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 the 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://aws.amazon.com/documentation/.

This document was last updated on August 17, 2012.

Actions

The actions described in this guide are called using the AWS Query protocol.

The following actions are supported:

CreateStack

Description

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. 13) API.

Note

Currently, the limit for stacks is 20 stacks per account per region.

Request Parameters

For information about the common parameters that all actions use, see Common Query Parameters (p. 42).

Name	Description	Required
`Capabilities.member.N`	The list of capabilities that you want to allow in the stack. If your template contains IAM resources, you must specify the CAPABILITY_IAM value for this parameter; otherwise, this action returns an InsufficientCapabilities error. IAM resources are the following: AWS::IAM::AccessKey, AWS::IAM::Group, AWS::IAM::Policy, AWS::IAM::User, and AWS::IAM::UserToGroupAddition. Type: String list	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	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: String list Length constraints: Minimum of 0 item(s) in the list. Maximum of 5 item(s) in the list.	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`	No
`Parameters.member.N`	A list of `Parameter` structures that specify input parameters for the stack. Type: Parameter (p. 33) list	No

Name	Description	Required
StackName	The name associated with the stack. The name must be unique within your AWS account. **Note** Must contain only alphanumeric characters (case sensitive) and start with an alpha character. Maximum length of the name is 255 characters. Type: String	Yes
Tags.member.N	A set of user-defined `Tags` to associate with this stack, represented by key/value pairs. Tags defined for the stack are propogated to EC2 resources that are created as part of the stack. A maximum number of 10 tags can be specified. Type: Tag (p. 39) list	No
TemplateBody	Structure containing the template body. (For more information, go to 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.	No
TemplateURL	Location of file containing the template body. The URL must point to a template located in an S3 bucket in the same region as the stack. For more information, go to 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.	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	No

Response Elements

The following elements come wrapped in a `CreateStackResult` structure.

Name	Description
StackId	Unique identifier of the stack. Type: String

Errors

For information about the common errors that all actions use, see Common Errors (p. 44).

Error	Description	HTTP Status Code
AlreadyExists	Resource with the name requested already exists.	400
InsufficientCapabilities	The template contains resources with capabilities that were not specified in the Capabilities parameter.	400
LimitExceeded	Quota for the resource has already been reached.	400

Examples

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

```
<CreateStackResult>
  <StackId>arn:aws:cloudformation:us-east-1:123456789:stack/MyStack/aaf549a0-
a413-11df-adb3-5081b3858e83</StackId>
</CreateStackResult>
```

DeleteStack

Description

Deletes a specified stack. Once the call completes successfully, stack deletion starts. Deleted stacks do not show up in the DescribeStacks (p. 13) API if the deletion has been completed successfully.

Request Parameters

For information about the common parameters that all actions use, see Common Query Parameters (p. 42).

Name	Description	Required
StackName	The name or the unique identifier associated with the stack. Type: String	Yes

Examples

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

```
<DeleteStackResult/>
```

DescribeStackEvents

Description

Returns all the stack related events for the AWS account. If `StackName` is specified, returns events related to all the stacks with the given name. If `StackName` is not specified, returns all the events for the account. For more information about a stack's event history, go to the AWS CloudFormation User Guide.

Note

Events are returned, even if the stack never existed or has been successfully deleted.

Request Parameters

For information about the common parameters that all actions use, see Common Query Parameters (p. 42).

Name	Description	Required
NextToken	String that identifies the start of the next list of events, if there is one. Default: There is no default value. Type: String Length constraints: Minimum length of 1. Maximum length of 1024.	No
StackName	The name or the unique identifier associated with the stack. Default: There is no default value. Type: String	No

Response Elements

The following elements come wrapped in a `DescribeStackEventsResult` structure.

Name	Description
NextToken	String that identifies the start of the next list of events, if there is one. Type: String
StackEvents	A list of `StackEvents` structures. Type: StackEvent (p. 35) list

Examples

Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/
 ?Action=DescribeStackEvents
 &StackName=MyStack
 &Version=2010-05-15
 &SignatureVersion=2
```

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

Sample Response

```
<DescribeStackEventsResult>
  <StackEvents>
    <member>
      <EventId>Event-1-Id</EventId>
      <StackId>arn:aws:cloudformation:us-east-1:123456789:stack/MyStack/aaf549a0-
a413-11df-adb3-5081b3858e83</StackId>
      <StackName>MyStack</StackName>
      <LogicalResourceId>MyStack</LogicalResourceId>
      <PhysicalResourceId>MyStack_One</PhysicalResourceId>
      <ResourceType>AWS::CloudFormation::Stack</ResourceType>
      <Timestamp>2010-07-27T22:26:28Z</Timestamp>
      <ResourceStatus>CREATE_IN_PROGRESS</ResourceStatus>
      <ResourceStatusReason>User initiated</ ResourceStatusReason>
    </member>
    <member>
      <EventId>Event-2-Id</EventId>
      <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::SecurityGroup</ResourceType>
      <Timestamp>2010-07-27T22:27:28Z</Timestamp>
      <ResourceStatus>CREATE_IN_PROGRESS</ResourceStatus>
      <ResourceProperties>{"GroupDescription":...}</ResourceProperties>
    </member>
    <member>
      <EventId>Event-3-Id</EventId>
      <StackId>arn:aws:cloudformation:us-east-1:123456789:stack/MyStack/aaf549a0-
a413-11df-adb3-5081b3858e83</StackId>
      <StackName>MyStack</StackName>
      <LogicalResourceId>MySG1</LogicalResourceId>
      <PhysicalResourceId>MyStack_SG1</PhysicalResourceId>
      <ResourceType>AWS:: SecurityGroup</ResourceType>
      <Timestamp>2010-07-27T22:28:28Z</Timestamp>
      <ResourceStatus>CREATE_COMPLETE</ResourceStatus>
    </member>
  </StackEvents>
</DescribeStackEventsResult>
```

DescribeStackResource

Description

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 common parameters that all actions use, see Common Query Parameters (p. 42).

Name	Description	Required
LogicalResourceId	The logical name of the resource as specified in the template. Default: There is no default value. Type: String	Yes
StackName	The name or the unique identifier associated with the stack. Default: There is no default value. Type: String	Yes

Response Elements

The following elements come wrapped in a `DescribeStackResourceResult` structure.

Name	Description
StackResourceDetail	A `StackResourceDetail` structure containing the description of the specified resource in the specified stack. Type: StackResourceDetail (p. 36)

Examples

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

Sample Response

```
<DescribeStackResourceResponse>
 <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>
</DescribeStackResourceResponse>
```

DescribeStackResources

Description

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, all the associated resources of the stack the resource belongs to are returned.

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

If you do not provide either a stack or resource id, information for all stacks and resources will be returned, up to a limit of 100 records.

Note

To list more than 100 resources use `ListStackResources` instead.

You can 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 common parameters that all actions use, see Common Query Parameters (p. 42).

Name	Description	Required
LogicalResourceId	The logical name of the resource as specified in the template. Default: There is no default value. Type: String	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. Default: There is no default value. Type: String	No
StackName	The name or the unique identifier associated with the stack. Default: There is no default value. Type: String	No

Response Elements

The following elements come wrapped in a `DescribeStackResourcesResult` structure.

Name	Description
StackResources	A list of `StackResource` structures. Type: StackResource (p. 36) list

Examples

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

```
<DescribeStackResourcesResult>
  <StackResources>
    <member>
     <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::DBInstance</ResourceType>
      <Timestamp>2010-07-27T22:27:28Z</Timestamp>
      <ResourceStatus>CREATE_COMPLETE</ResourceStatus>
    </member>
    <member>
     <StackId>arn:aws:cloudformation:us-east-1:123456789:stack/MyStack/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>
```

DescribeStacks

Description

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 common parameters that all actions use, see Common Query Parameters (p. 42).

Name	Description	Required
NextToken	Type: String Length constraints: Minimum length of 1. Maximum length of 1024.	No
StackName	The name or the unique identifier associated with the stack. Default: There is no default value. Type: String	No

Response Elements

The following elements come wrapped in a `DescribeStacksResult` structure.

Name	Description
NextToken	Type: String
Stacks	A list of stack structures. Type: Stack (p. 33) list

Examples

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

```
<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</Out
putValue>
        </member>
      </Outputs>
    </member>
  </Stacks>
</DescribeStacksResult>
```

EstimateTemplateCost

Description

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 common parameters that all actions use, see Common Query Parameters (p. 42).

Name	Description	Required
Parameters.member.N	A list of `Parameter` structures that specify input parameters. Type: Parameter (p. 33) list	No
TemplateBody	Structure containing the template body. (For more information, go to 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.	No
TemplateURL	Location of file containing the template body. The URL must point to a template located in an S3 bucket in the same region as the stack. For more information, go to 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.	No

Response Elements

The following elements come wrapped in a `EstimateTemplateCostResult` structure.

Name	Description
Url	An AWS Simple Monthly Calculator URL with a query string that describes the resources required to run the template. Type: String

Examples

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

```
<EstimateTemplateCostResult>
  <Url> http://calculator-staging.s3.amazonaws.com/calc5.html?key=cf-2e351785-
e821-450c-9d58-625e1e1ebfb6</Url>
</EstimateTemplateCostResult>
```

GetTemplate

Description

Returns the template body for a specified stack name. 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 common parameters that all actions use, see Common Query Parameters (p. 42).

Name	Description	Required
StackName	The name or the unique identifier associated with the stack. Type: String	Yes

Response Elements

The following elements come wrapped in a `GetTemplateResult` structure.

Name	Description
TemplateBody	Structure containing the template body. (For more information, go to the AWS CloudFormation User Guide.) Type: String

Examples

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

```
<GetTemplateResult>
```

```
  <TemplateBody>"{
 "AWSTemplateFormatVersion" : "2010-09-09",
 "Description" : "Simple example",
 "Resources" : {
    "MySQS" : {
       "Type" : "AWS::SQS::Queue",
       "Properties" : {
       }
    }
  }
}</TemplateBody>
</GetTemplateResult>
```

ListStackResources

Description

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 common parameters that all actions use, see Common Query Parameters (p. 42).

Name	Description	Required
NextToken	String that identifies the start of the next list of stack resource summaries, if there is one. Default: There is no default value. Type: String Length constraints: Minimum length of 1. Maximum length of 1024.	No
StackName	The name or the unique identifier associated with the stack. Default: There is no default value. Type: String	Yes

Response Elements

The following elements come wrapped in a `ListStackResourcesResult` structure.

Name	Description
NextToken	String that identifies the start of the next list of events, if there is one. Type: String
StackResourceSummaries	A list of `StackResourceSummary` structures. Type: StackResourceSummary (p. 37) list

Examples

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>
  <ListStackResourcesResult>
    <StackResourceSummaries>
      <member>
        <ResourceStatus>CREATE_COMPLETE</ResourceStatus>
        <LogicalResourceId>DBSecurityGroup</LogicalResourceId>
        <LastUpdatedTimestamp>2011-06-21T20:15:58Z</LastUpdatedTimestamp>
        <PhysicalResourceId>gmarcteststack-dbsecuritygroup-
1s5m0ez5lkk6w</Physic
alResourceId>
        <ResourceType>AWS::RDS::DBSecurityGroup</ResourceType>
      </member>
      <member>
        <ResourceStatus>CREATE_COMPLETE</ResourceStatus>
        <LogicalResourceId>SampleDB</LogicalResourceId>
        <LastUpdatedTimestamp>2011-06-21T20:25:57Z</LastUpdatedTimestamp>
        <PhysicalResourceId>MyStack-sampledb-ycwhk1v830lx</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>
        <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-f9382b6eb86b</RequestId>
  </ResponseMetadata>
</ListStackResourcesResponse>
```

ListStacks

Description

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 common parameters that all actions use, see Common Query Parameters (p. 42).

Name	Description	Required
NextToken	String that identifies the start of the next list of stacks, if there is one. Default: There is no default value. Type: String Length constraints: Minimum length of 1. Maximum length of 1024.	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. 33) data type. Type: String list	No

Response Elements

The following elements come wrapped in a `ListStacksResult` structure.

Name	Description
NextToken	String that identifies the start of the next list of stacks, if there is one. Type: String
StackSummaries	A list of `StackSummary` structures containing information about the specified stacks. Type: StackSummary (p. 38) list

Examples

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>
 <ListStacksResult>
  <StackSummaries>
    <member>
        <StackId>
            arn:aws:cloudformation:us-east-1:1234567:stack/TestCreate1/aaaaa
        </StackId>
        <StackStatus>CREATE_IN_PROGRESS</StackStatus>
        <StackName>vpc1</StackName>
        <CreationTime>2011-05-23T15:47:44Z</CreationTime>
        <TemplateDescription>
            Creates one EC2 instance and a load balancer.
        </TemplateDescription>
    </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>
    </member>
  </StackSummaries>
 </ListStacksResult>
</ListStacksResponse>
```

UpdateStack

Description

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. 13) action.

To get a copy of the template for an existing stack, you can use the GetTemplate (p. 17) action.

Tags that were associated with this stack during creation time will still be associated with the stack after an `UpdateStack` operation.

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 common parameters that all actions use, see Common Query Parameters (p. 42).

Name	Description	Required
Capabilities.member.N	The list of capabilities that you want to allow in the stack. If your stack contains IAM resources, you must specify the CAPABILITY_IAM value for this parameter; otherwise, this action returns an InsufficientCapabilities error. IAM resources are the following: AWS::IAM::AccessKey, AWS::IAM::Group, AWS::IAM::Policy, AWS::IAM::User, and AWS::IAM::UserToGroupAddition. Type: String list	No
Parameters.member.N	A list of `Parameter` structures that specify input parameters for the stack. Type: Parameter (p. 33) list	No
StackName	The name or stack ID of the stack to update. **Note** Must contain only alphanumeric characters (case sensitive) and start with an alpha character. Maximum length of the name is 255 characters. Type: String	Yes
TemplateBody	Structure containing the template body. (For more information, go to 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.	No

Name	Description	Required
TemplateURL	Location of file containing the template body. The URL must point to a template located in an S3 bucket in the same region as the stack. For more information, go to 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.	No

Response Elements

The following elements come wrapped in a `UpdateStackResult` structure.

Name	Description
StackId	Unique identifier of the stack. Type: String

Errors

For information about the common errors that all actions use, see Common Errors (p. 44).

Error	Description	HTTP Status Code
InsufficientCapabilities	The template contains resources with capabilities that were not specified in the Capabilities parameter.	400

Examples

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

```
<UpdateStackResult>
  <StackId>arn:aws:cloudformation:us-east-1:123456789:stack/MyStack/aaf549a0-
a413-11df-adb3-5081b3858e83</StackId>
</UpdateStackResult>
```

ValidateTemplate

Description

Validates a specified template.

Request Parameters

For information about the common parameters that all actions use, see Common Query Parameters (p. 42).

Name	Description	Required
TemplateBody	String containing the template body. (For more information, go to 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.	No
TemplateURL	Location of file containing the template body. The URL must point to a template located in an S3 bucket in the same region as the stack. For more information, go to 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.	No

Response Elements

The following elements come wrapped in a `ValidateTemplateResult` structure.

Name	Description
Capabilities	The capabilites found within the template. Currently, CAPABILITY_IAM is the only capability detected. If your template contains IAM resources, you must specify the CAPABILITY_IAM value for this parameter when you use the CreateStack (p. 3) or UpdateStack (p. 24) actions with your template; otherwise, those actions return an InsufficientCapabilities error. Type: String list
CapabilitiesReason	The capabilities reason found within the template. Type: String
Description	The description found within the template. Type: String
Parameters	A list of `TemplateParameter` structures. Type: TemplateParameter (p. 39) list

Examples

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-9f8d5a7dbc91</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 the response is not guaranteed. Applications should not assume a particular order.

The following data types are supported:

CreateStackResult

Description

The output for a CreateStack (p. 3) action.

Contents

Name	Description
StackId	Unique identifier of the stack. Type: String

DescribeStackEventsResult

Description

The output for a DescribeStackEvents (p. 7) action.

Contents

Name	Description
NextToken	String that identifies the start of the next list of events, if there is one. Type: String Length constraints: Minimum length of 1. Maximum length of 1024.
StackEvents	A list of StackEvents structures. Type: StackEvent (p. 35) list

DescribeStackResourceResult

Description

The output for a DescribeStackResource (p. 9) action.

Contents

Name	Description
StackResourceDetail	A StackResourceDetail structure containing the description of the specified resource in the specified stack. Type: StackResourceDetail (p. 36)

DescribeStackResourcesResult

Description

The output for a DescribeStackResources (p. 11) action.

Contents

Name	Description
StackResources	A list of StackResource structures. Type: StackResource (p. 36) list

DescribeStacksResult

Description

The output for a DescribeStacks (p. 13) action.

Contents

Name	Description
NextToken	Type: String Length constraints: Minimum length of 1. Maximum length of 1024.
Stacks	A list of stack structures. Type: Stack (p. 33) list

EstimateTemplateCostResult

Description

The output for a EstimateTemplateCost (p. 15) action.

Contents

Name	Description
Url	An AWS Simple Monthly Calculator URL with a query string that describes the resources required to run the template. Type: String

GetTemplateResult

Description

The output for GetTemplate (p. 17) action.

Contents

Name	Description
TemplateBody	Structure containing the template body. (For more information, go to the AWS CloudFormation User Guide.) Type: String Length constraints: Minimum length of 1.

ListStackResourcesResult

Description

The output for a ListStackResources (p. 19) action.

Contents

Name	Description
NextToken	String that identifies the start of the next list of events, if there is one. Type: String Length constraints: Minimum length of 1. Maximum length of 1024.
StackResourceSummaries	A list of StackResourceSummary structures. Type: StackResourceSummary (p. 37) list

ListStacksResult

Description

The output for ListStacks (p. 22) action.

Contents

Name	Description
NextToken	String that identifies the start of the next list of stacks, if there is one. Type: String Length constraints: Minimum length of 1. Maximum length of 1024.

Name	Description
StackSummaries	A list of StackSummary structures containing information about the specified stacks. Type: StackSummary (p. 38) list

Output

Description

The Output data type.

Contents

Name	Description
Description	User defined description associated with the output. Type: String
OutputKey	The key associated with the output. Type: String
OutputValue	The value associated with the output. Type: String

Parameter

Description

The Parameter data type.

Contents

Name	Description
ParameterKey	The key associated with the parameter. Type: String
ParameterValue	The value associated with the parameter. Type: String

Stack

Description

The Stack data type.

Contents

Name	Description
Capabilities	The capabilities allowed in the stack. Type: String list
CreationTime	Time at which the stack was created. Type: DateTime
Description	User defined description associated with the stack. Type: String
DisableRollback	Boolean to enable or disable rollback on stack creation failures: • true: disable rollback • false: enable rollback Type: Boolean
LastUpdatedTime	The time the stack was last updated. This field will only be returned if the stack has been updated at least once. Type: DateTime
NotificationARNs	SNS topic ARNs to which stack related events are published. Type: String list Length constraints: Minimum of 0 item(s) in the list. Maximum of 5 item(s) in the list.
Outputs	A list of output structures. Type: Output (p. 33) list
Parameters	A list of Parameter structures. Type: Parameter (p. 33) list
StackId	Unique identifier of the stack. Type: String
StackName	The name associated with the stack. Type: String
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
StackStatusReason	Success/failure message associated with the stack status. Type: String

Name	Description
Tags	A list of `Tags` that specify cost allocation information for the stack. Type: Tag (p. 39) list
TimeoutInMinutes	The amount of time within which stack creation should complete. Type: Integer

StackEvent

Description

The StackEvent data type.

Contents

Name	Description
EventId	The unique ID of this event. Type: String
LogicalResourceId	The logical name of the resource specified in the template. Type: String
PhysicalResourceId	The name or unique identifier associated with the physical instance of the resource. Type: String
ResourceProperties	BLOB of the properties used to create the resource. Type: String
ResourceStatus	Current status of the resource. Type: String Valid Values: `CREATE_IN_PROGRESS` | `CREATE_FAILED` | `CREATE_COMPLETE` | `DELETE_IN_PROGRESS` | `DELETE_FAILED` | `DELETE_COMPLETE` | `UPDATE_IN_PROGRESS` | `UPDATE_FAILED` | `UPDATE_COMPLETE`
ResourceStatusReason	Success/failure message associated with the resource. Type: String
ResourceType	Type of the resource. (For more information, go to the AWS CloudFormation User Guide.) Type: String
StackId	The unique ID name of the instance of the stack. Type: String
StackName	The name associated with a stack. Type: String
Timestamp	Time the status was updated. Type: DateTime

StackResource

Description

The StackResource data type.

Contents

Name	Description
Description	User defined description associated with the resource. Type: String
LogicalResourceId	The logical name of the resource specified in the template. Type: String
PhysicalResourceId	The name or unique identifier that corresponds to a physical instance ID of a resource supported by AWS CloudFormation. Type: String
ResourceStatus	Current status of the resource. Type: String Valid Values: `CREATE_IN_PROGRESS` | `CREATE_FAILED` | `CREATE_COMPLETE` | `DELETE_IN_PROGRESS` | `DELETE_FAILED` | `DELETE_COMPLETE` | `UPDATE_IN_PROGRESS` | `UPDATE_FAILED` | `UPDATE_COMPLETE`
ResourceStatusReason	Success/failure message associated with the resource. Type: String
ResourceType	Type of the resource. (For more information, go to the AWS CloudFormation User Guide.) Type: String
StackId	Unique identifier of the stack. Type: String
StackName	The name associated with the stack. Type: String
Timestamp	Time the status was updated. Type: DateTime

StackResourceDetail

Description

Contains detailed information about the specified stack resource.

Contents

Name	Description
Description	User defined description associated with the resource. Type: String
LastUpdatedTimestamp	Time the status was updated. Type: DateTime
LogicalResourceId	The logical name of the resource specified in the template. Type: String
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
PhysicalResourceId	The name or unique identifier that corresponds to a physical instance ID of a resource supported by AWS CloudFormation. Type: String
ResourceStatus	Current status of the resource. Type: String Valid Values: CREATE_IN_PROGRESS | CREATE_FAILED | CREATE_COMPLETE | DELETE_IN_PROGRESS | DELETE_FAILED | DELETE_COMPLETE | UPDATE_IN_PROGRESS | UPDATE_FAILED | UPDATE_COMPLETE
ResourceStatusReason	Success/failure message associated with the resource. Type: String
ResourceType	Type of the resource. (For more information, go to the AWS CloudFormation User Guide.) Type: String
StackId	Unique identifier of the stack. Type: String
StackName	The name associated with the stack. Type: String

StackResourceSummary

Description

Contains high-level information about the specified stack resource.

Contents

Name	Description
LastUpdatedTimestamp	Time the status was updated. Type: DateTime
LogicalResourceId	The logical name of the resource specified in the template. Type: String
PhysicalResourceId	The name or unique identifier that corresponds to a physical instance ID of the resource. Type: String
ResourceStatus	Current status of the resource. Type: String Valid Values: CREATE_IN_PROGRESS | CREATE_FAILED | CREATE_COMPLETE | DELETE_IN_PROGRESS | DELETE_FAILED | DELETE_COMPLETE | UPDATE_IN_PROGRESS | UPDATE_FAILED | UPDATE_COMPLETE
ResourceStatusReason	Success/failure message associated with the resource. Type: String
ResourceType	Type of the resource. (For more information, go to the AWS CloudFormation User Guide.) Type: String

StackSummary

Description

The StackSummary Data Type

Contents

Name	Description
CreationTime	The time the stack was created. Type: DateTime
DeletionTime	The time the stack was deleted. Type: DateTime
LastUpdatedTime	The time the stack was last updated. This field will only be returned if the stack has been updated at least once. Type: DateTime
StackId	Unique stack identifier. Type: String

Name	Description
StackName	The name associated with the stack. Type: String
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
StackStatusReason	Success/Failure message associated with the stack status. Type: String
TemplateDescription	The template description of the template used to create the stack. Type: String

Tag

Description

The Tag type is used by CreateStack in the Tags parameter. It allows you to specify a key/value pair that can be used to store information related to cost allocation for an AWS CloudFormation stack.

Contents

Name	Description
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
Value	*Required.* A string containing the value for this tag. You can specify a maximum of 256 characters for a tag value. Type: String

TemplateParameter

Description

The TemplateParameter data type.

Contents

Name	Description
DefaultValue	The default value associated with the parameter. Type: String
Description	User defined description associated with the parameter. Type: String
NoEcho	Flag indicating whether the parameter should be displayed as plain text in logs and UIs. Type: Boolean
ParameterKey	The name associated with the parameter. Type: String

UpdateStackResult

Description

The output for a UpdateStack (p. 24) action.

Contents

Name	Description
StackId	Unique identifier of the stack. Type: String

ValidateTemplateResult

Description

The output for ValidateTemplate (p. 27) action.

Contents

Name	Description
Capabilities	The capabitilites found within the template. Currently, CAPABILITY_IAM is the only capability detected. If your template contains IAM resources, you must specify the CAPABILITY_IAM value for this parameter when you use the CreateStack (p. 3) or UpdateStack (p. 24) actions with your template; otherwise, those actions return an InsufficientCapabilities error. Type: String list

Name	Description
CapabilitiesReason	The capabilities reason found within the template. Type: String
Description	The description found within the template. Type: String
Parameters	A list of TemplateParameter structures. Type: TemplateParameter (p. 39) list

Common Query Parameters

This section lists the request parameters that all actions use. Any action-specific parameters are listed in the topic for the action.

Parameter Name	Description	Required
Action	The action to perform. Default: None Type: String	Yes
AuthParams	The parameters required to authenticate a query request. Contains: AWSAccessKeyID SignatureVersion Timestamp Signature Default: None	Conditional
AWSAccessKeyId	The Access Key ID corresponding to the AWS Secret Access Key you used to sign the request. Default: None Type: String	Yes
Expires	The date and time at which the request signature expires, in the format YYYY-MM-DDThh:mm:ssZ, as specified in the ISO 8601 standard. Condition: Requests must include either *Timestamp* or *Expires*, but not both. Default: None Type: String	Conditional

Parameter Name	Description	Required
SecurityToken	The temporary security token 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*. Default: None Type: String	
Signature	The digital signature you created for the request. Refer to the service's developer documentation for information about how to generate the signature. Default: None Type: String	Yes
SignatureMethod	The hash algorithm you used to create the request signature. Default: None Valid Values: HmacSHA256 | HmacSHA1. Type: String	Yes
SignatureVersion	The signature version you use to sign the request. Set this to the value recommended in your product-specific documentation on security. Default: None Type: String	Yes
Timestamp	The date and time the request was signed, in the format YYYY-MM-DDThh:mm:ssZ, as specified in the ISO 8601 standard. Condition: Requests must include either *Timestamp* or *Expires*, but not both. Default: None Type: String	Conditional
Version	The API version to use, in the format YYYY-MM-DD. Default: None Type: String	Yes

Common Errors

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

Error	Description	HTTP Status Code
IncompleteSignature	The request signature does not conform to AWS standards.	400
InternalFailure	The request processing has failed due to some unknown error, exception or failure.	500
InvalidAction	The action or operation requested is invalid.	400
InvalidClientTokenId	The X.509 certificate or AWS Access Key ID provided does not exist in our records.	403
InvalidParameterCombination	Parameters that must not be used together were used together.	400
InvalidParameterValue	A bad or out-of-range value was supplied for the input parameter.	400
InvalidQueryParameter	AWS query string is malformed, does not adhere to AWS standards.	400
MalformedQueryString	The query string is malformed.	404
MissingAction	The request is missing an action or operation parameter.	400
MissingAuthenticationToken	Request must contain either a valid (registered) AWS Access Key ID or X.509 certificate.	403
MissingParameter	An input parameter that is mandatory for processing the request is not supplied.	400

Error	Description	HTTP Status Code
OptInRequired	The AWS Access Key ID needs a subscription for the service.	403
RequestExpired	Request is past expires date or the request date (either with 15 minute padding), or the request date occurs more than 15 minutes in the future.	400
ServiceUnavailable	The request has failed due to a temporary failure of the server.	503
Throttling	Request was denied due to request throttling.	400