
AWS CloudFormation

API Reference

API Version 2010-05-15



AWS CloudFormation: API Reference

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Welcome

AWS CloudFormation enables you to create and manage AWS infrastructure deployments predictably and repeatedly. AWS CloudFormation helps you leverage AWS products such as Amazon EC2, EBS, Amazon SNS, ELB, and Auto Scaling to build highly-reliable, highly scalable, cost effective applications without worrying about creating and configuring the underlying AWS infrastructure.

With AWS CloudFormation, you declare all of your resources and dependencies in a template file. The template defines a collection of resources as a single unit called a stack. AWS CloudFormation creates and deletes all member resources of the stack together and manages all dependencies between the resources for you.

For more information about this product, go to the [CloudFormation Product Page](#).

Amazon CloudFormation makes use of other AWS products. If you need additional technical information about a specific AWS product, you can find the product's technical documentation at <http://docs.aws.amazon.com/>.

This document was last published on August 19, 2016.

Actions

The following actions are supported:

- [CancelUpdateStack](#) (p. 3)
- [ContinueUpdateRollback](#) (p. 4)
- [CreateChangeSet](#) (p. 5)
- [CreateStack](#) (p. 9)
- [DeleteChangeSet](#) (p. 13)
- [DeleteStack](#) (p. 15)
- [DescribeAccountLimits](#) (p. 16)
- [DescribeChangeSet](#) (p. 18)
- [DescribeStackEvents](#) (p. 22)
- [DescribeStackResource](#) (p. 25)
- [DescribeStackResources](#) (p. 27)
- [DescribeStacks](#) (p. 30)
- [EstimateTemplateCost](#) (p. 32)
- [ExecuteChangeSet](#) (p. 34)
- [GetStackPolicy](#) (p. 36)
- [GetTemplate](#) (p. 38)
- [GetTemplateSummary](#) (p. 40)
- [ListChangeSets](#) (p. 43)
- [ListStackResources](#) (p. 45)
- [ListStacks](#) (p. 48)
- [SetStackPolicy](#) (p. 51)
- [SignalResource](#) (p. 53)
- [UpdateStack](#) (p. 55)
- [ValidateTemplate](#) (p. 59)

CancelUpdateStack

Cancels an update on the specified stack. If the call completes successfully, the stack rolls back the update and reverts to the previous stack configuration.

Note

You can cancel only stacks that are in the UPDATE_IN_PROGRESS state.

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters \(p. 86\)](#).

StackName

The name or the unique stack ID that is associated with the stack.

Type: String

Required: Yes

Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 88\)](#).

Example

CancelUpdateStack

Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/  
?Action=CancelUpdateStack  
&StackName=MyStack  
&Version=2010-05-15  
&SignatureVersion=2  
&Timestamp=2010-07-27T22%3A26%3A28.000Z  
&AWSAccessKeyId=[AWS Access KeyID]  
&Signature=[Signature]
```

Sample Response

```
<CancelUpdateStackResponse xmlns="http://cloudformation.amazonaws.com/doc/2010-  
05-15/">  
  <ResponseMetadata>  
    <RequestId>5ccc7dcd-744c-11e5-be70-1b08c228efb3</RequestId>  
  </ResponseMetadata>  
</CancelUpdateStackResponse>
```


ContinueUpdateRollback

For a specified stack that is in the `UPDATE_ROLLBACK_FAILED` state, continues rolling it back to the `UPDATE_ROLLBACK_COMPLETE` state. Depending on the cause of the failure, you can manually [fix the error](#) and continue the rollback. By continuing the rollback, you can return your stack to a working state (the `UPDATE_ROLLBACK_COMPLETE` state), and then try to update the stack again.

A stack goes into the `UPDATE_ROLLBACK_FAILED` state when AWS CloudFormation cannot roll back all changes after a failed stack update. For example, you might have a stack that is rolling back to an old database instance that was deleted outside of AWS CloudFormation. Because AWS CloudFormation doesn't know the database was deleted, it assumes that the database instance still exists and attempts to roll back to it, causing the update rollback to fail.

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters \(p. 86\)](#).

StackName

The name or the unique ID of the stack that you want to continue rolling back.

Type: String

Length Constraints: Minimum length of 1.

Pattern:

`([a-zA-Z][-a-zA-Z0-9]*)|(arn:\b(aws|aws-us-gov|aws-cn)\b:[-a-zA-Z0-9:/._+]*)`

Required: Yes

Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 88\)](#).

Example

ContinueUpdateRollback

Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/  
?Action=ContinueUpdateRollback  
&StackName=MyUpdatRollbackFailedStack  
&Version=2010-05-15  
&SignatureVersion=2  
&Timestamp=2010-07-27T22%3A26%3A28.000Z  
&AWSAccessKeyId=[AWS Access KeyID]  
&Signature=[Signature]
```

Sample Response

```
<ContinueUpdateRollbackResponse xmlns="http://cloudformation.amazon  
aws.com/doc/2010-05-15/">  
  <ResponseMetadata>  
    <RequestId>5ccc7dcd-744c-11e5-be70-1b08c228efb3</RequestId>  
  </ResponseMetadata>  
</ContinueUpdateRollbackResponse>
```

CreateChangeSet

Creates a list of changes for a stack. AWS CloudFormation generates the change set by comparing the stack's information with the information that you submit. A change set can help you understand which resources AWS CloudFormation will change and how it will change them before you update your stack. Change sets allow you to check before you make a change so that you don't delete or replace critical resources.

AWS CloudFormation doesn't make any changes to the stack when you create a change set. To make the specified changes, you must execute the change set by using the [ExecuteChangeSet](#) (p. 34) action. After the call successfully completes, AWS CloudFormation starts creating the change set. To check the status of the change set, use the [DescribeChangeSet](#) (p. 18) action.

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#) (p. 86).

Capabilities.member.N

A list of values that you must specify before AWS CloudFormation can update certain stacks. Some stack templates might include resources that can affect permissions in your AWS account, for example, by creating new AWS Identity and Access Management (IAM) users. For those stacks, you must explicitly acknowledge their capabilities by specifying this parameter.

The only valid values are `CAPABILITY_IAM` and `CAPABILITY_NAMED_IAM`. The following resources require you to specify this parameter: [AWS::IAM::AccessKey](#), [AWS::IAM::Group](#), [AWS::IAM::InstanceProfile](#), [AWS::IAM::Policy](#), [AWS::IAM::Role](#), [AWS::IAM::User](#), and [AWS::IAM::UserToGroupAddition](#). If your stack template contains these resources, we recommend that you review all permissions associated with them and edit their permissions if necessary.

If you have IAM resources, you can specify either capability. If you have IAM resources with custom names, you must specify `CAPABILITY_NAMED_IAM`. If you don't specify this parameter, this action returns an `InsufficientCapabilities` error.

For more information, see [Acknowledging IAM Resources in AWS CloudFormation Templates](#).

Type: array of Strings

Valid Values: `CAPABILITY_IAM` | `CAPABILITY_NAMED_IAM`

Required: No

ChangeSetName

The name of the change set. The name must be unique among all change sets that are associated with the specified stack.

A change set name can contain only alphanumeric, case sensitive characters and hyphens. It must start with an alphabetic character and cannot exceed 128 characters.

Type: String

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

Pattern: `[a-zA-Z][-a-zA-Z0-9]*`

Required: Yes

ClientToken

A unique identifier for this `CreateChangeSet` request. Specify this token if you plan to retry requests so that AWS CloudFormation knows that you're not attempting to create another change set with the same name. You might retry `CreateChangeSet` requests to ensure that AWS CloudFormation successfully received them.

Type: String

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

Required: No

Description

A description to help you identify this change set.

Type: String

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

Required: No

NotificationARNs.member.N

The Amazon Resource Names (ARNs) of Amazon Simple Notification Service (Amazon SNS) topics that AWS CloudFormation associates with the stack. To remove all associated notification topics, specify an empty list.

Type: array of Strings

Array Members: Maximum number of 5 items.

Required: No

Parameters.member.N

A list of `Parameter` structures that specify input parameters for the change set. For more information, see the [Parameter](#) data type.

Type: array of [Parameter \(p. 67\)](#) objects

Required: No

ResourceTypes.member.N

The template resource types that you have permissions to work with if you execute this change set, such as `AWS::EC2::Instance`, `AWS::EC2::*`, or `Custom::MyCustomInstance`.

If the list of resource types doesn't include a resource type that you're updating, the stack update fails. By default, AWS CloudFormation grants permissions to all resource types. AWS Identity and Access Management (IAM) uses this parameter for condition keys in IAM policies for AWS CloudFormation. For more information, see [Controlling Access with AWS Identity and Access Management](#) in the AWS CloudFormation User Guide.

Type: array of Strings

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

Required: No

StackName

The name or the unique ID of the stack for which you are creating a change set. AWS CloudFormation generates the change set by comparing this stack's information with the information that you submit, such as a modified template or different parameter input values.

Type: String

Length Constraints: Minimum length of 1.

Pattern:

```
([a-zA-Z][-a-zA-Z0-9]*)|(arn:\b(aws|aws-us-gov|aws-cn)\b:[-a-zA-Z0-9:/._+]*)
```

Required: Yes

Tags.member.N

Key-value pairs to associate with this stack. AWS CloudFormation also propagates these tags to resources in the stack. You can specify a maximum of 10 tags.

Type: array of [Tag \(p. 84\)](#) objects

Required: No

TemplateBody

A structure that contains the body of the revised template, with a minimum length of 1 byte and a maximum length of 51,200 bytes. AWS CloudFormation generates the change set by comparing this template with the template of the stack that you specified.

Conditional: You must specify only `TemplateBody` or `TemplateURL`.

Type: String

Length Constraints: Minimum length of 1.

Required: No

TemplateURL

The location of the file that contains the revised template. The URL must point to a template (max size: 460,800 bytes) that is located in an S3 bucket. AWS CloudFormation generates the change set by comparing this template with the stack that you specified.

Conditional: You must specify only `TemplateBody` or `TemplateURL`.

Type: String

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

Required: No

UsePreviousTemplate

Whether to reuse the template that is associated with the stack to create the change set.

Type: Boolean

Required: No

Response Elements

The following element is returned by the service.

Id

The Amazon Resource Name (ARN) of the change set.

Type: String

Length Constraints: Minimum length of 1.

Pattern: `arn:[-a-zA-Z0-9:/]*`

Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 88\)](#).

AlreadyExists

Resource with the name requested already exists.

HTTP Status Code: 400

InsufficientCapabilities

The template contains resources with capabilities that were not specified in the `Capabilities` parameter.

HTTP Status Code: 400

LimitExceeded

Quota for the resource has already been reached.

HTTP Status Code: 400

Example

CreateChangeSet

Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/  
?Action=CreateChangeSet  
&ChangeSetName=SampleChangeSet  
&Parameters.member.1.ParameterKey=KeyName  
&Parameters.member.1.UsePreviousValue=true  
&Parameters.member.2.ParameterKey=Purpose  
&Parameters.member.2.ParameterValue=production  
&StackName=arn:aws:cloudformation:us-east-  
1:123456789012:stack/SampleStack/1a2345b6-0000-00a0-a123-00abc0abc000  
&UsePreviousTemplate=true
```

```
&Version=2010-05-15
&X-Amz-Algorithm=AWS4-HMAC-SHA256
&X-Amz-Credential=[Access key ID and scope]
&X-Amz-Date=20160316T233349Z
&X-Amz-SignedHeaders=content-type;host
&X-Amz-Signature=[Signature]
```

Sample Response

```
<CreateChangeSetResponse xmlns="http://cloudformation.amazonaws.com/doc/2010-05-15/">
  <CreateChangeSetResult>
    <Id>arn:aws:cloudformation:us-east-1:123456789012:changeSet/SampleChangeSet/12a3b456-0e10-4ce0-9052-5d484a8c4e5b</Id>
  </CreateChangeSetResult>
  <ResponseMetadata>
    <RequestId>b9b4b068-3a41-11e5-94eb-example</RequestId>
  </ResponseMetadata>
</CreateChangeSetResponse>
```

CreateStack

Creates a stack as specified in the template. After the call completes successfully, the stack creation starts. You can check the status of the stack via the [DescribeStacks \(p. 30\)](#) API.

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters \(p. 86\)](#).

Capabilities.member.N

A list of values that you must specify before AWS CloudFormation can create certain stacks. Some stack templates might include resources that can affect permissions in your AWS account, for example, by creating new AWS Identity and Access Management (IAM) users. For those stacks, you must explicitly acknowledge their capabilities by specifying this parameter.

The only valid values are `CAPABILITY_IAM` and `CAPABILITY_NAMED_IAM`. The following resources require you to specify this parameter: [AWS::IAM::AccessKey](#), [AWS::IAM::Group](#), [AWS::IAM::InstanceProfile](#), [AWS::IAM::Policy](#), [AWS::IAM::Role](#), [AWS::IAM::User](#), and [AWS::IAM::UserToGroupAddition](#). If your stack template contains these resources, we recommend that you review all permissions associated with them and edit their permissions if necessary.

If you have IAM resources, you can specify either capability. If you have IAM resources with custom names, you must specify `CAPABILITY_NAMED_IAM`. If you don't specify this parameter, this action returns an `InsufficientCapabilities` error.

For more information, see [Acknowledging IAM Resources in AWS CloudFormation Templates](#).

Type: array of Strings

Valid Values: `CAPABILITY_IAM` | `CAPABILITY_NAMED_IAM`

Required: No

DisableRollback

Set to `true` to disable rollback of the stack if stack creation failed. You can specify either `DisableRollback` or `OnFailure`, but not both.

Default: `false`

Type: Boolean

Required: No

NotificationARNs.member.N

The Simple Notification Service (SNS) topic ARNs to publish stack related events. You can find your SNS topic ARNs using the [SNS console](#) or your Command Line Interface (CLI).

Type: array of Strings

Array Members: Maximum number of 5 items.

Required: No

OnFailure

Determines what action will be taken if stack creation fails. This must be one of: `DO_NOTHING`, `ROLLBACK`, or `DELETE`. You can specify either `OnFailure` or `DisableRollback`, but not both.

Default: `ROLLBACK`

Type: String

Valid Values: `DO_NOTHING` | `ROLLBACK` | `DELETE`

Required: No

Parameters.member.N

A list of `Parameter` structures that specify input parameters for the stack. For more information, see the [Parameter](#) data type.

Type: array of [Parameter \(p. 67\)](#) objects

Required: No

ResourceTypes.member.N

The template resource types that you have permissions to work with for this create stack action, such as `AWS::EC2::Instance`, `AWS::EC2::*`, or `Custom::MyCustomInstance`. Use the following syntax to describe template resource types: `AWS::*` (for all AWS resource), `Custom::*` (for all custom resources), `Custom::logical_ID` (for a specific custom resource), `AWS::service_name::*` (for all resources of a particular AWS service), and `AWS::service_name::resource_logical_ID` (for a specific AWS resource).

If the list of resource types doesn't include a resource that you're creating, the stack creation fails. By default, AWS CloudFormation grants permissions to all resource types. AWS Identity and Access Management (IAM) uses this parameter for AWS CloudFormation-specific condition keys in IAM policies. For more information, see [Controlling Access with AWS Identity and Access Management](#).

Type: array of Strings

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

Required: No

StackName

The name that is associated with the stack. The name must be unique in the region in which you are creating the stack.

Note

A stack name can contain only alphanumeric characters (case sensitive) and hyphens. It must start with an alphabetic character and cannot be longer than 128 characters.

Type: String

Required: Yes

StackPolicyBody

Structure containing the stack policy body. For more information, go to [Prevent Updates to Stack Resources](#) in the AWS CloudFormation User Guide. You can specify either the `StackPolicyBody` or the `StackPolicyURL` parameter, but not both.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 16384.

Required: No

StackPolicyURL

Location of a file containing the stack policy. The URL must point to a policy (max size: 16KB) located in an S3 bucket in the same region as the stack. You can specify either the `StackPolicyBody` or the `StackPolicyURL` parameter, but not both.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1350.

Required: No

Tags.member.N

Key-value pairs to associate with this stack. AWS CloudFormation also propagates these tags to the resources created in the stack. A maximum number of 10 tags can be specified.

Type: array of [Tag \(p. 84\)](#) objects

Required: No

TemplateBody

Structure containing the template body with a minimum length of 1 byte and a maximum length of 51,200 bytes. For more information, go to [Template Anatomy](#) in the AWS CloudFormation User Guide.

Conditional: You must specify either the `TemplateBody` or the `TemplateURL` parameter, but not both.

Type: String

Length Constraints: Minimum length of 1.

Required: No

TemplateURL

Location of file containing the template body. The URL must point to a template (max size: 460,800 bytes) that is located in an Amazon S3 bucket. For more information, go to the [Template Anatomy](#) in the AWS CloudFormation User Guide.

Conditional: You must specify either the `TemplateBody` or the `TemplateURL` parameter, but not both.

Type: String

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

Required: No

TimeoutInMinutes

The amount of time that can pass before the stack status becomes `CREATE_FAILED`; if `DisableRollback` is not set or is set to `false`, the stack will be rolled back.

Type: Integer

Valid Range: Minimum value of 1.

Required: No

Response Elements

The following element is returned by the service.

StackId

Unique identifier of the stack.

Type: String

Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 88\)](#).

AlreadyExists

Resource with the name requested already exists.

HTTP Status Code: 400

InsufficientCapabilities

The template contains resources with capabilities that were not specified in the `Capabilities` parameter.

HTTP Status Code: 400

LimitExceeded

Quota for the resource has already been reached.

HTTP Status Code: 400

Example

CreateStack

Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/  
?Action=CreateStack  
&StackName=MyStack  
&TemplateBody=[Template Document]  
&NotificationARNs.member.1=arn:aws:sns:us-east-1:1234567890:my-topic
```



```
&Parameters.member.1.ParameterKey=AvailabilityZone
&Parameters.member.1.ParameterValue=us-east-1a
&Version=2010-05-15
&SignatureVersion=2
&Timestamp=2010-07-27T22%3A26%3A28.000Z
&AWSAccessKeyId=[AWS Access KeyID]
&Signature=[Signature]
```

Sample Response

```
<CreateStackResponse xmlns="http://cloudformation.amazonaws.com/doc/2010-05-15/">
  <CreateStackResult>
    <StackId>arn:aws:cloudformation:us-east-1:123456789:stack/MyStack/aaf549a0-
a413-11df-adb3-5081b3858e83</StackId>
  </CreateStackResult>
  <ResponseMetadata>
    <RequestId>b9b4b068-3a41-11e5-94eb-example</RequestId>
  </ResponseMetadata>
</CreateStackResponse>
```

DeleteChangeSet

Deletes the specified change set. Deleting change sets ensures that no one executes the wrong change set.

If the call successfully completes, AWS CloudFormation successfully deleted the change set.

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters \(p. 86\)](#).

ChangeSetName

The name or Amazon Resource Name (ARN) of the change set that you want to delete.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1600.

Pattern: `[a-zA-Z][-a-zA-Z0-9]*|arn:[-a-zA-Z0-9:/]*`

Required: Yes

StackName

If you specified the name of a change set to delete, specify the stack name or ID (ARN) that is associated with it.

Type: String

Length Constraints: Minimum length of 1.

Pattern:

`([a-zA-Z][-a-zA-Z0-9]*)|(arn:\b(aws|aws-us-gov|aws-cn)\b:[-a-zA-Z0-9:/._+]*)`

Required: No

Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 88\)](#).

InvalidChangeSetStatus

The specified change set cannot be used to update the stack. For example, the change set status might be `CREATE_IN_PROGRESS` or the stack status might be `UPDATE_IN_PROGRESS`.

HTTP Status Code: 400

Example

DeleteChangeSet

Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/  
?Action=DeleteChangeSet  
&ChangeSetName=arn:aws:cloudformation:us-east-1:123456789012:changeSet/Sample  
ChangeSet/12a3b456-0e10-4ce0-9052-5d484a8c4e5b  
&X-Amz-Algorithm=AWS4-HMAC-SHA256  
&X-Amz-Credential=[Access key ID and scope]  
&X-Amz-Date=20160316T233349Z  
&X-Amz-SignedHeaders=content-type;host  
&X-Amz-Signature=[Signature]
```

Sample Response

```
<DeleteChangeSetResponse xmlns="http://cloudformation.amazonaws.com/doc/2010-05-15/">
  <DeleteChangeSetResult/>
  <ResponseMetadata>
    <RequestId>5ccc7dcd-744c-11e5-be70-example</RequestId>
  </ResponseMetadata>
</DeleteChangeSetResponse>
```

DeleteStack

Deletes a specified stack. Once the call completes successfully, stack deletion starts. Deleted stacks do not show up in the [DescribeStacks](#) (p. 30) API if the deletion has been completed successfully.

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters](#) (p. 86).

RetainResources.member.N

For stacks in the `DELETE_FAILED` state, a list of resource logical IDs that are associated with the resources you want to retain. During deletion, AWS CloudFormation deletes the stack but does not delete the retained resources.

Retaining resources is useful when you cannot delete a resource, such as a non-empty S3 bucket, but you want to delete the stack.

Type: array of Strings

Required: No

StackName

The name or the unique stack ID that is associated with the stack.

Type: String

Required: Yes

Errors

For information about the errors that are common to all actions, see [Common Errors](#) (p. 88).

Example

DeleteStack

Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/  
?Action=DeleteStack  
&StackName=MyStack  
&Version=2010-05-15  
&SignatureVersion=2  
&Timestamp=2010-07-27T22%3A26%3A28.000Z  
&AWSAccessKeyId=[AWS Access KeyID]  
&Signature=[Signature]
```

Sample Response

```
<DeleteStackResponse xmlns="http://cloudformation.amazonaws.com/doc/2010-05-15/">  
  <ResponseMetadata>  
    <RequestId>5ccc7dcd-744c-11e5-be70-example</RequestId>  
  </ResponseMetadata>  
</DeleteStackResponse>
```

DescribeAccountLimits

Retrieves your account's AWS CloudFormation limits, such as the maximum number of stacks that you can create in your account.

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters \(p. 86\)](#).

NextToken

A string that identifies the next page of limits that you want to retrieve.

Type: String

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

Required: No

Response Elements

The following elements are returned by the service.

AccountLimits.member.N

An account limit structure that contain a list of AWS CloudFormation account limits and their values.

Type: array of [AccountLimit \(p. 62\)](#) objects

NextToken

If the output exceeds 1 MB in size, a string that identifies the next page of limits. If no additional page exists, this value is null.

Type: String

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

Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 88\)](#).

Example

DescribeAccountLimits

Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/  
?Action=DescribeAccountLimits  
&NextToken=[NextToken]  
&Version=2010-05-15  
&SignatureVersion=2  
&Timestamp=2010-07-27T22%3A26%3A28.000Z  
&AWSAccessKeyId=[AWS Access KeyID]  
&Signature=[Signature]
```

Sample Response

```
<DescribeAccountLimitsResponse xmlns="http://cloudformation.amazon
aws.com/doc/2010-05-15/">
  <DescribeAccountLimitsResult>
    <AccountLimits>
      <member>
        <Name>StackLimit</Name>
        <Value>20</Value>
      </member>
    </AccountLimits>
  </DescribeAccountLimitsResult>
  <ResponseMetadata>
    <RequestId>b9b4b068-3a41-11e5-94eb-example</RequestId>
  </ResponseMetadata>
</DescribeAccountLimitsResponse>
```

DescribeChangeSet

Returns the inputs for the change set and a list of changes that AWS CloudFormation will make if you execute the change set. For more information, see [Updating Stacks Using Change Sets](#) in the AWS CloudFormation User Guide.

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters \(p. 86\)](#).

ChangeSetName

The name or Amazon Resource Name (ARN) of the change set that you want to describe.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1600.

Pattern: `[a-zA-Z][-a-zA-Z0-9]*|arn:[-a-zA-Z0-9:/]*`

Required: Yes

NextToken

A string (provided by the [DescribeChangeSet \(p. 18\)](#) response output) that identifies the next page of information that you want to retrieve.

Type: String

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

Required: No

StackName

If you specified the name of a change set, specify the stack name or ID (ARN) of the change set you want to describe.

Type: String

Length Constraints: Minimum length of 1.

Pattern:

`([a-zA-Z][-a-zA-Z0-9]*)|(arn:\b(aws|aws-us-gov|aws-cn)\b:[-a-zA-Z0-9:/._+]*)`

Required: No

Response Elements

The following elements are returned by the service.

Capabilities.member.N

If you execute the change set, the list of capabilities that were explicitly acknowledged when the change set was created.

Type: array of Strings

Valid Values: `CAPABILITY_IAM` | `CAPABILITY_NAMED_IAM`

Changes.member.N

A list of `Change` structures that describes the resources AWS CloudFormation changes if you execute the change set.

Type: array of [Change \(p. 63\)](#) objects

ChangeSetId

The ARN of the change set.

Type: String

Length Constraints: Minimum length of 1.

Pattern: `arn:[-a-zA-Z0-9:/]*`

ChangeSetName

The name of the change set.

Type: String

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

Pattern: [a-zA-Z][-a-zA-Z0-9]*

CreationTime

The start time when the change set was created, in UTC.

Type: Timestamp

Description

Information about the change set.

Type: String

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

ExecutionStatus

If the change set execution status is `AVAILABLE`, you can execute the change set. If you can't execute the change set, the status indicates why. For example, a change set might be in an `UNAVAILABLE` state because AWS CloudFormation is still creating it or in an `OBSOLETE` state because the stack was already updated.

Type: String

Valid Values: `UNAVAILABLE` | `AVAILABLE` | `EXECUTE_IN_PROGRESS` | `EXECUTE_COMPLETE` | `EXECUTE_FAILED` | `OBSOLETE`

NextToken

If the output exceeds 1 MB, a string that identifies the next page of changes. If there is no additional page, this value is null.

Type: String

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

NotificationARNs.member.N

The ARNs of the Amazon Simple Notification Service (Amazon SNS) topics that will be associated with the stack if you execute the change set.

Type: array of Strings

Array Members: Maximum number of 5 items.

Parameters.member.N

A list of `Parameter` structures that describes the input parameters and their values used to create the change set. For more information, see the [Parameter](#) data type.

Type: array of [Parameter \(p. 67\)](#) objects

StackId

The ARN of the stack that is associated with the change set.

Type: String

StackName

The name of the stack that is associated with the change set.

Type: String

Status

The current status of the change set, such as `CREATE_IN_PROGRESS`, `CREATE_COMPLETE`, or `FAILED`.

Type: String

Valid Values: `CREATE_PENDING` | `CREATE_IN_PROGRESS` | `CREATE_COMPLETE` | `DELETE_COMPLETE` | `FAILED`

StatusReason

A description of the change set's status. For example, if your attempt to create a change set failed, AWS CloudFormation shows the error message.

Type: String

Tags.member.N

If you execute the change set, the tags that will be associated with the stack.

Type: array of [Tag \(p. 84\)](#) objects

Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 88\)](#).

ChangeSetNotFound

The specified change set name or ID doesn't exit. To view valid change sets for a stack, use the `ListChangeSets` action.

HTTP Status Code: 404

Example

DescribeChangeSet

Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/  
?Action=DescribeChangeSet  
&ChangeSetName=arn:aws:cloudformation:us-east-1:123456789012:changeSet/Sample  
ChangeSet/12a3b456-0e10-4ce0-9052-5d484a8c4e5b  
&X-Amz-Algorithm=AWS4-HMAC-SHA256  
&X-Amz-Credential=[Access key ID and scope]  
&X-Amz-Date=20160316T233349Z  
&X-Amz-SignedHeaders=content-type;host  
&X-Amz-Signature=[Signature]
```

Sample Response

```
<DescribeChangeSetResponse xmlns="http://cloudformation.amazonaws.com/doc/2010-  
05-15/">  
  <DescribeChangeSetResult>  
    <StackId>arn:aws:cloudformation:us-east-  
1:123456789012:stack/SampleStack/12a3b456-0e10-4ce0-9052-5d484a8c4e5b</StackId>  
  
    <Status>CREATE_COMPLETE</Status>  
    <ChangeSetId>arn:aws:cloudformation:us-east-1:123456789012:changeSet/Sample  
ChangeSet-direct/12a3b456-0e10-4ce0-9052-5d484a8c4e5b</ChangeSetId>  
    <StackName>SampleStack</StackName>  
    <ChangeSetName>SampleChangeSet-direct</ChangeSetName>  
    <NotificationARNs/>  
    <CreationTime>2016-03-17T23:35:25.813Z</CreationTime>  
    <Capabilities/>  
    <Parameters>  
      <member>  
        <ParameterValue>testing</ParameterValue>  
        <ParameterKey>Purpose</ParameterKey>  
      </member>  
      <member>  
        <ParameterValue>MyKeyName</ParameterValue>  
        <ParameterKey>KeyPairName</ParameterKey>  
      </member>  
      <member>
```

AWS CloudFormation API Reference Example

```
    <ParameterValue>t2.micro</ParameterValue>
    <ParameterKey>InstanceType</ParameterKey>
  </member>
</Parameters>
<Changes>
  <member>
    <ResourceChange>
      <Replacement>False</Replacement>
      <Scope>
        <member>Tags</member>
      </Scope>
      <Details>
        <member>
          <ChangeSource>DirectModification</ChangeSource>
          <Target>
            <RequiresRecreation>Never</RequiresRecreation>
            <Attribute>Tags</Attribute>
          </Target>
          <Evaluation>Static</Evaluation>
        </member>
      </Details>
      <LogicalResourceId>MyEC2Instance</LogicalResourceId>
      <Action>Modify</Action>
      <PhysicalResourceId>i-1abc23d4</PhysicalResourceId>
      <ResourceType>AWS::EC2::Instance</ResourceType>
    </ResourceChange>
    <Type>Resource</Type>
  </member>
</Changes>
</DescribeChangeSetResult>
<ResponseMetadata>
  <RequestId>b9b4b068-3a41-11e5-94eb-example</RequestId>
</ResponseMetadata>
</DescribeChangeSetResponse>
```

DescribeStackEvents

Returns all stack related events for a specified stack in reverse chronological order. For more information about a stack's event history, go to [Stacks](#) in the AWS CloudFormation User Guide.

Note

You can list events for stacks that have failed to create or have been deleted by specifying the unique stack identifier (stack ID).

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters \(p. 86\)](#).

NextToken

A string that identifies the next page of events that you want to retrieve.

Type: String

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

Required: No

StackName

The name or the unique stack ID that is associated with the stack, which are not always interchangeable:

- Running stacks: You can specify either the stack's name or its unique stack ID.
- Deleted stacks: You must specify the unique stack ID.

Default: There is no default value.

Type: String

Required: No

Response Elements

The following elements are returned by the service.

NextToken

If the output exceeds 1 MB in size, a string that identifies the next page of events. If no additional page exists, this value is null.

Type: String

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

StackEvents.member.N

A list of `StackEvents` structures.

Type: array of [StackEvent \(p. 77\)](#) objects

Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 88\)](#).

Example

DescribeStackEvents

Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/
?Action=DescribeStackEvents
&StackName=MyStack
&Version=2010-05-15
&X-Amz-Algorithm=AWS4-HMAC-SHA256
&X-Amz-Credential=[Access key ID and scope]
&X-Amz-Date=20160316T233349Z
&X-Amz-SignedHeaders=content-type;host
&X-Amz-Signature=[Signature]
```

Sample Response

```
<DescribeStackEventsResponse xmlns="http://cloudformation.amazonaws.com/doc/2010-05-15/">
  <DescribeStackEventsResult>
    <StackEvents>
      <member>
        <Timestamp>2016-03-15T20:54:31.809Z</Timestamp>
        <ResourceStatus>CREATE_COMPLETE</ResourceStatus>
        <StackId>arn:aws:cloudformation:us-east-1:123456789012:stack/SampleStack/12a3b456-0e10-4ce0-9052-5d484a8c4e5b</StackId>

        <EventId>1dedea10-eaf0-11e5-8451-500c5242948e</EventId>
        <LogicalResourceId>SampleStack</LogicalResourceId>
        <StackName>SampleStack</StackName>
        <PhysicalResourceId>arn:aws:cloudformation:us-east-1:123456789012:stack/SampleStack/12a3b456-0e10-4ce0-9052-5d484a8c4e5b</PhysicalResourceId>
        <ResourceType>AWS::CloudFormation::Stack</ResourceType>
      </member>
      <member>
        <Timestamp>2016-03-15T20:54:30.174Z</Timestamp>
        <ResourceStatus>CREATE_COMPLETE</ResourceStatus>
        <StackId>arn:aws:cloudformation:us-east-1:123456789012:stack/SampleStack/12a3b456-0e10-4ce0-9052-5d484a8c4e5b</StackId>

        <EventId>MyEC2Instance-CREATE_COMPLETE-2016-03-15T20:54:30.174Z</EventId>

        <LogicalResourceId>MyEC2Instance</LogicalResourceId>
        <StackName>SampleStack</StackName>
        <PhysicalResourceId>i-labc23d4</PhysicalResourceId>
        <ResourceProperties>{"ImageId":ami-8fcee4e5",...}</ResourceProperties>

        <ResourceType>AWS::EC2::Instance</ResourceType>
      </member>
    </member>
  </DescribeStackEventsResult>
</DescribeStackEventsResponse>
```

AWS CloudFormation API Reference Example

```
<Timestamp>2016-03-15T20:53:17.660Z</Timestamp>
<ResourceStatus>CREATE_IN_PROGRESS</ResourceStatus>
<StackId>arn:aws:cloudformation:us-east-
1:123456789012:stack/SampleStack/12a3b456-0e10-4ce0-9052-5d484a8c4e5b</StackId>

  <EventId>MyEC2Instance-CREATE_IN_PROGRESS-2016-03-
15T20:53:17.660Z</EventId>
  <LogicalResourceId>MyEC2Instance</LogicalResourceId>
  <ResourceStatusReason>Resource creation Initiated</ResourceStatusReason>

  <StackName>SampleStack</StackName>
  <PhysicalResourceId>i-labc23d4</PhysicalResourceId>
  <ResourceProperties>{"ImageId":ami-8fcee4e5",...}</ResourceProperties>

  <ResourceType>AWS::EC2::Instance</ResourceType>
</member>
<member>
  <Timestamp>2016-03-15T20:53:16.516Z</Timestamp>
  <ResourceStatus>CREATE_IN_PROGRESS</ResourceStatus>
  <StackId>arn:aws:cloudformation:us-east-
1:123456789012:stack/SampleStack/12a3b456-0e10-4ce0-9052-5d484a8c4e5b</StackId>

  <EventId>MyEC2Instance-CREATE_IN_PROGRESS-2016-03-
15T20:53:16.516Z</EventId>
  <LogicalResourceId>MyEC2Instance</LogicalResourceId>
  <StackName>SampleStack</StackName>
  <PhysicalResourceId/>
  <ResourceProperties>{"ImageId":ami-8fcee4e5",...}</ResourceProperties>

  <ResourceType>AWS::EC2::Instance</ResourceType>
</member>
<member>
  <Timestamp>2016-03-15T20:53:11.231Z</Timestamp>
  <ResourceStatus>CREATE_IN_PROGRESS</ResourceStatus>
  <StackId>arn:aws:cloudformation:us-east-
1:123456789012:stack/SampleStack/12a3b456-0e10-4ce0-9052-5d484a8c4e5b</StackId>

  <EventId>edbf2ac0-eaef-11e5-adeb-500c28903236</EventId>
  <LogicalResourceId>SampleStack</LogicalResourceId>
  <ResourceStatusReason>User Initiated</ResourceStatusReason>
  <StackName>SampleStack</StackName>
  <PhysicalResourceIdI>arn:aws:cloudformation:us-east-
1:123456789012:stack/SampleStack/12a3b456-0e10-4ce0-9052-5d484a8c4e5b</Physic
alResourceId>
  <ResourceType>AWS::CloudFormation::Stack</ResourceType>
</member>
</StackEvents>
</DescribeStackEventsResult>
<ResponseMetadata>
  <RequestId>b9b4b068-3a41-11e5-94eb-example</RequestId>
</ResponseMetadata>
</DescribeStackEventsResponse>
```

DescribeStackResource

Returns a description of the specified resource in the specified stack.

For deleted stacks, DescribeStackResource returns resource information for up to 90 days after the stack has been deleted.

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters \(p. 86\)](#).

LogicalResourceId

The logical name of the resource as specified in the template.

Default: There is no default value.

Type: String

Required: Yes

StackName

The name or the unique stack ID that is associated with the stack, which are not always interchangeable:

- Running stacks: You can specify either the stack's name or its unique stack ID.
- Deleted stacks: You must specify the unique stack ID.

Default: There is no default value.

Type: String

Required: Yes

Response Elements

The following element is returned by the service.

StackResourceDetail

A `StackResourceDetail` structure containing the description of the specified resource in the specified stack.

Type: [StackResourceDetail \(p. 80\)](#) object

Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 88\)](#).

Example

DescribeStackResource

Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/  
?Action=DescribeStackResource  
&StackName=MyStack  
&LogicalResourceId=MyDBInstance  
&Version=2010-05-15  
&SignatureVersion=2  
&Timestamp=2011-07-08T22%3A26%3A28.000Z
```

```
&AWSSecretKey=[AWS Secret Key]
&Signature=[Signature]
```

Sample Response

```
<DescribeStackResourceResponse xmlns="http://cloudformation.amazon
aws.com/doc/2010-05-15/">
  <DescribeStackResourceResult>
    <StackResourceDetail>
      <StackId>arn:aws:cloudformation:us-east-1:123456789:stack/MyStack/aaf549a0-
a413-11df-adb3-5081b3858e83</StackId>
      <StackName>MyStack</StackName>
      <LogicalResourceId>MyDBInstance</LogicalResourceId>
      <PhysicalResourceId>MyStack_DB1</PhysicalResourceId>
      <ResourceType>AWS::RDS::DBInstance</ResourceType>
      <LastUpdatedTimestamp>2011-07-07T22:27:28Z</LastUpdatedTimestamp>
      <ResourceStatus>CREATE_COMPLETE</ResourceStatus>
    </StackResourceDetail>
  </DescribeStackResourceResult>
  <ResponseMetadata>
    <RequestId>b9b4b068-3a41-11e5-94eb-example</RequestId>
  </ResponseMetadata>
</DescribeStackResourceResponse>
```

DescribeStackResources

Returns AWS resource descriptions for running and deleted stacks. If `StackName` is specified, all the associated resources that are part of the stack are returned. If `PhysicalResourceId` is specified, the associated resources of the stack that the resource belongs to are returned.

Note

Only the first 100 resources will be returned. If your stack has more resources than this, you should use `ListStackResources` instead.

For deleted stacks, `DescribeStackResources` returns resource information for up to 90 days after the stack has been deleted.

You must specify either `StackName` or `PhysicalResourceId`, but not both. In addition, you can specify `LogicalResourceId` to filter the returned result. For more information about resources, the `LogicalResourceId` and `PhysicalResourceId`, go to the [AWS CloudFormation User Guide](#).

Note

A `ValidationError` is returned if you specify both `StackName` and `PhysicalResourceId` in the same request.

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters \(p. 86\)](#).

LogicalResourceId

The logical name of the resource as specified in the template.

Default: There is no default value.

Type: String

Required: No

PhysicalResourceId

The name or unique identifier that corresponds to a physical instance ID of a resource supported by AWS CloudFormation.

For example, for an Amazon Elastic Compute Cloud (EC2) instance, `PhysicalResourceId` corresponds to the `InstanceId`. You can pass the EC2 `InstanceId` to `DescribeStackResources` to find which stack the instance belongs to and what other resources are part of the stack.

Required: Conditional. If you do not specify `PhysicalResourceId`, you must specify `StackName`.

Default: There is no default value.

Type: String

Required: No

StackName

The name or the unique stack ID that is associated with the stack, which are not always interchangeable:

- Running stacks: You can specify either the stack's name or its unique stack ID.
- Deleted stacks: You must specify the unique stack ID.

Default: There is no default value.

Required: Conditional. If you do not specify `StackName`, you must specify `PhysicalResourceId`.

Type: String

Required: No

Response Elements

The following element is returned by the service.

StackResources.member.N

A list of `StackResource` structures.

Type: array of [StackResource](#) (p. 79) objects

Errors

For information about the errors that are common to all actions, see [Common Errors](#) (p. 88).

Example

DescribeStackResources

Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/  
?Action=DescribeStackResources  
&StackName=MyStack  
&Version=2010-05-15  
&SignatureVersion=2  
&Timestamp=2010-07-27T22%3A26%3A28.000Z  
&AWSAccessKeyId=[AWS Access KeyID]  
&Signature=[Signature]
```

Sample Response

```
<DescribeStackResourcesResponse xmlns="http://cloudformation.amazon  
aws.com/doc/2010-05-15/">  
  <DescribeStackResourcesResult>  
    <StackResources>  
      <member>  
        <StackId>arn:aws:cloudformation:us-east-1:123456789:stack/MyS  
tack/aaf549a0-a413-11df-adb3-5081b3858e83</StackId>  
        <StackName>MyStack</StackName>  
        <LogicalResourceId>MyDBInstance</LogicalResourceId>  
        <PhysicalResourceId>MyStack_DB1</PhysicalResourceId>  
        <ResourceType>AWS::DBInstance</ResourceType>  
        <Timestamp>2010-07-27T22:27:28Z</Timestamp>  
        <ResourceStatus>CREATE_COMPLETE</ResourceStatus>  
      </member>  
      <member>  
        <StackId>arn:aws:cloudformation:us-east-1:123456789:stack/MyS  
tack/aaf549a0-a413-11df-adb3-5081b3858e83</StackId>  
        <StackName>MyStack</StackName>  
        <LogicalResourceId>MyAutoScalingGroup</LogicalResourceId>  
        <PhysicalResourceId>MyStack_ASG1</PhysicalResourceId>  
        <ResourceType>AWS::AutoScalingGroup</ResourceType>  
        <Timestamp>2010-07-27T22:28:28Z</Timestamp>  
        <ResourceStatus>CREATE_IN_PROGRESS</ResourceStatus>  
      </member>  
    </StackResources>  
  </DescribeStackResourcesResult>  
  <ResponseMetadata>  
    <RequestId>b9b4b068-3a41-11e5-94eb-example</RequestId>
```

AWS CloudFormation API Reference Example

```
</ResponseMetadata>  
</DescribeStackResourcesResponse>
```

DescribeStacks

Returns the description for the specified stack; if no stack name was specified, then it returns the description for all the stacks created.

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters \(p. 86\)](#).

NextToken

A string that identifies the next page of stacks that you want to retrieve.

Type: String

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

Required: No

StackName

The name or the unique stack ID that is associated with the stack, which are not always interchangeable:

- Running stacks: You can specify either the stack's name or its unique stack ID.
- Deleted stacks: You must specify the unique stack ID.

Default: There is no default value.

Type: String

Required: No

Response Elements

The following elements are returned by the service.

NextToken

If the output exceeds 1 MB in size, a string that identifies the next page of stacks. If no additional page exists, this value is null.

Type: String

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

Stacks.member.N

A list of stack structures.

Type: array of [Stack \(p. 75\)](#) objects

Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 88\)](#).

Example

DescribeStacks

Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/  
?Action=DescribeStacks  
&StackName=MyStack  
&Version=2010-05-15
```

```
&SignatureVersion=2
&Timestamp=2010-07-27T22%3A26%3A28.000Z
&AWSAccessKeyId=[AWS Access KeyID]
&Signature=[Signature]
```

Sample Response

```
<DescribeStacksResponse xmlns="http://cloudformation.amazonaws.com/doc/2010-05-15/">
  <DescribeStacksResult>
    <Stacks>
      <member>
        <StackName>MyStack</StackName>
        <StackId>arn:aws:cloudformation:us-east-1:123456789:stack/MyStack/aaf549a0-a413-11df-adb3-5081b3858e83</StackId>
        <CreationTime>2010-07-27T22:28:28Z</CreationTime>
        <StackStatus>CREATE_COMPLETE</StackStatus>
        <DisableRollback>>false</DisableRollback>
        <Outputs>
          <member>
            <OutputKey>StartPage</OutputKey>
            <OutputValue>http://my-load-balancer.amazonaws.com:80/index.html</OutputValue>
          </member>
        </Outputs>
      </member>
    </Stacks>
  </DescribeStacksResult>
  <ResponseMetadata>
    <RequestId>b9b4b068-3a41-11e5-94eb-example</RequestId>
  </ResponseMetadata>
</DescribeStacksResponse>
```

EstimateTemplateCost

Returns the estimated monthly cost of a template. The return value is an AWS Simple Monthly Calculator URL with a query string that describes the resources required to run the template.

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters \(p. 86\)](#).

Parameters.member.N

A list of `Parameter` structures that specify input parameters.

Type: array of [Parameter \(p. 67\)](#) objects

Required: No

TemplateBody

Structure containing the template body with a minimum length of 1 byte and a maximum length of 51,200 bytes. (For more information, go to [Template Anatomy](#) in the AWS CloudFormation User Guide.)

Conditional: You must pass `TemplateBody` or `TemplateURL`. If both are passed, only `TemplateBody` is used.

Type: String

Length Constraints: Minimum length of 1.

Required: No

TemplateURL

Location of file containing the template body. The URL must point to a template that is located in an Amazon S3 bucket. For more information, go to [Template Anatomy](#) in the AWS CloudFormation User Guide.

Conditional: You must pass `TemplateURL` or `TemplateBody`. If both are passed, only `TemplateBody` is used.

Type: String

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

Required: No

Response Elements

The following element is returned by the service.

Url

An AWS Simple Monthly Calculator URL with a query string that describes the resources required to run the template.

Type: String

Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 88\)](#).

Example

EstimateTemplateCost

Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/  
?Action=EstimateTemplateCost  
&TemplateURL=https://s3.amazonaws.com/cloudformation-samples-us-east-  
1/Drupal_Simple.template  
&Version=2010-05-15  
&SignatureVersion=2  
&Timestamp=2011-12-04T22%3A26%3A28.000Z  
&AWSAccessKeyId=[AWS Access KeyID]  
&Signature=[Signature]
```

Sample Response

```
<Response xmlns="http://cloudformation.amazonaws.com/doc/2010-05-15/">  
  <EstimateTemplateCostResult>  
    <Url>http://calculator.s3.amazonaws.com/calc5.html?key=cf-2e351785-e821-  
450c-9d58-625e1e1ebfb6</Url>  
  </EstimateTemplateCostResult>  
  <ResponseMetadata>  
    <RequestId>b9b4b068-3a41-11e5-94eb-example</RequestId>  
  </ResponseMetadata>  
</Response>
```

ExecuteChangeSet

Updates a stack using the input information that was provided when the specified change set was created. After the call successfully completes, AWS CloudFormation starts updating the stack. Use the [DescribeStacks \(p. 30\)](#) action to view the status of the update.

When you execute a change set, AWS CloudFormation deletes all other change sets associated with the stack because they aren't valid for the updated stack.

If a stack policy is associated with the stack, AWS CloudFormation enforces the policy during the update. You can't specify a temporary stack policy that overrides the current policy.

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters \(p. 86\)](#).

ChangeSetName

The name or ARN of the change set that you want use to update the specified stack.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1600.

Pattern: `[a-zA-Z][-a-zA-Z0-9]*|arn:[-a-zA-Z0-9:/]*`

Required: Yes

StackName

If you specified the name of a change set, specify the stack name or ID (ARN) that is associated with the change set you want to execute.

Type: String

Length Constraints: Minimum length of 1.

Pattern:

`([a-zA-Z][-a-zA-Z0-9]*)|(arn:\b(aws|aws-us-gov|aws-cn)\b:[-a-zA-Z0-9/._+]*)`

Required: No

Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 88\)](#).

ChangeSetNotFound

The specified change set name or ID doesn't exist. To view valid change sets for a stack, use the `ListChangeSets` action.

HTTP Status Code: 404

InvalidChangeSetStatus

The specified change set cannot be used to update the stack. For example, the change set status might be `CREATE_IN_PROGRESS` or the stack status might be `UPDATE_IN_PROGRESS`.

HTTP Status Code: 400

Example

ExecuteChangeSet

Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/  
?Action=ExecuteChangeSet
```

```
&ChangeSetName=arn:aws:cloudformation:us-east-1:123456789012:changeSet/Sample
ChangeSet/12a3b456-0e10-4ce0-9052-5d484a8c4e5b
&X-Amz-Algorithm=AWS4-HMAC-SHA256
&X-Amz-Credential=[Access key ID and scope]
&X-Amz-Date=20160316T233349Z
&X-Amz-SignedHeaders=content-type;host
&X-Amz-Signature=[Signature]
```

Sample Response

```
<ExecuteChangeSetResponse xmlns="http://cloudformation.amazonaws.com/doc/2010-
05-15/">
  <ExecuteChangeSetResult/>
  <ResponseMetadata>
    <RequestId>5ccc7dcd-744c-11e5-be70-example</RequestId>
  </ResponseMetadata>
</ExecuteChangeSetResponse>
```


GetStackPolicy

Returns the stack policy for a specified stack. If a stack doesn't have a policy, a null value is returned.

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters \(p. 86\)](#).

StackName

The name or unique stack ID that is associated with the stack whose policy you want to get.

Type: String

Required: Yes

Response Elements

The following element is returned by the service.

StackPolicyBody

Structure containing the stack policy body. (For more information, go to [Prevent Updates to Stack Resources](#) in the AWS CloudFormation User Guide.)

Type: String

Length Constraints: Minimum length of 1. Maximum length of 16384.

Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 88\)](#).

Example

GetStackPolicy

Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/  
?Action=GetStackPolicy  
&StackName=MyStack  
&Version=2010-05-15  
&SignatureVersion=2  
&Timestamp=2010-07-27T22%3A26%3A28.000Z  
&AWSAccessKeyId=[AWS Access KeyID]  
&Signature=[Signature]
```

Sample Response

```
<GetStackPolicyResponse xmlns="http://cloudformation.amazonaws.com/doc/2010-05-15/">  
  <GetStackPolicyResult>  
    <StackPolicyBody>"{  
      "Statement" : [  
        {
```

```
        "Effect" : "Deny",
        "Action" : "Update:*",
        "Principal" : "*",
        "Resource" : "LogicalResourceId/ProductionDatabase"
    },
    {
        "Effect" : "Allow",
        "Action" : "Update:*",
        "Principal" : "*",
        "Resource" : "*"
    }
]
}</StackPolicyBody>
</GetStackPolicyResult>
<ResponseMetadata>
  <RequestId>b9b4b068-3a41-11e5-94eb-example</RequestId>
</ResponseMetadata>
</GetStackPolicyResponse>
```

GetTemplate

Returns the template body for a specified stack. You can get the template for running or deleted stacks. For deleted stacks, GetTemplate returns the template for up to 90 days after the stack has been deleted.

Note

If the template does not exist, a `ValidationError` is returned.

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters \(p. 86\)](#).

StackName

The name or the unique stack ID that is associated with the stack, which are not always interchangeable:

- Running stacks: You can specify either the stack's name or its unique stack ID.
- Deleted stacks: You must specify the unique stack ID.

Default: There is no default value.

Type: String

Required: Yes

Response Elements

The following element is returned by the service.

TemplateBody

Structure containing the template body. (For more information, go to [Template Anatomy](#) in the AWS CloudFormation User Guide.)

Type: String

Length Constraints: Minimum length of 1.

Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 88\)](#).

Example

GetTemplate

Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/  
?Action=GetTemplate  
&StackName=MyStack  
&Version=2010-05-15  
&SignatureVersion=2  
&Timestamp=2010-07-27T22%3A26%3A28.000Z  
&AWSAccessKeyId=[AWS Access KeyID]  
&Signature=[Signature]
```

Sample Response

```
<GetTemplateResponse xmlns="http://cloudformation.amazonaws.com/doc/2010-05-15/">
  <GetTemplateResult>
    <TemplateBody>"{
      "AWSTemplateFormatVersion" : "2010-09-09",
      "Description" : "Simple example",
      "Resources" : {
        "MySQL" : {
          "Type" : "AWS::SQS::Queue",
          "Properties" : {
            }
          }
        }
      }
    </TemplateBody>
  </GetTemplateResult>
  <ResponseMetadata>
    <RequestId>b9b4b068-3a41-11e5-94eb-example</RequestId>
  </ResponseMetadata>
</GetTemplateResponse>
```

GetTemplateSummary

Returns information about a new or existing template. The `GetTemplateSummary` action is useful for viewing parameter information, such as default parameter values and parameter types, before you create or update a stack.

You can use the `GetTemplateSummary` action when you submit a template, or you can get template information for a running or deleted stack.

For deleted stacks, `GetTemplateSummary` returns the template information for up to 90 days after the stack has been deleted. If the template does not exist, a `ValidationError` is returned.

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters \(p. 86\)](#).

StackName

The name or the stack ID that is associated with the stack, which are not always interchangeable. For running stacks, you can specify either the stack's name or its unique stack ID. For deleted stack, you must specify the unique stack ID.

Conditional: You must specify only one of the following parameters: `StackName`, `TemplateBody`, or `TemplateURL`.

Type: String

Length Constraints: Minimum length of 1.

Pattern:

```
([a-zA-Z][-a-zA-Z0-9]*)|(arn:\b(aws|aws-us-gov|aws-cn)\b:[-a-zA-Z0-9:/._+]*)
```

Required: No

TemplateBody

Structure containing the template body with a minimum length of 1 byte and a maximum length of 51,200 bytes. For more information about templates, see [Template Anatomy](#) in the AWS CloudFormation User Guide.

Conditional: You must specify only one of the following parameters: `StackName`, `TemplateBody`, or `TemplateURL`.

Type: String

Length Constraints: Minimum length of 1.

Required: No

TemplateURL

Location of file containing the template body. The URL must point to a template (max size: 460,800 bytes) that is located in an Amazon S3 bucket. For more information about templates, see [Template Anatomy](#) in the AWS CloudFormation User Guide.

Conditional: You must specify only one of the following parameters: `StackName`, `TemplateBody`, or `TemplateURL`.

Type: String

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

Required: No

Response Elements

The following elements are returned by the service.

Capabilities.member.N

The capabilities found within the template. If your template contains IAM resources, you must specify the `CAPABILITY_IAM` or `CAPABILITY_NAMED_IAM` value for this parameter when you use the [CreateStack \(p. 9\)](#) or [UpdateStack \(p. 55\)](#) actions with your template; otherwise, those actions return an `InsufficientCapabilities` error.

For more information, see [Acknowledging IAM Resources in AWS CloudFormation Templates](#).

Type: array of Strings

Valid Values: CAPABILITY_IAM | CAPABILITY_NAMED_IAM

CapabilitiesReason

The list of resources that generated the values in the `Capabilities` response element.

Type: String

Description

The value that is defined in the `Description` property of the template.

Type: String

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

Metadata

The value that is defined for the `Metadata` property of the template.

Type: String

Parameters.member.N

A list of parameter declarations that describe various properties for each parameter.

Type: array of [ParameterDeclaration \(p. 69\)](#) objects

ResourceTypes.member.N

A list of all the template resource types that are defined in the template, such as `AWS::EC2::Instance`, `AWS::Dynamo::Table`, and `Custom::MyCustomInstance`.

Type: array of Strings

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

Version

The AWS template format version, which identifies the capabilities of the template.

Type: String

Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 88\)](#).

Example

GetTemplateSummary

Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/  
?Action=GetTemplateSummary  
&TemplateURL=https%3A%2F%2Fs3-us-east-1.amazonaws.com%2Fsamplebucket  
name%2Fsampletemplate.template  
&Version=2010-05-15  
&SignatureVersion=2  
&Timestamp=2010-07-27T22%3A26%3A28.000Z  
&AWSAccessKeyId=[AWS Access KeyID]  
&Signature=[Signature]
```

Sample Response

```
<GetTemplateSummaryResponse xmlns="http://cloudformation.amazonaws.com/doc/2010-
```

```
05-15/">
  <GetTemplateSummaryResult>
    <Description>A sample template description.</Description>
    <Parameters>
      <member>
        <NoEcho>>false</NoEcho>
        <ParameterKey>KeyName</ParameterKey>
        <Description>Name of an existing EC2 KeyPair to enable SSH access to
the instance</Description>
        <ParameterType>AWS::EC2::KeyPair::KeyName</ParameterType>
      </member>
    </Parameters>
    <Metadata>{"Instances":{"SampleDescription":"Information about the in
stances"}}</Metadata>
    <Version>2010-09-09</Version>
  </GetTemplateSummaryResult>
</ResponseMetadata>
  <RequestId>b9b4b068-3a41-11e5-94eb-example</RequestId>
</ResponseMetadata>
</GetTemplateSummaryResponse>
```

ListChangeSets

Returns the ID and status of each active change set for a stack. For example, AWS CloudFormation lists change sets that are in the `CREATE_IN_PROGRESS` or `CREATE_PENDING` state.

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters \(p. 86\)](#).

NextToken

A string (provided by the [ListChangeSets \(p. 43\)](#) response output) that identifies the next page of change sets that you want to retrieve.

Type: String

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

Required: No

StackName

The name or the Amazon Resource Name (ARN) of the stack for which you want to list change sets.

Type: String

Length Constraints: Minimum length of 1.

Pattern:

`([a-zA-Z][-a-zA-Z0-9]*)|(arn:\b(aws|aws-us-gov|aws-cn)\b:[-a-zA-Z0-9:/._+]*)`

Required: Yes

Response Elements

The following elements are returned by the service.

NextToken

If the output exceeds 1 MB, a string that identifies the next page of change sets. If there is no additional page, this value is null.

Type: String

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

Summaries.member.N

A list of `ChangeSetSummary` structures that provides the ID and status of each change set for the specified stack.

Type: array of [ChangeSetSummary \(p. 64\)](#) objects

Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 88\)](#).

Example

ListChangeSets

Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/  
?Action=ListChangeSets  
&StackName=arn:aws:cloudformation:us-east-1:123456789012:changeSet/SampleChange
```



```
Set/12a3b456-0e10-4ce0-9052-5d484a8c4e5b
&X-Amz-Algorithm=AWS4-HMAC-SHA256
&X-Amz-Credential=[Access key ID and scope]
&X-Amz-Date=20160316T233349Z
&X-Amz-SignedHeaders=content-type;host
&X-Amz-Signature=[Signature]
```

Sample Response

```
<ListChangeSetsResponse xmlns="http://cloudformation.amazonaws.com/doc/2010-05-15/">
  <ListChangeSetsResult>
    <Summaries>
      <member>
        <StackId>arn:aws:cloudformation:us-east-1:123456789012:changeSet/Sample
ChangeSet/12a3b456-0e10-4ce0-9052-5d484a8c4e5b</StackId>
        <Status>CREATE_COMPLETE</Status>
        <ChangeSetId>arn:aws:cloudformation:us-east-1:123456789012:change
Set/SampleChangeSet/12a3b456-0e10-4ce0-9052-5d484a8c4e5b</ChangeSetId>
        <StackName>SampleStack</StackName>
        <CreationTime>2016-03-16T20:44:05.889Z</CreationTime>
        <ChangeSetName>SampleChangeSet</ChangeSetName>
      </member>
      <member>
        <StackId>arn:aws:cloudformation:us-east-1:123456789012:changeSet/Sample
ChangeSet/12a3b456-0e10-4ce0-9052-5d484a8c4e5b</StackId>
        <Status>CREATE_COMPLETE</Status>
        <ChangeSetId>arn:aws:cloudformation:us-east-1:123456789012:change
Set/SampleChangeSet-conditional/12a3b456-0e10-4ce0-9052-5d484a8c4e5b</ChangeSet
Id>
        <StackName>SampleStack</StackName>
        <CreationTime>2016-03-16T21:15:56.398Z</CreationTime>
        <ChangeSetName>SampleChangeSet-conditional</ChangeSetName>
      </member>
      <member>
        <StackId>arn:aws:cloudformation:us-east-1:123456789012:changeSet/Sample
ChangeSet/12a3b456-0e10-4ce0-9052-5d484a8c4e5b</StackId>
        <Status>CREATE_COMPLETE</Status>
        <ChangeSetId>arn:aws:cloudformation:us-east-1:123456789012:change
Set/SampleChangeSet-replacement/12a3b456-0e10-4ce0-9052-5d484a8c4e5b</ChangeSet
Id>
        <StackName>SampleStack</StackName>
        <CreationTime>2016-03-16T21:03:37.706Z</CreationTime>
        <ChangeSetName>SampleChangeSet-replacement</ChangeSetName>
      </member>
    </Summaries>
  </ListChangeSetsResult>
  <ResponseMetadata>
    <RequestId>b9b4b068-3a41-11e5-94eb-example</RequestId>
  </ResponseMetadata>
</ListChangeSetsResponse>
```

ListStackResources

Returns descriptions of all resources of the specified stack.

For deleted stacks, ListStackResources returns resource information for up to 90 days after the stack has been deleted.

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters \(p. 86\)](#).

NextToken

A string that identifies the next page of stack resources that you want to retrieve.

Type: String

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

Required: No

StackName

The name or the unique stack ID that is associated with the stack, which are not always interchangeable:

- Running stacks: You can specify either the stack's name or its unique stack ID.
- Deleted stacks: You must specify the unique stack ID.

Default: There is no default value.

Type: String

Required: Yes

Response Elements

The following elements are returned by the service.

NextToken

If the output exceeds 1 MB, a string that identifies the next page of stack resources. If no additional page exists, this value is null.

Type: String

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

StackResourceSummaries.member.N

A list of `StackResourceSummary` structures.

Type: array of [StackResourceSummary \(p. 82\)](#) objects

Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 88\)](#).

Example

ListStackResources

Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/  
?Action=ListStackResources  
&StackName=MyStack
```

```
&Version=2010-05-15
&SignatureVersion=2
&Timestamp=2011-07-08T22%3A26%3A28.000Z
&AWSAccessKeyId=[AWS Access KeyID]
&Signature=[Signature]
```

Sample Response

```
<ListStackResourcesResponse xmlns="http://cloudformation.amazonaws.com/doc/2010-05-15/">
  <ListStackResourcesResult>
    <StackResourceSummaries>
      <member>
        <ResourceStatus>CREATE_COMPLETE</ResourceStatus>
        <LogicalResourceId>DBSecurityGroup</LogicalResourceId>
        <LastUpdatedTimestamp>2011-06-21T20:15:58Z</LastUpdatedTimestamp>
        <PhysicalResourceId>gmarcteststack-dbsecuritygroup-
1s5m0ez5lkk6w</Physical
alResourceId>
        <ResourceType>AWS::RDS::DBSecurityGroup</ResourceType>
      </member>
      <member>
        <ResourceStatus>CREATE_COMPLETE</ResourceStatus>
        <LogicalResourceId>SampleDB</LogicalResourceId>
        <LastUpdatedTimestamp>2011-06-21T20:25:57Z</LastUpdatedTimestamp>
        <PhysicalResourceId>MyStack-sampledbycwhklv830lx</PhysicalResour
ceId>
        <ResourceType>AWS::RDS::DBInstance</ResourceType>
      </member>
      <member>
        <ResourceStatus>CREATE_COMPLETE</ResourceStatus>
        <LogicalResourceId>SampleApplication</LogicalResourceId>
        <LastUpdatedTimestamp>2011-06-21T20:26:12Z</LastUpdatedTimestamp>
        <PhysicalResourceId>MyStack-SampleApplication-1MKNASYR3RBQL</Phys
icalResourceId>
        <ResourceType>AWS::ElasticBeanstalk::Application</ResourceType>
      </member>
      <member>
        <ResourceStatus>CREATE_COMPLETE</ResourceStatus>
        <LogicalResourceId>SampleEnvironment</LogicalResourceId>
        <LastUpdatedTimestamp>2011-06-21T20:28:48Z</LastUpdatedTimestamp>
        <PhysicalResourceId>myst-Samp-1AGU6ERZX6M3Q</PhysicalResourceId>
        <ResourceType>AWS::ElasticBeanstalk::Environment</ResourceType>
      </member>
      <member>
        <ResourceStatus>CREATE_COMPLETE</ResourceStatus>
        <LogicalResourceId>AlarmTopic</LogicalResourceId>
        <LastUpdatedTimestamp>2011-06-21T20:29:06Z</LastUpdatedTimestamp>
        <PhysicalResourceId>arn:aws:sns:us-east-1:803981987763:MyStack-Al
armTopic-SW4IQELG7RPJ</PhysicalResourceId>
        <ResourceType>AWS::SNS::Topic</ResourceType>
      </member>
      <member>
        <ResourceStatus>CREATE_COMPLETE</ResourceStatus>
        <LogicalResourceId>CPUALarmHigh</LogicalResourceId>
```

AWS CloudFormation API Reference

Example

```
<LastUpdatedTimestamp>2011-06-21T20:29:23Z</LastUpdatedTimestamp>
<PhysicalResourceId>MyStack-CPUAlarmHigh-POBWQPDJA81F</PhysicalRe
sourceId>
  <ResourceType>AWS::CloudWatch::Alarm</ResourceType>
</member>
</StackResourceSummaries>
</ListStackResourcesResult>
<ResponseMetadata>
  <RequestId>2d06e36c-ac1d-11e0-a958-example</RequestId>
</ResponseMetadata>
</ListStackResourcesResponse>
```

ListStacks

Returns the summary information for stacks whose status matches the specified `StackStatusFilter`. Summary information for stacks that have been deleted is kept for 90 days after the stack is deleted. If no `StackStatusFilter` is specified, summary information for all stacks is returned (including existing stacks and stacks that have been deleted).

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters \(p. 86\)](#).

NextToken

A string that identifies the next page of stacks that you want to retrieve.

Type: String

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

Required: No

StackStatusFilter.member.N

Stack status to use as a filter. Specify one or more stack status codes to list only stacks with the specified status codes. For a complete list of stack status codes, see the `StackStatus` parameter of the [Stack \(p. 75\)](#) data type.

Type: array of Strings

Valid Values: `CREATE_IN_PROGRESS` | `CREATE_FAILED` | `CREATE_COMPLETE` | `ROLLBACK_IN_PROGRESS` | `ROLLBACK_FAILED` | `ROLLBACK_COMPLETE` | `DELETE_IN_PROGRESS` | `DELETE_FAILED` | `DELETE_COMPLETE` | `UPDATE_IN_PROGRESS` | `UPDATE_COMPLETE_CLEANUP_IN_PROGRESS` | `UPDATE_COMPLETE` | `UPDATE_ROLLBACK_IN_PROGRESS` | `UPDATE_ROLLBACK_FAILED` | `UPDATE_ROLLBACK_COMPLETE_CLEANUP_IN_PROGRESS` | `UPDATE_ROLLBACK_COMPLETE`

Required: No

Response Elements

The following elements are returned by the service.

NextToken

If the output exceeds 1 MB in size, a string that identifies the next page of stacks. If no additional page exists, this value is null.

Type: String

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

StackSummaries.member.N

A list of `StackSummary` structures containing information about the specified stacks.

Type: array of [StackSummary \(p. 83\)](#) objects

Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 88\)](#).

Example

ListStacks

Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/  
?Action=ListStacks  
&StackStatusFilter.member.1=CREATE_IN_PROGRESS  
&StackStatusFilter.member.2=DELETE_COMPLETE  
&Version=2010-05-15  
&SignatureVersion=2  
&SignatureMethod=HmacSHA256  
&Timestamp=2010-07-27T22%3A26%3A28.000Z  
&AWSAccessKeyId=[AWS Access KeyID]  
&Signature=[Signature]
```

Sample Response

```
<ListStacksResponse xmlns="http://cloudformation.amazonaws.com/doc/2010-05-15/">  
  
  <ListStacksResult>  
    <StackSummaries>  
      <member>  
        <StackId>  
          arn:aws:cloudformation:us-east-1:1234567:stack/TestCreate1/aaaa  
        </StackId>  
        <StackStatus>CREATE_IN_PROGRESS</StackStatus>  
        <StackName>vpcl</StackName>  
        <CreationTime>2011-05-23T15:47:44Z</CreationTime>  
        <TemplateDescription>  
          Creates one EC2 instance and a load balancer.  
        </TemplateDescription>  
        <ResourceTypes>  
          <member>AWS::EC2::Instance</member>  
          <member>AWS::ElasticLoadBalancing::LoadBalancer</member>  
        </ResourceTypes>  
      </member>  
      <member>  
        <StackId>  
          arn:aws:cloudformation:us-east-1:1234567:stack/TestDelete2/bbbbb  
        </StackId>  
        <StackStatus>DELETE_COMPLETE</StackStatus>  
        <DeletionTime>2011-03-10T16:20:51Z</DeletionTime>  
        <StackName>WP1</StackName>  
        <CreationTime>2011-03-05T19:57:58Z</CreationTime>  
        <TemplateDescription>  
          A simple basic Cloudformation Template.  
        </TemplateDescription>  
        <ResourceTypes>  
          <member>AWS::EC2::Instance</member>  
        </ResourceTypes>  
      </member>  
    </StackSummaries>  
  </ListStacksResult>  
</ListStacksResponse>
```

AWS CloudFormation API Reference

Example

```
    </StackSummaries>
  </ListStacksResult>
<ResponseMetadata>
  <RequestId>b9b4b068-3a41-11e5-94eb-example</RequestId>
</ResponseMetadata>
</ListStacksResponse>
```

SetStackPolicy

Sets a stack policy for a specified stack.

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters \(p. 86\)](#).

StackName

The name or unique stack ID that you want to associate a policy with.

Type: String

Required: Yes

StackPolicyBody

Structure containing the stack policy body. For more information, go to [Prevent Updates to Stack Resources](#) in the AWS CloudFormation User Guide. You can specify either the `StackPolicyBody` or the `StackPolicyURL` parameter, but not both.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 16384.

Required: No

StackPolicyURL

Location of a file containing the stack policy. The URL must point to a policy (maximum size: 16 KB) located in an S3 bucket in the same region as the stack. You can specify either the `StackPolicyBody` or the `StackPolicyURL` parameter, but not both.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1350.

Required: No

Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 88\)](#).

Example

SetStackPolicy

Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/  
?Action=SetStackPolicy  
&StackName=MyStack  
&StackPolicyBody=[Stack Policy Document]  
&Version=2010-05-15  
&SignatureVersion=2  
&Timestamp=2010-07-27T22%3A26%3A28.000Z  
&AWSAccessKeyId=[AWS Access KeyID]  
&Signature=[Signature]
```


Sample Response

```
<SetStackPolicyResponse xmlns="http://cloudformation.amazonaws.com/doc/2010-05-15/">
  <ResponseMetadata>
    <RequestId>e7d8c346-744b-11e5-b40b-example</RequestId>
  </ResponseMetadata>
</SetStackPolicyResponse>
```

SignalResource

Sends a signal to the specified resource with a success or failure status. You can use the SignalResource API in conjunction with a creation policy or update policy. AWS CloudFormation doesn't proceed with a stack creation or update until resources receive the required number of signals or the timeout period is exceeded. The SignalResource API is useful in cases where you want to send signals from anywhere other than an Amazon EC2 instance.

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters \(p. 86\)](#).

LogicalResourceId

The logical ID of the resource that you want to signal. The logical ID is the name of the resource that given in the template.

Type: String

Required: Yes

StackName

The stack name or unique stack ID that includes the resource that you want to signal.

Type: String

Length Constraints: Minimum length of 1.

Pattern:

`([a-zA-Z][a-zA-Z0-9]*)|(arn:\b(aws|aws-us-gov|aws-cn)\b:[a-zA-Z0-9:/._+]*)`

Required: Yes

Status

The status of the signal, which is either success or failure. A failure signal causes AWS CloudFormation to immediately fail the stack creation or update.

Type: String

Valid Values: SUCCESS | FAILURE

Required: Yes

UniqueId

A unique ID of the signal. When you signal Amazon EC2 instances or Auto Scaling groups, specify the instance ID that you are signaling as the unique ID. If you send multiple signals to a single resource (such as signaling a wait condition), each signal requires a different unique ID.

Type: String

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

Required: Yes

Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 88\)](#).

Example

SignalResource

Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/  
?Action=SignalResource
```

```
&LogicalResourceId=MyWaitCondition
&StackName=AWaitingTestStack
&Status=SUCCESS
&UniqueId=test-signal
&Version=2010-05-15
&SignatureVersion=2
&Timestamp=2010-07-27T22%3A26%3A28.000Z
&AWSAccessKeyId=[AWS Access KeyID]
&Signature=[Signature]
```

Sample Response

```
<SignalResourceResponse xmlns="http://cloudformation.amazonaws.com/doc/2010-05-15/">
  <ResponseMetadata>
    <RequestId>e7d8c346-744b-11e5-b40b-example</RequestId>
  </ResponseMetadata>
</SignalResourceResponse>
```

UpdateStack

Updates a stack as specified in the template. After the call completes successfully, the stack update starts. You can check the status of the stack via the [DescribeStacks \(p. 30\)](#) action.

To get a copy of the template for an existing stack, you can use the [GetTemplate \(p. 38\)](#) action.

For more information about creating an update template, updating a stack, and monitoring the progress of the update, see [Updating a Stack](#).

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters \(p. 86\)](#).

Capabilities.member.N

A list of values that you must specify before AWS CloudFormation can update certain stacks. Some stack templates might include resources that can affect permissions in your AWS account, for example, by creating new AWS Identity and Access Management (IAM) users. For those stacks, you must explicitly acknowledge their capabilities by specifying this parameter.

The only valid values are `CAPABILITY_IAM` and `CAPABILITY_NAMED_IAM`. The following resources require you to specify this parameter: [AWS::IAM::AccessKey](#), [AWS::IAM::Group](#), [AWS::IAM::InstanceProfile](#), [AWS::IAM::Policy](#), [AWS::IAM::Role](#), [AWS::IAM::User](#), and [AWS::IAM::UserToGroupAddition](#). If your stack template contains these resources, we recommend that you review all permissions associated with them and edit their permissions if necessary.

If you have IAM resources, you can specify either capability. If you have IAM resources with custom names, you must specify `CAPABILITY_NAMED_IAM`. If you don't specify this parameter, this action returns an `InsufficientCapabilities` error.

For more information, see [Acknowledging IAM Resources in AWS CloudFormation Templates](#).

Type: array of Strings

Valid Values: `CAPABILITY_IAM` | `CAPABILITY_NAMED_IAM`

Required: No

NotificationARNs.member.N

Amazon Simple Notification Service topic Amazon Resource Names (ARNs) that AWS CloudFormation associates with the stack. Specify an empty list to remove all notification topics.

Type: array of Strings

Array Members: Maximum number of 5 items.

Required: No

Parameters.member.N

A list of `Parameter` structures that specify input parameters for the stack. For more information, see the [Parameter](#) data type.

Type: array of [Parameter \(p. 67\)](#) objects

Required: No

ResourceTypes.member.N

The template resource types that you have permissions to work with for this update stack action, such as `AWS::EC2::Instance`, `AWS::EC2::*`, or `Custom::MyCustomInstance`.

If the list of resource types doesn't include a resource that you're updating, the stack update fails. By default, AWS CloudFormation grants permissions to all resource types. AWS Identity and Access Management (IAM) uses this parameter for AWS CloudFormation-specific condition keys in IAM policies. For more information, see [Controlling Access with AWS Identity and Access Management](#).

Type: array of Strings

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

Required: No

StackName

The name or unique stack ID of the stack to update.

Type: String

Required: Yes

StackPolicyBody

Structure containing a new stack policy body. You can specify either the `StackPolicyBody` or the `StackPolicyURL` parameter, but not both.

You might update the stack policy, for example, in order to protect a new resource that you created during a stack update. If you do not specify a stack policy, the current policy that is associated with the stack is unchanged.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 16384.

Required: No

StackPolicyDuringUpdateBody

Structure containing the temporary overriding stack policy body. You can specify either the `StackPolicyDuringUpdateBody` or the `StackPolicyDuringUpdateURL` parameter, but not both.

If you want to update protected resources, specify a temporary overriding stack policy during this update. If you do not specify a stack policy, the current policy that is associated with the stack will be used.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 16384.

Required: No

StackPolicyDuringUpdateURL

Location of a file containing the temporary overriding stack policy. The URL must point to a policy (max size: 16KB) located in an S3 bucket in the same region as the stack. You can specify either the `StackPolicyDuringUpdateBody` or the `StackPolicyDuringUpdateURL` parameter, but not both.

If you want to update protected resources, specify a temporary overriding stack policy during this update. If you do not specify a stack policy, the current policy that is associated with the stack will be used.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1350.

Required: No

StackPolicyURL

Location of a file containing the updated stack policy. The URL must point to a policy (max size: 16KB) located in an S3 bucket in the same region as the stack. You can specify either the `StackPolicyBody` or the `StackPolicyURL` parameter, but not both.

You might update the stack policy, for example, in order to protect a new resource that you created during a stack update. If you do not specify a stack policy, the current policy that is associated with the stack is unchanged.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1350.

Required: No

Tags.member.N

Key-value pairs to associate with this stack. AWS CloudFormation also propagates these tags to supported resources in the stack. You can specify a maximum number of 10 tags.

If you don't specify this parameter, AWS CloudFormation doesn't modify the stack's tags. If you specify an empty value, AWS CloudFormation removes all associated tags.

Type: array of [Tag \(p. 84\)](#) objects

Required: No

TemplateBody

Structure containing the template body with a minimum length of 1 byte and a maximum length of 51,200 bytes. (For more information, go to [Template Anatomy](#) in the AWS CloudFormation User Guide.)

Conditional: You must specify either the `TemplateBody` or the `TemplateURL` parameter, but not both.

Type: String

Length Constraints: Minimum length of 1.

Required: No

TemplateURL

Location of file containing the template body. The URL must point to a template that is located in an Amazon S3 bucket. For more information, go to [Template Anatomy](#) in the AWS CloudFormation User Guide.

Conditional: You must specify either the `TemplateBody` or the `TemplateURL` parameter, but not both.

Type: String

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

Required: No

UsePreviousTemplate

Reuse the existing template that is associated with the stack that you are updating.

Type: Boolean

Required: No

Response Elements

The following element is returned by the service.

StackId

Unique identifier of the stack.

Type: String

Errors

For information about the errors that are common to all actions, see [Common Errors](#) (p. 88).

InsufficientCapabilities

The template contains resources with capabilities that were not specified in the `Capabilities` parameter.

HTTP Status Code: 400

Example

UpdateStack

Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/  
?Action=UpdateStack  
&StackName=MyStack  
&TemplateBody=[Template Document]  
&Parameters.member.1.ParameterKey=AvailabilityZone  
&Parameters.member.1.ParameterValue=us-east-1a  
&Version=2010-05-15  
&SignatureVersion=2  
&Timestamp=2010-07-27T22%3A26%3A28.000Z
```

```
&AWSAccessKeyId=[AWS Access KeyID]  
&Signature=[Signature]
```

Sample Response

```
<UpdateStackResponse xmlns="http://cloudformation.amazonaws.com/doc/2010-05-15/">  
  <UpdateStackResult>  
    <StackId>arn:aws:cloudformation:us-east-1:123456789:stack/MyStack/aaf549a0-a413-11df-adb3-5081b3858e83</StackId>  
  </UpdateStackResult>  
  <ResponseMetadata>  
    <RequestId>b9b4b068-3a41-11e5-94eb-example</RequestId>  
  </ResponseMetadata>  
</UpdateStackResponse>
```

ValidateTemplate

Validates a specified template.

Request Parameters

For information about the parameters that are common to all actions, see [Common Parameters \(p. 86\)](#).

TemplateBody

Structure containing the template body with a minimum length of 1 byte and a maximum length of 51,200 bytes. For more information, go to [Template Anatomy](#) in the AWS CloudFormation User Guide.

Conditional: You must pass `TemplateURL` or `TemplateBody`. If both are passed, only `TemplateBody` is used.

Type: String

Length Constraints: Minimum length of 1.

Required: No

TemplateURL

Location of file containing the template body. The URL must point to a template (max size: 460,800 bytes) that is located in an Amazon S3 bucket. For more information, go to [Template Anatomy](#) in the AWS CloudFormation User Guide.

Conditional: You must pass `TemplateURL` or `TemplateBody`. If both are passed, only `TemplateBody` is used.

Type: String

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

Required: No

Response Elements

The following elements are returned by the service.

Capabilities.member.N

The capabilities found within the template. If your template contains IAM resources, you must specify the `CAPABILITY_IAM` or `CAPABILITY_NAMED_IAM` value for this parameter when you use the [CreateStack \(p. 9\)](#) or [UpdateStack \(p. 55\)](#) actions with your template; otherwise, those actions return an `InsufficientCapabilities` error.

For more information, see [Acknowledging IAM Resources in AWS CloudFormation Templates](#).

Type: array of Strings

Valid Values: `CAPABILITY_IAM` | `CAPABILITY_NAMED_IAM`

CapabilitiesReason

The list of resources that generated the values in the `Capabilities` response element.

Type: String

Description

The description found within the template.

Type: String

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

Parameters.member.N

A list of `TemplateParameter` structures.

Type: array of [TemplateParameter \(p. 85\)](#) objects

Errors

For information about the errors that are common to all actions, see [Common Errors](#) (p. 88).

Example

ValidateTemplate

Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/  
?Action=ValidateTemplate  
&TemplateBody=http://myTemplateRepository/TemplateOne.template  
&Version=2010-05-15  
&SignatureVersion=2  
&Timestamp=2010-07-27T22%3A26%3A28.000Z  
&AWSAccessKeyId=[AWS Access KeyID]  
&Signature=[Signature]
```

Sample Response

```
<ValidateTemplateResponse xmlns="http://cloudformation.amazonaws.com/doc/2010-  
05-15/">  
  <ValidateTemplateResult>  
    <Description></Description>  
    <Parameters>  
      <member>  
        <NoEcho>>false</NoEcho>  
        <ParameterKey>InstanceType</ParameterKey>  
        <Description>Type of instance to launch</Description>  
        <DefaultValue>m1.small</DefaultValue>  
      </member>  
      <member>  
        <NoEcho>>false</NoEcho>  
        <ParameterKey>WebServerPort</ParameterKey>  
        <Description>The TCP port for the Web Server</Description>  
        <DefaultValue>8888</DefaultValue>  
      </member>  
      <member>  
        <NoEcho>>false</NoEcho>  
        <ParameterKey>KeyName</ParameterKey>  
        <Description>Name of an existing EC2 KeyPair to enable SSH access into  
the server</Description>  
      </member>  
    </Parameters>  
  </ValidateTemplateResult>  
  <ResponseMetadata>  
    <RequestId>0be7b6e8-e4a0-11e0-a5bd-example</RequestId>  
  </ResponseMetadata>  
</ValidateTemplateResponse>
```

Data Types

The AWS CloudFormation 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:

- [AccountLimit](#) (p. 62)
- [Change](#) (p. 63)
- [ChangeSetSummary](#) (p. 64)
- [Output](#) (p. 66)
- [Parameter](#) (p. 67)
- [ParameterConstraints](#) (p. 68)
- [ParameterDeclaration](#) (p. 69)
- [ResourceChange](#) (p. 70)
- [ResourceChangeDetail](#) (p. 72)
- [ResourceTargetDefinition](#) (p. 74)
- [Stack](#) (p. 75)
- [StackEvent](#) (p. 77)
- [StackResource](#) (p. 79)
- [StackResourceDetail](#) (p. 80)
- [StackResourceSummary](#) (p. 82)
- [StackSummary](#) (p. 83)
- [Tag](#) (p. 84)
- [TemplateParameter](#) (p. 85)

AccountLimit

The AccountLimit data type.

Contents

Name

The name of the account limit. Currently, the only account limit is `StackLimit`.

Type: String

Required: No

Value

The value that is associated with the account limit name.

Type: Integer

Required: No

Change

The `Change` structure describes the changes AWS CloudFormation will perform if you execute the change set.

Contents

ResourceChange

A `ResourceChange` structure that describes the resource and action that AWS CloudFormation will perform.

Type: [ResourceChange \(p. 70\)](#) object

Required: No

Type

The type of entity that AWS CloudFormation changes. Currently, the only entity type is `Resource`.

Type: String

Valid Values: `Resource`

Required: No

ChangeSetSummary

The `ChangeSetSummary` structure describes a change set, its status, and the stack with which it's associated.

Contents

ChangeSetId

The ID of the change set.

Type: String

Length Constraints: Minimum length of 1.

Pattern: `arn:[-a-zA-Z0-9:/]*`

Required: No

ChangeSetName

The name of the change set.

Type: String

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

Pattern: `[a-zA-Z][-a-zA-Z0-9]*`

Required: No

CreationTime

The start time when the change set was created, in UTC.

Type: Timestamp

Required: No

Description

Descriptive information about the change set.

Type: String

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

Required: No

ExecutionStatus

If the change set execution status is `AVAILABLE`, you can execute the change set. If you can't execute the change set, the status indicates why. For example, a change set might be in an `UNAVAILABLE` state because AWS CloudFormation is still creating it or in an `OBSOLETE` state because the stack was already updated.

Type: String

Valid Values: `UNAVAILABLE` | `AVAILABLE` | `EXECUTE_IN_PROGRESS` | `EXECUTE_COMPLETE` | `EXECUTE_FAILED` | `OBSOLETE`

Required: No

StackId

The ID of the stack with which the change set is associated.

Type: String

Required: No

StackName

The name of the stack with which the change set is associated.

Type: String

Required: No

Status

The state of the change set, such as `CREATE_IN_PROGRESS`, `CREATE_COMPLETE`, or `FAILED`.

Type: String

Valid Values: `CREATE_PENDING` | `CREATE_IN_PROGRESS` | `CREATE_COMPLETE` | `DELETE_COMPLETE` | `FAILED`

Required: No

StatusReason

A description of the change set's status. For example, if your change set is in the `FAILED` state, AWS CloudFormation shows the error message.

Type: String

Required: No

Output

The Output data type.

Contents

Description

User defined description associated with the output.

Type: String

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

Required: No

OutputKey

The key associated with the output.

Type: String

Required: No

OutputValue

The value associated with the output.

Type: String

Required: No

Parameter

The Parameter data type.

Contents

ParameterKey

The key associated with the parameter. If you don't specify a key and value for a particular parameter, AWS CloudFormation uses the default value that is specified in your template.

Type: String

Required: No

ParameterValue

The value associated with the parameter.

Type: String

Required: No

UsePreviousValue

During a stack update, use the existing parameter value that the stack is using for a given parameter key. If you specify `true`, do not specify a parameter value.

Type: Boolean

Required: No

ParameterConstraints

A set of criteria that AWS CloudFormation uses to validate parameter values. Although other constraints might be defined in the stack template, AWS CloudFormation returns only the `AllowedValues` property.

Contents

AllowedValues.member.N

A list of values that are permitted for a parameter.

Type: array of Strings

Required: No

ParameterDeclaration

The ParameterDeclaration data type.

Contents

DefaultValue

The default value of the parameter.

Type: String

Required: No

Description

The description that is associate with the parameter.

Type: String

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

Required: No

NoEcho

Flag that indicates whether the parameter value is shown as plain text in logs and in the AWS Management Console.

Type: Boolean

Required: No

ParameterConstraints

The criteria that AWS CloudFormation uses to validate parameter values.

Type: [ParameterConstraints \(p. 68\)](#) object

Required: No

ParameterKey

The name that is associated with the parameter.

Type: String

Required: No

ParameterType

The type of parameter.

Type: String

Required: No

ResourceChange

The `ResourceChange` structure describes the resource and the action that AWS CloudFormation will perform on it if you execute this change set.

Contents

Action

The action that AWS CloudFormation takes on the resource, such as `Add` (adds a new resource), `Modify` (changes a resource), or `Remove` (deletes a resource).

Type: String

Valid Values: `Add` | `Modify` | `Remove`

Required: No

Details.member.N

For the `Modify` action, a list of `ResourceChangeDetail` structures that describes the changes that AWS CloudFormation will make to the resource.

Type: array of [ResourceChangeDetail](#) (p. 72) objects

Required: No

LogicalResourceId

The resource's logical ID, which is defined in the stack's template.

Type: String

Required: No

PhysicalResourceId

The resource's physical ID (resource name). Resources that you are adding don't have physical IDs because they haven't been created.

Type: String

Required: No

Replacement

For the `Modify` action, indicates whether AWS CloudFormation will replace the resource by creating a new one and deleting the old one. This value depends on the value of the `RequiresRecreation` property in the `ResourceTargetDefinition` structure. For example, if the `RequiresRecreation` field is `Always` and the `Evaluation` field is `Static`, `Replacement` is `True`. If the `RequiresRecreation` field is `Always` and the `Evaluation` field is `Dynamic`, `Replacement` is `Conditionally`.

If you have multiple changes with different `RequiresRecreation` values, the `Replacement` value depends on the change with the most impact. A `RequiresRecreation` value of `Always` has the most impact, followed by `Conditionally`, and then `Never`.

Type: String

Valid Values: `True` | `False` | `Conditional`

Required: No

ResourceType

The type of AWS CloudFormation resource, such as `AWS::S3::Bucket`.

Type: String

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

Required: No

Scope.member.N

For the `Modify` action, indicates which resource attribute is triggering this update, such as a change in the resource attribute's `Metadata`, `Properties`, or `Tags`.

Type: array of Strings

Valid Values: `Properties` | `Metadata` | `CreationPolicy` | `UpdatePolicy` | `DeletionPolicy` | `Tags`

Required: No

ResourceChangeDetail

For a resource with `Modify` as the action, the `ResourceChange` structure describes the changes AWS CloudFormation will make to that resource.

Contents

CausingEntity

The identity of the entity that triggered this change. This entity is a member of the group that is specified by the `ChangeSource` field. For example, if you modified the value of the `KeyPairName` parameter, the `CausingEntity` is the name of the parameter (`KeyPairName`).

If the `ChangeSource` value is `DirectModification`, no value is given for `CausingEntity`.

Type: String

Required: No

ChangeSource

The group to which the `CausingEntity` value belongs. There are five entity groups:

- **ResourceReference** entities are `Ref` intrinsic functions that refer to resources in the template, such as `{ "Ref" : "MyEC2InstanceResource" }`.
- **ParameterReference** entities are `Ref` intrinsic functions that get template parameter values, such as `{ "Ref" : "MyPasswordParameter" }`.
- **ResourceAttribute** entities are `Fn::GetAtt` intrinsic functions that get resource attribute values, such as `{ "Fn::GetAtt" : ["MyEC2InstanceResource", "PublicDnsName"] }`.
- **DirectModification** entities are changes that are made directly to the template.
- **Automatic** entities are `AWS::CloudFormation::Stack` resource types, which are also known as nested stacks. If you made no changes to the `AWS::CloudFormation::Stack` resource, AWS CloudFormation sets the `ChangeSource` to `Automatic` because the nested stack's template might have changed. Changes to a nested stack's template aren't visible to AWS CloudFormation until you run an update on the parent stack.

Type: String

Valid Values: `ResourceReference` | `ParameterReference` | `ResourceAttribute` | `DirectModification` | `Automatic`

Required: No

Evaluation

Indicates whether AWS CloudFormation can determine the target value, and whether the target value will change before you execute a change set.

For `Static` evaluations, AWS CloudFormation can determine that the target value will change, and its value. For example, if you directly modify the `InstanceType` property of an EC2 instance, AWS CloudFormation knows that this property value will change, and its value, so this is a `Static` evaluation.

For `Dynamic` evaluations, cannot determine the target value because it depends on the result of an intrinsic function, such as a `Ref` or `Fn::GetAtt` intrinsic function, when the stack is updated. For example, if your template includes a reference to a resource that is conditionally recreated, the value of the reference (the physical ID of the resource) might change, depending on if the resource is recreated. If the resource is recreated, it will have a new physical ID, so all references to that resource will also be updated.

Type: String

Valid Values: `Static` | `Dynamic`

Required: No

Target

A `ResourceTargetDefinition` structure that describes the field that AWS CloudFormation will change and whether the resource will be recreated.

Type: [ResourceTargetDefinition](#) (p. 74) object

Required: No

ResourceTargetDefinition

The field that AWS CloudFormation will change, such as the name of a resource's property, and whether the resource will be recreated.

Contents

Attribute

Indicates which resource attribute is triggering this update, such as a change in the resource attribute's Metadata, Properties, Or Tags.

Type: String

Valid Values: Properties | Metadata | CreationPolicy | UpdatePolicy | DeletionPolicy | Tags

Required: No

Name

If the Attribute value is Properties, the name of the property. For all other attributes, the value is null.

Type: String

Required: No

RequiresRecreation

If the Attribute value is Properties, indicates whether a change to this property causes the resource to be recreated. The value can be Never, Always, or Conditionally. To determine the conditions for a Conditionally recreation, see the update behavior for that [property](#) in the AWS CloudFormation User Guide.

Type: String

Valid Values: Never | Conditionally | Always

Required: No

Stack

The Stack data type.

Contents

Capabilities.member.N

The capabilities allowed in the stack.

Type: array of Strings

Valid Values: `CAPABILITY_IAM` | `CAPABILITY_NAMED_IAM`

Required: No

CreationTime

The time at which the stack was created.

Type: Timestamp

Required: Yes

Description

A user-defined description associated with the stack.

Type: String

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

Required: No

DisableRollback

Boolean to enable or disable rollback on stack creation failures:

- `true`: disable rollback
- `false`: enable rollback

Type: Boolean

Required: No

LastUpdatedTime

The time the stack was last updated. This field will only be returned if the stack has been updated at least once.

Type: Timestamp

Required: No

NotificationARNs.member.N

SNS topic ARNs to which stack related events are published.

Type: array of Strings

Array Members: Maximum number of 5 items.

Required: No

Outputs.member.N

A list of output structures.

Type: array of [Output \(p. 66\)](#) objects

Required: No

Parameters.member.N

A list of `Parameter` structures.

Type: array of [Parameter \(p. 67\)](#) objects

Required: No

StackId

Unique identifier of the stack.

Type: String

Required: No

StackName

The name associated with the stack.

Type: String

Required: Yes

StackStatus

Current status of the stack.

Type: String

Valid Values: CREATE_IN_PROGRESS | CREATE_FAILED | CREATE_COMPLETE |
ROLLBACK_IN_PROGRESS | ROLLBACK_FAILED | ROLLBACK_COMPLETE |
DELETE_IN_PROGRESS | DELETE_FAILED | DELETE_COMPLETE | UPDATE_IN_PROGRESS
| UPDATE_COMPLETE_CLEANUP_IN_PROGRESS | UPDATE_COMPLETE |
UPDATE_ROLLBACK_IN_PROGRESS | UPDATE_ROLLBACK_FAILED |
UPDATE_ROLLBACK_COMPLETE_CLEANUP_IN_PROGRESS | UPDATE_ROLLBACK_COMPLETE

Required: Yes

StackStatusReason

Success/failure message associated with the stack status.

Type: String

Required: No

Tags.member.N

A list of `Tags` that specify information about the stack.

Type: array of [Tag \(p. 84\)](#) objects

Required: No

TimeoutInMinutes

The amount of time within which stack creation should complete.

Type: Integer

Valid Range: Minimum value of 1.

Required: No

StackEvent

The StackEvent data type.

Contents

EventId

The unique ID of this event.

Type: String

Required: Yes

LogicalResourceId

The logical name of the resource specified in the template.

Type: String

Required: No

PhysicalResourceId

The name or unique identifier associated with the physical instance of the resource.

Type: String

Required: No

ResourceProperties

BLOB of the properties used to create the resource.

Type: String

Required: No

ResourceStatus

Current status of the resource.

Type: String

Valid Values: CREATE_IN_PROGRESS | CREATE_FAILED | CREATE_COMPLETE |
DELETE_IN_PROGRESS | DELETE_FAILED | DELETE_COMPLETE | DELETE_SKIPPED |
UPDATE_IN_PROGRESS | UPDATE_FAILED | UPDATE_COMPLETE

Required: No

ResourceStatusReason

Success/failure message associated with the resource.

Type: String

Required: No

ResourceType

Type of resource. (For more information, go to [AWS Resource Types Reference](#) in the AWS CloudFormation User Guide.)

Type: String

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

Required: No

StackId

The unique ID name of the instance of the stack.

Type: String

Required: Yes

StackName

The name associated with a stack.

Type: String

Required: Yes

Timestamp

Time the status was updated.

Type: Timestamp

Required: Yes

StackResource

The StackResource data type.

Contents

Description

User defined description associated with the resource.

Type: String

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

Required: No

LogicalResourceId

The logical name of the resource specified in the template.

Type: String

Required: Yes

PhysicalResourceId

The name or unique identifier that corresponds to a physical instance ID of a resource supported by AWS CloudFormation.

Type: String

Required: No

ResourceStatus

Current status of the resource.

Type: String

Valid Values: CREATE_IN_PROGRESS | CREATE_FAILED | CREATE_COMPLETE |
DELETE_IN_PROGRESS | DELETE_FAILED | DELETE_COMPLETE | DELETE_SKIPPED |
UPDATE_IN_PROGRESS | UPDATE_FAILED | UPDATE_COMPLETE

Required: Yes

ResourceStatusReason

Success/failure message associated with the resource.

Type: String

Required: No

ResourceType

Type of resource. (For more information, go to [AWS Resource Types Reference](#) in the AWS CloudFormation User Guide.)

Type: String

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

Required: Yes

StackId

Unique identifier of the stack.

Type: String

Required: No

StackName

The name associated with the stack.

Type: String

Required: No

Timestamp

Time the status was updated.

Type: Timestamp

Required: Yes

StackResourceDetail

Contains detailed information about the specified stack resource.

Contents

Description

User defined description associated with the resource.

Type: String

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

Required: No

LastUpdatedTimestamp

Time the status was updated.

Type: Timestamp

Required: Yes

LogicalResourceId

The logical name of the resource specified in the template.

Type: String

Required: Yes

Metadata

The JSON format content of the `Metadata` attribute declared for the resource. For more information, see [Metadata Attribute](#) in the AWS CloudFormation User Guide.

Type: String

Required: No

PhysicalResourceId

The name or unique identifier that corresponds to a physical instance ID of a resource supported by AWS CloudFormation.

Type: String

Required: No

ResourceStatus

Current status of the resource.

Type: String

Valid Values: CREATE_IN_PROGRESS | CREATE_FAILED | CREATE_COMPLETE |
DELETE_IN_PROGRESS | DELETE_FAILED | DELETE_COMPLETE | DELETE_SKIPPED |
UPDATE_IN_PROGRESS | UPDATE_FAILED | UPDATE_COMPLETE

Required: Yes

ResourceStatusReason

Success/failure message associated with the resource.

Type: String

Required: No

ResourceType

Type of resource. ((For more information, go to [AWS Resource Types Reference](#) in the AWS CloudFormation User Guide.)

Type: String

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

Required: Yes

StackId

Unique identifier of the stack.

Type: String

Required: No

StackName

The name associated with the stack.

Type: String

Required: No

StackResourceSummary

Contains high-level information about the specified stack resource.

Contents

LastUpdatedTimestamp

Time the status was updated.

Type: Timestamp

Required: Yes

LogicalResourceId

The logical name of the resource specified in the template.

Type: String

Required: Yes

PhysicalResourceId

The name or unique identifier that corresponds to a physical instance ID of the resource.

Type: String

Required: No

ResourceStatus

Current status of the resource.

Type: String

Valid Values: CREATE_IN_PROGRESS | CREATE_FAILED | CREATE_COMPLETE |
DELETE_IN_PROGRESS | DELETE_FAILED | DELETE_COMPLETE | DELETE_SKIPPED |
UPDATE_IN_PROGRESS | UPDATE_FAILED | UPDATE_COMPLETE

Required: Yes

ResourceStatusReason

Success/failure message associated with the resource.

Type: String

Required: No

ResourceType

Type of resource. (For more information, go to [AWS Resource Types Reference](#) in the AWS CloudFormation User Guide.)

Type: String

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

Required: Yes

StackSummary

The StackSummary Data Type

Contents

CreationTime

The time the stack was created.

Type: Timestamp

Required: Yes

DeletionTime

The time the stack was deleted.

Type: Timestamp

Required: No

LastUpdatedTime

The time the stack was last updated. This field will only be returned if the stack has been updated at least once.

Type: Timestamp

Required: No

StackId

Unique stack identifier.

Type: String

Required: No

StackName

The name associated with the stack.

Type: String

Required: Yes

StackStatus

The current status of the stack.

Type: String

Valid Values: CREATE_IN_PROGRESS | CREATE_FAILED | CREATE_COMPLETE |
ROLLBACK_IN_PROGRESS | ROLLBACK_FAILED | ROLLBACK_COMPLETE |
DELETE_IN_PROGRESS | DELETE_FAILED | DELETE_COMPLETE | UPDATE_IN_PROGRESS
| UPDATE_COMPLETE_CLEANUP_IN_PROGRESS | UPDATE_COMPLETE |
UPDATE_ROLLBACK_IN_PROGRESS | UPDATE_ROLLBACK_FAILED |
UPDATE_ROLLBACK_COMPLETE_CLEANUP_IN_PROGRESS | UPDATE_ROLLBACK_COMPLETE

Required: Yes

StackStatusReason

Success/Failure message associated with the stack status.

Type: String

Required: No

TemplateDescription

The template description of the template used to create the stack.

Type: String

Required: No

Tag

The Tag type enables you to specify a key-value pair that can be used to store information about an AWS CloudFormation stack.

Contents

Key

Required. A string used to identify this tag. You can specify a maximum of 128 characters for a tag key. Tags owned by Amazon Web Services (AWS) have the reserved prefix: `aws:`.

Type: String

Required: No

Value

Required. A string containing the value for this tag. You can specify a maximum of 256 characters for a tag value.

Type: String

Required: No

TemplateParameter

The TemplateParameter data type.

Contents

DefaultValue

The default value associated with the parameter.

Type: String

Required: No

Description

User defined description associated with the parameter.

Type: String

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

Required: No

NoEcho

Flag indicating whether the parameter should be displayed as plain text in logs and UIs.

Type: Boolean

Required: No

ParameterKey

The name associated with the parameter.

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