.
- Not be in IP address format (for example, 192.168.5.4)

HTTP Status Code: 400

**OperationNotPermittedException**

This exception is thrown when the requested operation is not permitted.

HTTP Status Code: 400

**ResourceNotFoundException**

This exception is thrown when the specified resource is not found.

HTTP Status Code: 400

**ResourceTypeNotSupportedException**

This exception is thrown when the specified resource type is not supported by CloudTrail.

HTTP Status Code: 400

**UnsupportedOperationException**

This exception is thrown when the requested operation is not supported.

HTTP Status Code: 400

## LookupEvents

Looks up API activity events captured by CloudTrail that create, update, or delete resources in your account. Events for a region can be looked up for the times in which you had CloudTrail turned on in that region during the last seven days. Lookup supports the following attributes:

- Event ID
- Event name
- Resource name
- Resource type
- User name

All attributes are optional. The default number of results returned is 10, with a maximum of 50 possible. The response includes a token that you can use to get the next page of results.

### Important

The rate of lookup requests is limited to one per second per account. If this limit is exceeded, a throttling error occurs.

### Important

Events that occurred during the selected time range will not be available for lookup if CloudTrail logging was not enabled when the events occurred.

## Request Syntax

```
{
  "EndTime": number,
  "LookupAttributes": [
    {
      "AttributeKey": "string",
      "AttributeValue": "string"
    }
  ],
  "MaxResults": number,
  "NextToken": "string",
  "StartTime": number
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#) (p. 50).

The request accepts the following data in JSON format.

### EndTime (p. 22)

Specifies that only events that occur before or at the specified time are returned. If the specified end time is before the specified start time, an error is returned.

Type: Timestamp

Required: No

### LookupAttributes (p. 22)

Contains a list of lookup attributes. Currently the list can contain only one item.

Type: array of [LookupAttribute](#) (p. 43) objects

Required: No

### MaxResults (p. 22)

The number of events to return. Possible values are 1 through 50. The default is 10.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 50.

Required: No

### NextToken (p. 22)

The token to use to get the next page of results after a previous API call. This token must be passed in with the same parameters that were specified in the the original call. For example, if the original call specified an AttributeKey of 'Username' with a value of 'root', the call with NextToken should include those same parameters.

Type: String

Required: No

### StartTime (p. 22)

Specifies that only events that occur after or at the specified time are returned. If the specified start time is after the specified end time, an error is returned.

Type: Timestamp

Required: No

## Response Syntax

```
{
  "Events": [
    {
      "CloudTrailEvent": "string",
      "EventId": "string",
      "EventName": "string",
      "EventSource": "string",
      "EventTime": number,
      "Resources": [
        {
          "ResourceName": "string",
          "ResourceType": "string"
        }
      ],
      "Username": "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.

### Events (p. 23)

A list of events returned based on the lookup attributes specified and the CloudTrail event. The events list is sorted by time. The most recent event is listed first.

Type: array of [Event \(p. 41\)](#) objects

### NextToken (p. 23)

The token to use to get the next page of results after a previous API call. If the token does not appear, there are no more results to return. The token must be passed in with the same

parameters as the previous call. For example, if the original call specified an AttributeKey of 'Username' with a value of 'root', the call with NextToken should include those same parameters.  
Type: String

## Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 52\)](#).

### **InvalidLookupAttributesException**

Occurs when an invalid lookup attribute is specified.

HTTP Status Code: 400

### **InvalidMaxResultsException**

This exception is thrown if the limit specified is invalid.

HTTP Status Code: 400

### **InvalidNextTokenException**

Invalid token or token that was previously used in a request with different parameters. This exception is thrown if the token is invalid.

HTTP Status Code: 400

### **InvalidTimeRangeException**

Occurs if the timestamp values are invalid. Either the start time occurs after the end time or the time range is outside the range of possible values.

HTTP Status Code: 400

# PutEventSelectors

Configures an event selector for your trail. Use event selectors to specify the type of events that you want your trail to log. When an event occurs in your account, CloudTrail evaluates the event selectors in all trails. For each trail, if the event matches any event selector, the trail processes and logs the event. If the event doesn't match any event selector, the trail doesn't log the event.

Example

1. You create an event selector for a trail and specify that you want write-only events.
2. The EC2 `GetConsoleOutput` and `RunInstances` API operations occur in your account.
3. CloudTrail evaluates whether the events match your event selectors.
4. The `RunInstances` is a write-only event and it matches your event selector. The trail logs the event.
5. The `GetConsoleOutput` is a read-only event but it doesn't match your event selector. The trail doesn't log the event.

The `PutEventSelectors` operation must be called from the region in which the trail was created; otherwise, an `InvalidHomeRegionException` is thrown.

You can configure up to five event selectors for each trail. For more information, see [Configuring Event Selectors for Trails](#) in the *AWS CloudTrail User Guide*.

## Request Syntax

```
{
  "EventSelectors": [
    {
      "DataResources": [
        {
          "Type": "string",
          "Values": [ "string" ]
        }
      ],
      "IncludeManagementEvents": boolean,
      "ReadWriteType": "string"
    }
  ],
  "TrailName": "string"
}
```

## Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#) (p. 50).

The request accepts the following data in JSON format.

### EventSelectors (p. 25)

Specifies the settings for your event selectors. You can configure up to five event selectors for a trail.

Type: array of [EventSelector](#) (p. 42) objects

Required: No

### TrailName (p. 25)

Specifies the name of the trail or trail ARN. If you specify a trail name, the string must meet the following requirements:

- Contain only ASCII letters (a-z, A-Z), numbers (0-9), periods (.), underscores (\_), or dashes (-)
- Start with a letter or number, and end with a letter or number
- Be between 3 and 128 characters
- Have no adjacent periods, underscores or dashes. Names like `my--namespace` and `my--namespace` are invalid.
- Not be in IP address format (for example, 192.168.5.4)

If you specify a trail ARN, it must be in the format:

```
arn:aws:cloudtrail:us-east-1:123456789012:trail/MyTrail
```

Type: String

Required: No

## Response Syntax

```
{
  "EventSelectors": [
    {
      "DataResources": [
        {
          "Type": "string",
          "Values": [ "string" ]
        }
      ],
      "IncludeManagementEvents": boolean,
      "ReadWriteType": "string"
    }
  ],
  "TrailARN": "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.

### EventSelectors (p. 26)

Specifies the event selectors configured for your trail.

Type: array of [EventSelector \(p. 42\)](#) objects

### TrailARN (p. 26)

Specifies the ARN of the trail that was updated with event selectors. The format of a trail ARN is:

```
arn:aws:cloudtrail:us-east-1:123456789012:trail/MyTrail
```

Type: String

## Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 52\)](#).

### InvalidEventSelectorsException

This exception is thrown when the `PutEventSelectors` operation is called with an invalid number of event selectors, data resources, or an invalid value for a parameter:

- Specify a valid number of event selectors (1 to 5) for a trail.
- Specify a valid number of data resources (1 to 50) for an event selector.

- Specify a valid value for a parameter. For example, specifying the `ReadWriteType` parameter with a value of `read-only` is invalid.

HTTP Status Code: 400

**InvalidHomeRegionException**

This exception is thrown when an operation is called on a trail from a region other than the region in which the trail was created.

HTTP Status Code: 400

**InvalidTrailNameException**

This exception is thrown when the provided trail name is not valid. Trail names must meet the following requirements:

- Contain only ASCII letters (a-z, A-Z), numbers (0-9), periods (.), underscores (\_), or dashes (-)
- Start with a letter or number, and end with a letter or number
- Be between 3 and 128 characters
- Have no adjacent periods, underscores or dashes. Names like `my-_namespace` and `my--namespace` are invalid.
- Not be in IP address format (for example, 192.168.5.4)

HTTP Status Code: 400

**OperationNotPermittedException**

This exception is thrown when the requested operation is not permitted.

HTTP Status Code: 400

**TrailNotFoundException**

This exception is thrown when the trail with the given name is not found.

HTTP Status Code: 400

**UnsupportedOperationException**

This exception is thrown when the requested operation is not supported.

HTTP Status Code: 400

## RemoveTags

Removes the specified tags from a trail.

### Request Syntax

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

### Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters \(p. 50\)](#).

The request accepts the following data in JSON format.

#### ResourceId (p. 28)

Specifies the ARN of the trail from which tags should be removed. The format of a trail ARN is:

```
arn:aws:cloudtrail:us-east-1:123456789012:trail/MyTrail
```

Type: String

Required: Yes

#### TagsList (p. 28)

Specifies a list of tags to be removed.

Type: array of [Tag \(p. 47\)](#) objects

Required: No

### Response Elements

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

### Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 52\)](#).

#### CloudTrailARNInvalidException

This exception is thrown when an operation is called with an invalid trail ARN. The format of a trail ARN is:

```
arn:aws:cloudtrail:us-east-1:123456789012:trail/MyTrail
```

HTTP Status Code: 400

#### InvalidTagParameterException

This exception is thrown when the key or value specified for the tag does not match the regular expression `^([\p{L}\p{Z}\p{N}_.:/=+\-@]*)$`.

HTTP Status Code: 400

#### InvalidTrailNameException

This exception is thrown when the provided trail name is not valid. Trail names must meet the following requirements:



- Contain only ASCII letters (a-z, A-Z), numbers (0-9), periods (.), underscores (\_), or dashes (-)
- Start with a letter or number, and end with a letter or number
- Be between 3 and 128 characters
- Have no adjacent periods, underscores or dashes. Names like `my-_namespace` and `my--namespace` are invalid.
- Not be in IP address format (for example, 192.168.5.4)

HTTP Status Code: 400

**OperationNotPermittedException**

This exception is thrown when the requested operation is not permitted.

HTTP Status Code: 400

**ResourceNotFoundException**

This exception is thrown when the specified resource is not found.

HTTP Status Code: 400

**ResourceTypeNotSupportedException**

This exception is thrown when the specified resource type is not supported by CloudTrail.

HTTP Status Code: 400

**UnsupportedOperationException**

This exception is thrown when the requested operation is not supported.

HTTP Status Code: 400

## StartLogging

Starts the recording of AWS API calls and log file delivery for a trail. For a trail that is enabled in all regions, this operation must be called from the region in which the trail was created. This operation cannot be called on the shadow trails (replicated trails in other regions) of a trail that is enabled in all regions.

### Request Syntax

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

### Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters \(p. 50\)](#).

The request accepts the following data in JSON format.

#### **Name (p. 30)**

Specifies the name or the CloudTrail ARN of the trail for which CloudTrail logs AWS API calls. The format of a trail ARN is:

```
arn:aws:cloudtrail:us-east-1:123456789012:trail/MyTrail
```

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 \(p. 52\)](#).

#### **InvalidHomeRegionException**

This exception is thrown when an operation is called on a trail from a region other than the region in which the trail was created.

HTTP Status Code: 400

#### **InvalidTrailNameException**

This exception is thrown when the provided trail name is not valid. Trail names must meet the following requirements:

- Contain only ASCII letters (a-z, A-Z), numbers (0-9), periods (.), underscores (\_), or dashes (-)
- Start with a letter or number, and end with a letter or number
- Be between 3 and 128 characters
- Have no adjacent periods, underscores or dashes. Names like `my-_namespace` and `my--namespace` are invalid.
- Not be in IP address format (for example, 192.168.5.4)

HTTP Status Code: 400

#### **TrailNotFoundException**

This exception is thrown when the trail with the given name is not found.

HTTP Status Code: 400



## StopLogging

Suspends the recording of AWS API calls and log file delivery for the specified trail. Under most circumstances, there is no need to use this action. You can update a trail without stopping it first. This action is the only way to stop recording. For a trail enabled in all regions, this operation must be called from the region in which the trail was created, or an `InvalidHomeRegionException` will occur. This operation cannot be called on the shadow trails (replicated trails in other regions) of a trail enabled in all regions.

### Request Syntax

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

### Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#) (p. 50).

The request accepts the following data in JSON format.

#### **Name** (p. 32)

Specifies the name or the CloudTrail ARN of the trail for which CloudTrail will stop logging AWS API calls. The format of a trail ARN is:

```
arn:aws:cloudtrail:us-east-1:123456789012:trail/MyTrail
```

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. 52).

#### **InvalidHomeRegionException**

This exception is thrown when an operation is called on a trail from a region other than the region in which the trail was created.

HTTP Status Code: 400

#### **InvalidTrailNameException**

This exception is thrown when the provided trail name is not valid. Trail names must meet the following requirements:

- Contain only ASCII letters (a-z, A-Z), numbers (0-9), periods (.), underscores (\_), or dashes (-)
- Start with a letter or number, and end with a letter or number
- Be between 3 and 128 characters
- Have no adjacent periods, underscores or dashes. Names like `my-_namespace` and `my--namespace` are invalid.
- Not be in IP address format (for example, 192.168.5.4)

HTTP Status Code: 400

#### **TrailNotFoundException**

This exception is thrown when the trail with the given name is not found.

HTTP Status Code: 400

## UpdateTrail

Updates the settings that specify delivery of log files. Changes to a trail do not require stopping the CloudTrail service. Use this action to designate an existing bucket for log delivery. If the existing bucket has previously been a target for CloudTrail log files, an IAM policy exists for the bucket. UpdateTrail must be called from the region in which the trail was created; otherwise, an `InvalidHomeRegionException` is thrown.

### Request Syntax

```
{
  "CloudWatchLogsLogGroupArn": "string",
  "CloudWatchLogsRoleArn": "string",
  "EnableLogFileValidation": boolean,
  "IncludeGlobalServiceEvents": boolean,
  "IsMultiRegionTrail": boolean,
  "KmsKeyId": "string",
  "Name": "string",
  "S3BucketName": "string",
  "S3KeyPrefix": "string",
  "SnsTopicName": "string"
}
```

### Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#) (p. 50).

The request accepts the following data in JSON format.

#### CloudWatchLogsLogGroupArn (p. 34)

Specifies a log group name using an Amazon Resource Name (ARN), a unique identifier that represents the log group to which CloudTrail logs will be delivered. Not required unless you specify `CloudWatchLogsRoleArn`.

Type: String

Required: No

#### CloudWatchLogsRoleArn (p. 34)

Specifies the role for the CloudWatch Logs endpoint to assume to write to a user's log group.

Type: String

Required: No

#### EnableLogFileValidation (p. 34)

Specifies whether log file validation is enabled. The default is false.

##### Note

When you disable log file integrity validation, the chain of digest files is broken after one hour. CloudTrail will not create digest files for log files that were delivered during a period in which log file integrity validation was disabled. For example, if you enable log file integrity validation at noon on January 1, disable it at noon on January 2, and re-enable it at noon on January 10, digest files will not be created for the log files delivered from noon on January 2 to noon on January 10. The same applies whenever you stop CloudTrail logging or delete a trail.

Type: Boolean

Required: No

#### IncludeGlobalServiceEvents (p. 34)

Specifies whether the trail is publishing events from global services such as IAM to the log files.

Type: Boolean

Required: No

#### **IsMultiRegionTrail (p. 34)**

Specifies whether the trail applies only to the current region or to all regions. The default is false. If the trail exists only in the current region and this value is set to true, shadow trails (replications of the trail) will be created in the other regions. If the trail exists in all regions and this value is set to false, the trail will remain in the region where it was created, and its shadow trails in other regions will be deleted.

Type: Boolean

Required: No

#### **KmsKeyId (p. 34)**

Specifies the KMS key ID to use to encrypt the logs delivered by CloudTrail. The value can be an alias name prefixed by "alias/", a fully specified ARN to an alias, a fully specified ARN to a key, or a globally unique identifier.

Examples:

- alias/MyAliasName
- arn:aws:kms:us-east-1:123456789012:alias/MyAliasName
- arn:aws:kms:us-east-1:123456789012:key/12345678-1234-1234-1234-123456789012
- 12345678-1234-1234-1234-123456789012

Type: String

Required: No

#### **Name (p. 34)**

Specifies the name of the trail or trail ARN. If `Name` is a trail name, the string must meet the following requirements:

- Contain only ASCII letters (a-z, A-Z), numbers (0-9), periods (.), underscores (\_), or dashes (-)
- Start with a letter or number, and end with a letter or number
- Be between 3 and 128 characters
- Have no adjacent periods, underscores or dashes. Names like `my-_namespace` and `my--namespace` are invalid.
- Not be in IP address format (for example, 192.168.5.4)

If `Name` is a trail ARN, it must be in the format:

```
arn:aws:cloudtrail:us-east-1:123456789012:trail/MyTrail
```

Type: String

Required: Yes

#### **S3BucketName (p. 34)**

Specifies the name of the Amazon S3 bucket designated for publishing log files. See [Amazon S3 Bucket Naming Requirements](#).

Type: String

Required: No

#### **S3KeyPrefix (p. 34)**

Specifies the Amazon S3 key prefix that comes after the name of the bucket you have designated for log file delivery. For more information, see [Finding Your CloudTrail Log Files](#). The maximum length is 200 characters.

Type: String

Required: No

#### **SnsTopicName (p. 34)**

Specifies the name of the Amazon SNS topic defined for notification of log file delivery. The maximum length is 256 characters.

Type: String

Required: No

## Response Syntax

```
{
  "CloudWatchLogsLogGroupArn": "string",
  "CloudWatchLogsRoleArn": "string",
  "IncludeGlobalServiceEvents": boolean,
  "IsMultiRegionTrail": boolean,
  "KmsKeyId": "string",
  "LogFileValidationEnabled": boolean,
  "Name": "string",
  "S3BucketName": "string",
  "S3KeyPrefix": "string",
  "SnsTopicARN": "string",
  "SnsTopicName": "string",
  "TrailARN": "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.

### **CloudWatchLogsLogGroupArn** (p. 36)

Specifies the Amazon Resource Name (ARN) of the log group to which CloudTrail logs will be delivered.

Type: String

### **CloudWatchLogsRoleArn** (p. 36)

Specifies the role for the CloudWatch Logs endpoint to assume to write to a user's log group.

Type: String

### **IncludeGlobalServiceEvents** (p. 36)

Specifies whether the trail is publishing events from global services such as IAM to the log files.

Type: Boolean

### **IsMultiRegionTrail** (p. 36)

Specifies whether the trail exists in one region or in all regions.

Type: Boolean

### **KmsKeyId** (p. 36)

Specifies the KMS key ID that encrypts the logs delivered by CloudTrail. The value is a fully specified ARN to a KMS key in the format:

```
arn:aws:kms:us-
east-1:123456789012:key/12345678-1234-1234-1234-123456789012
```

Type: String

### **LogFileValidationEnabled** (p. 36)

Specifies whether log file integrity validation is enabled.

Type: Boolean

### **Name** (p. 36)

Specifies the name of the trail.

Type: String

### **S3BucketName** (p. 36)

Specifies the name of the Amazon S3 bucket designated for publishing log files.



Type: String

**S3KeyPrefix (p. 36)**

Specifies the Amazon S3 key prefix that comes after the name of the bucket you have designated for log file delivery. For more information, see [Finding Your CloudTrail Log Files](#).

Type: String

**SnsTopicARN (p. 36)**

Specifies the ARN of the Amazon SNS topic that CloudTrail uses to send notifications when log files are delivered. The format of a topic ARN is:

```
arn:aws:sns:us-east-1:123456789012:MyTopic
```

Type: String

**SnsTopicName (p. 36)**

This field is deprecated. Use [UpdateTrail:SnsTopicARN \(p. 37\)](#).

Type: String

**TrailARN (p. 36)**

Specifies the ARN of the trail that was updated. The format of a trail ARN is:

```
arn:aws:cloudtrail:us-east-1:123456789012:trail/MyTrail
```

Type: String

## Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 52\)](#).

**CloudWatchLogsDeliveryUnavailableException**

Cannot set a CloudWatch Logs delivery for this region.

HTTP Status Code: 400

**InsufficientEncryptionPolicyException**

This exception is thrown when the policy on the S3 bucket or KMS key is not sufficient.

HTTP Status Code: 400

**InsufficientS3BucketPolicyException**

This exception is thrown when the policy on the S3 bucket is not sufficient.

HTTP Status Code: 400

**InsufficientSnsTopicPolicyException**

This exception is thrown when the policy on the SNS topic is not sufficient.

HTTP Status Code: 400

**InvalidCloudWatchLogsLogGroupArnException**

This exception is thrown when the provided CloudWatch log group is not valid.

HTTP Status Code: 400

**InvalidCloudWatchLogsRoleArnException**

This exception is thrown when the provided role is not valid.

HTTP Status Code: 400

**InvalidHomeRegionException**

This exception is thrown when an operation is called on a trail from a region other than the region in which the trail was created.

HTTP Status Code: 400

**InvalidKmsKeyIdException**

This exception is thrown when the KMS key ARN is invalid.

HTTP Status Code: 400

**InvalidParameterCombinationException**

This exception is thrown when the combination of parameters provided is not valid.

HTTP Status Code: 400

**InvalidS3BucketNameException**

This exception is thrown when the provided S3 bucket name is not valid.

HTTP Status Code: 400

**InvalidS3PrefixException**

This exception is thrown when the provided S3 prefix is not valid.

HTTP Status Code: 400

**InvalidSnsTopicNameException**

This exception is thrown when the provided SNS topic name is not valid.

HTTP Status Code: 400

**InvalidTrailNameException**

This exception is thrown when the provided trail name is not valid. Trail names must meet the following requirements:

- Contain only ASCII letters (a-z, A-Z), numbers (0-9), periods (.), underscores (\_), or dashes (-)
- Start with a letter or number, and end with a letter or number
- Be between 3 and 128 characters
- Have no adjacent periods, underscores or dashes. Names like `my-_namespace` and `my--namespace` are invalid.
- Not be in IP address format (for example, 192.168.5.4)

HTTP Status Code: 400

**KmsException**

This exception is thrown when there is an issue with the specified KMS key and the trail can't be updated.

HTTP Status Code: 400

**KmsKeyDisabledException**

This exception is deprecated.

HTTP Status Code: 400

**KmsKeyNotFound**

This exception is thrown when the KMS key does not exist, or when the S3 bucket and the KMS key are not in the same region.

HTTP Status Code: 400

**OperationNotPermittedException**

This exception is thrown when the requested operation is not permitted.

HTTP Status Code: 400

**S3BucketDoesNotExistException**

This exception is thrown when the specified S3 bucket does not exist.

HTTP Status Code: 400

**TrailNotFound**

This exception is thrown when the trail with the given name is not found.

HTTP Status Code: 400

**TrailNotProvided**

This exception is deprecated.

HTTP Status Code: 400

**UnsupportedOperation**

This exception is thrown when the requested operation is not supported.

HTTP Status Code: 400

# Data Types

---

The AWS CloudTrail 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:

- [DataResource](#) (p. 40)
- [Event](#) (p. 41)
- [EventSelector](#) (p. 42)
- [LookupAttribute](#) (p. 43)
- [PublicKey](#) (p. 44)
- [Resource](#) (p. 45)
- [ResourceTag](#) (p. 46)
- [Tag](#) (p. 47)
- [Trail](#) (p. 48)

## DataResource

The Amazon S3 objects that you specify in your event selectors for your trail to log data events. Data events are object level API operations that access S3 objects, such as `GetObject`, `DeleteObject`, and `PutObject`. You can specify up to 50 S3 buckets and object prefixes for an event selector.

### Example

1. You create an event selector for a trail and specify an S3 bucket and an empty prefix, such as `arn:aws:s3:::bucket-1/`.
2. You upload an image file to `bucket-1`.
3. The `PutObject` API operation occurs on an object in the S3 bucket that you specified in the event selector. The trail processes and logs the event.
4. You upload another image file to a different S3 bucket named `arn:aws:s3:::bucket-2`.
5. The event occurs on an object in an S3 bucket that you didn't specify in the event selector. The trail doesn't log the event.

## Contents

### Type

The resource type in which you want to log data events. You can specify only the following value:

`AWS::S3::Object`.

Type: String

Required: No

### Values

A list of ARN-like strings for the specified S3 objects.

To log data events for all objects in an S3 bucket, specify the bucket and an empty object prefix such as `arn:aws:s3:::bucket-1/`. The trail logs data events for all objects in this S3 bucket.

To log data events for specific objects, specify the S3 bucket and object prefix such as `arn:aws:s3:::bucket-1/example-images`. The trail logs data events for objects in this S3 bucket that match the prefix.

Type: array of Strings

Required: No

# Event

Contains information about an event that was returned by a lookup request. The result includes a representation of a CloudTrail event.

## Contents

### **CloudTrailEvent**

A JSON string that contains a representation of the event returned.

Type: String

Required: No

### **EventId**

The CloudTrail ID of the event returned.

Type: String

Required: No

### **EventName**

The name of the event returned.

Type: String

Required: No

### **EventSource**

The AWS service that the request was made to.

Type: String

Required: No

### **EventTime**

The date and time of the event returned.

Type: Timestamp

Required: No

### **Resources**

A list of resources referenced by the event returned.

Type: array of [Resource \(p. 45\)](#) objects

Required: No

### **Username**

A user name or role name of the requester that called the API in the event returned.

Type: String

Required: No

# EventSelector

Use event selectors to specify the types of events that you want your trail to log. When an event occurs in your account, CloudTrail evaluates the event selector for all trails. For each trail, if the event matches any event selector, the trail processes and logs the event. If the event doesn't match any event selector, the trail doesn't log the event.

You can configure up to five event selectors for a trail.

## Contents

### DataResources

CloudTrail supports logging only data events for S3 objects. You can specify up to 50 S3 buckets and object prefixes for an event selector.

For more information, see [Data Events](#) in the *AWS CloudTrail User Guide*.

Type: array of [DataResource](#) (p. 40) objects

Required: No

### IncludeManagementEvents

Specify if you want your event selector to include management events for your trail.

For more information, see [Management Events](#) in the *AWS CloudTrail User Guide*.

By default, the value is `true`.

Type: Boolean

Required: No

### ReadWriteType

Specify if you want your trail to log read-only events, write-only events, or all. For example, the EC2 `GetConsoleOutput` is a read-only API operation and `RunInstances` is a write-only API operation.

By default, the value is `All`.

Type: String

Valid Values: `ReadOnly` | `WriteOnly` | `All`

Required: No

# LookupAttribute

Specifies an attribute and value that filter the events returned.

## Contents

### **AttributeKey**

Specifies an attribute on which to filter the events returned.

Type: String

Valid Values: EventId | EventName | Username | ResourceType | ResourceName | EventSource

Required: Yes

### **AttributeValue**

Specifies a value for the specified AttributeKey.

Type: String

Required: Yes

## PublicKey

Contains information about a returned public key.

### Contents

#### **Fingerprint**

The fingerprint of the public key.

Type: String

Required: No

#### **ValidityEndTime**

The ending time of validity of the public key.

Type: Timestamp

Required: No

#### **ValidityStartTime**

The starting time of validity of the public key.

Type: Timestamp

Required: No

#### **Value**

The DER encoded public key value in PKCS#1 format.

Type: Base64-encoded binary data

Required: No



## Resource

Specifies the type and name of a resource referenced by an event.

### Contents

#### **ResourceName**

The name of the resource referenced by the event returned. These are user-created names whose values will depend on the environment. For example, the resource name might be "auto-scaling-test-group" for an Auto Scaling Group or "i-1234567" for an EC2 Instance.

Type: String

Required: No

#### **ResourceType**

The type of a resource referenced by the event returned. When the resource type cannot be determined, null is returned. Some examples of resource types are: **Instance** for EC2, **Trail** for CloudTrail, **DBInstance** for RDS, and **AccessKey** for IAM. For a list of resource types supported for event lookup, see [Resource Types Supported for Event Lookup](#).

Type: String

Required: No

# ResourceTag

A resource tag.

## Contents

### **ResourceId**

Specifies the ARN of the resource.

Type: String

Required: No

### **TagsList**

A list of tags.

Type: array of [Tag \(p. 47\)](#) objects

Required: No

# Tag

A custom key-value pair associated with a resource such as a CloudTrail trail.

## Contents

### Key

The key in a key-value pair. The key must be no longer than 128 Unicode characters. The key must be unique for the resource to which it applies.

Type: String

Required: Yes

### Value

The value in a key-value pair of a tag. The value must be no longer than 256 Unicode characters.

Type: String

Required: No

# Trail

The settings for a trail.

## Contents

### **CloudWatchLogsLogGroupArn**

Specifies an Amazon Resource Name (ARN), a unique identifier that represents the log group to which CloudTrail logs will be delivered.

Type: String

Required: No

### **CloudWatchLogsRoleArn**

Specifies the role for the CloudWatch Logs endpoint to assume to write to a user's log group.

Type: String

Required: No

### **HasCustomEventSelectors**

Specifies if the trail has custom event selectors.

Type: Boolean

Required: No

### **HomeRegion**

The region in which the trail was created.

Type: String

Required: No

### **IncludeGlobalServiceEvents**

Set to **True** to include AWS API calls from AWS global services such as IAM. Otherwise, **False**.

Type: Boolean

Required: No

### **IsMultiRegionTrail**

Specifies whether the trail belongs only to one region or exists in all regions.

Type: Boolean

Required: No

### **KmsKeyId**

Specifies the KMS key ID that encrypts the logs delivered by CloudTrail. The value is a fully specified ARN to a KMS key in the format:

```
arn:aws:kms:us-east-1:123456789012:key/12345678-1234-1234-1234-123456789012
```

Type: String

Required: No

### **LogFileValidationEnabled**

Specifies whether log file validation is enabled.

Type: Boolean

Required: No

### **Name**

Name of the trail set by calling [CreateTrail \(p. 5\)](#). The maximum length is 128 characters.

Type: String

Required: No

### **S3BucketName**

Name of the Amazon S3 bucket into which CloudTrail delivers your trail files. See [Amazon S3 Bucket Naming Requirements](#).

Type: String

Required: No

**S3KeyPrefix**

Specifies the Amazon S3 key prefix that comes after the name of the bucket you have designated for log file delivery. For more information, see [Finding Your CloudTrail Log Files](#). The maximum length is 200 characters.

Type: String

Required: No

**SnsTopicARN**

Specifies the ARN of the Amazon SNS topic that CloudTrail uses to send notifications when log files are delivered. The format of a topic ARN is:

```
arn:aws:sns:us-east-1:123456789012:MyTopic
```

Type: String

Required: No

**SnsTopicName**

This field is deprecated. Use [Trail:SnsTopicARN \(p. 49\)](#).

Type: String

Required: No

**TrailARN**

Specifies the ARN of the trail. The format of a trail ARN is:

```
arn:aws:cloudtrail:us-east-1:123456789012:trail/MyTrail
```

Type: String

Required: No

# Common Parameters

---

The following table lists the parameters that all actions use for signing Signature Version 4 requests. Any action-specific parameters are listed in the topic for that action. To view sample requests, see [Examples of Signed Signature Version 4 Requests](#) or [Signature Version 4 Test Suite](#) 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'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 [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. For a list of services that support AWS Security Token Service, go to [Using Temporary Security Credentials to Access AWS](#) in *Using Temporary Security Credentials*.

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 common errors that all actions return. Any action-specific errors are listed in the topic for the action.

**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

**Throttling**

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