API Reference

# AWS CloudFormation



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# AWS CloudFormation: API Reference

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# Welcome

AWS CloudFormation allows you to create and manage AWS infrastructure deployments predictably and repeatedly. You can use CloudFormation to leverage AWS products, such as Amazon Elastic Compute Cloud, Amazon Elastic Block Store, Amazon Simple Notification Service, Elastic Load Balancing, and Amazon EC2 Auto Scaling to build highly reliable, highly scalable, cost-effective applications without creating or configuring the underlying AWS infrastructure.

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

For more information about CloudFormation, see the AWS CloudFormation product page.

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 docs.aws.amazon.com.

**Stack actions**

When you use CloudFormation, you manage related resources as a single unit called a stack. You create, update, and delete a collection of resources by creating, updating, and deleting stacks. All the resources in a stack are defined by the stack's template.

CancelUpdateStack | ContinueUpdateRollback | CreateStack | DeleteStack | DescribeStacks | ListStacks | RollbackStack | UpdateStack

Stack events: DescribeStackEvents

Stack resources: DescribeStackResource | DescribeStackResources | ListStackResources

Stack drift: DescribeStackDriftDetectionStatus | DescribeStackResourceDrifts | DetectStackDrift | DetectStackResourceDrift

Stack operations: ListExports | ListImports | SignalResource | UpdateTerminationProtection

Stack policies: GetStackPolicy | SetStackPolicy

Templates: GetTemplate | GetTemplateSummary | ValidateTemplate

### Change set actions

If you need to make changes to the running resources in a stack, you update the stack. Before making changes to your resources, you can generate a change set, which is summary of your proposed changes. Change sets allow you to see how your changes might impact your running resources, especially for critical resources, before implementing them.

CreateChangeSet | DeleteChangeSet | DescribeChangeSet | DescribeChangeSetHooks | ExecuteChangeSet | ListChangeSets

### StackSets actions

CloudFormation StackSets lets you create a collection, or *stack set*, of stacks that can automatically and safely provision a common set of AWS resources across multiple AWS accounts and multiple AWS Regions from a single CloudFormation template. When you create a StackSet, CloudFormation provisions a stack in each of the specified accounts and AWS Regions by using the supplied CloudFormation template and parameters. Stack sets let you manage a common set of AWS resources in a selection of accounts and AWS Regions in a single operation.

CreateStackSet | DeleteStackSet | DescribeStackSet | ListStackSets | UpdateStackSet

Stack instances: CreateStackInstances | DeleteStackInstances | DescribeStackInstance | ListStackInstances

StackSet operations: DescribeStackSetOperation | ListStackSetOperations | ListStackSetOperationResults | StopStackSetOperation

### IaC Generator actions

Use CloudFormation IaC generator to scan your existing AWS resources and generate CloudFormation templates from them.

For more information, see Generating templates from existing resources in the *AWS CloudFormation User Guide*.

Generated templates: CreateGeneratedTemplate | DeleteGeneratedTemplate | DescribeGeneratedTemplate | GetGeneratedTemplate | ListGeneratedTemplates | UpdateGeneratedTemplate

Resource scanning: DescribeResourceScan | ListResourceScans | ListResourceScanRelatedResources | ListResourceScanResources | StartResourceScan

### Stack refactoring actions

Use CloudFormation stack refactoring to move resources between stacks or reorganize your stack architecture.

For more information, see Refactoring stacks in the *AWS CloudFormation User Guide*.

CreateStackRefactor | DescribeStackRefactor | ExecuteStackRefactor | ListStackRefactors | ListStackRefactorActions

### CloudFormation registry actions

The CloudFormation registry serves as a centralized hub for managing extensions that can be used with CloudFormation templates, including CloudFormation Hooks, resource types, and modules.

For more information, see Managing extensions with the CloudFormation registry in the *AWS CloudFormation User Guide*.

Discover and activate: ActivateType | DeactivateType | DescribeType | ListTypes

Configure: BatchDescribeTypeConfigurations | SetTypeConfiguration

Manage versions: ListTypeVersions | SetTypeDefaultVersion

Monitor results: GetHookResult | ListHookResults

Register privately: DescribeTypeRegistration | DeregisterType | ListTypeRegistrations | RegisterType

Publish: DescribePublisher | PublishType | RegisterPublisher | TestType

This document was last published on November 16, 2026.

# Actions

The following actions are supported:

- ActivateOrganizationsAccess
- ActivateType
- BatchDescribeTypeConfigurations
- CancelUpdateStack
- ContinueUpdateRollback
- CreateChangeSet
- CreateGeneratedTemplate
- CreateStack
- CreateStackInstances
- CreateStackRefactor
- CreateStackSet
- DeactivateOrganizationsAccess
- DeactivateType
- DeleteChangeSet
- DeleteGeneratedTemplate
- DeleteStack
- DeleteStackInstances
- DeleteStackSet
- DeregisterType
- DescribeAccountLimits
- DescribeChangeSet
- DescribeChangeSetHooks
- DescribeEvents
- DescribeGeneratedTemplate
- DescribeOrganizationsAccess
- DescribePublisher
- DescribeResourceScan

- DescribeStackDriftDetectionStatus
- DescribeStackEvents
- DescribeStackInstance
- DescribeStackRefactor
- DescribeStackResource
- DescribeStackResourceDrifts
- DescribeStackResources
- DescribeStacks
- DescribeStackSet
- DescribeStackSetOperation
- DescribeType
- DescribeTypeRegistration
- DetectStackDrift
- DetectStackResourceDrift
- DetectStackSetDrift
- EstimateTemplateCost
- ExecuteChangeSet
- ExecuteStackRefactor
- GetGeneratedTemplate
- GetHookResult
- GetStackPolicy
- GetTemplate
- GetTemplateSummary
- ImportStacksToStackSet
- ListChangeSets
- ListExports
- ListGeneratedTemplates
- ListHookResults
- ListImports
- ListResourceScanRelatedResources

- ListResourceScanResources
- ListResourceScans
- ListStackInstanceResourceDrifts
- ListStackInstances
- ListStackRefactorActions
- ListStackRefactors
- ListStackResources
- ListStacks
- ListStackSetAutoDeploymentTargets
- ListStackSetOperationResults
- ListStackSetOperations
- ListStackSets
- ListTypeRegistrations
- ListTypes
- ListTypeVersions
- PublishType
- RecordHandlerProgress
- RegisterPublisher
- RegisterType
- RollbackStack
- SetStackPolicy
- SetTypeConfiguration
- SetTypeDefaultVersion
- SignalResource
- StartResourceScan
- StopStackSetOperation
- TestType
- UpdateGeneratedTemplate
- UpdateStack
- UpdateStackInstances

- UpdateStackSet
- UpdateTerminationProtection
- ValidateTemplate

# ActivateOrganizationsAccess

Activate trusted access with AWS Organizations. With trusted access between StackSets and Organizations activated, the management account has permissions to create and manage StackSets for your organization.

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**InvalidOperation**

The specified operation isn't valid.

HTTP Status Code: 400

**OperationNotFound**

The specified ID refers to an operation that doesn't exist.

HTTP Status Code: 404

## Examples

### ActivateOrganizationsAccess

This example illustrates one usage of ActivateOrganizationsAccess.

**Sample Request**

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

**Sample Response**

```
<ActivateOrganizationsAccessResponse xmlns="http://internal.amazon.com/coral/
com.amazonaws.maestro.service.v20160713/">
  <ActivateOrganizationsAccessResult/>
  <ResponseMetadata>
```

```
    <RequestId>f2038c6a-2ef6-45d0-a045-f2b4d15647ba</RequestId>
  </ResponseMetadata>
</ActivateOrganizationsAccessResponse>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# ActivateType

Activates a public third-party extension, such as a resource or module, to make it available for use in stack templates in your current account and Region. It can also create CloudFormation Hooks, which allow you to evaluate resource configurations before CloudFormation provisions them. Hooks integrate with both CloudFormation and Cloud Control API operations.

After you activate an extension, you can use SetTypeConfiguration to set specific properties for the extension.

To see which extensions have been activated, use ListTypes. To see configuration details for an extension, use DescribeType.

For more information, see Activate a third-party public extension in your account in the *AWS CloudFormation User Guide*. For information about creating Hooks, see the CloudFormation Hooks User Guide.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**AutoUpdate**

Whether to automatically update the extension in this account and Region when a new *minor* version is published by the extension publisher. Major versions released by the publisher must be manually updated.

The default is `true`.

Type: Boolean

Required: No

**ExecutionRoleArn**

The name of the IAM execution role to use to activate the extension.

Type: String

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

Pattern: `arn:.+:iam::[0-9]{12}:role/.+`

Required: No

**LoggingConfig**

Contains logging configuration information for an extension.

Type: LoggingConfig object

Required: No

**MajorVersion**

The major version of this extension you want to activate, if multiple major versions are available. The default is the latest major version. CloudFormation uses the latest available *minor* version of the major version selected.

You can specify `MajorVersion` or `VersionBump`, but not both.

Type: Long

Valid Range: Minimum value of 1. Maximum value of 100000.

Required: No

**PublicTypeArn**

The Amazon Resource Name (ARN) of the public extension.

Conditional: You must specify `PublicTypeArn`, or `TypeName`, `Type`, and `PublisherId`.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `arn:aws[A-Za-z0-9-]{0,64}:cloudformation:[A-Za-z0-9-]{1,64}::type/.+/[0-9a-zA-Z]{12,40}/.+`

Required: No

**PublisherId**

The ID of the extension publisher.

Conditional: You must specify `PublicTypeArn`, or `TypeName`, `Type`, and `PublisherId`.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 40.

Pattern: `[0-9a-zA-Z]{12,40}`

Required: No

**Type**

The extension type.

Conditional: You must specify `PublicTypeArn`, or `TypeName`, `Type`, and `PublisherId`.

Type: String

Valid Values: `RESOURCE | MODULE | HOOK`

Required: No

**TypeName**

The name of the extension.

Conditional: You must specify `PublicTypeArn`, or `TypeName`, `Type`, and `PublisherId`.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 204.

Pattern: `[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}(::MODULE){0,1}`

Required: No

**TypeNameAlias**

An alias to assign to the public extension in this account and Region. If you specify an alias for the extension, CloudFormation treats the alias as the extension type name within this account and Region. You must use the alias to refer to the extension in your templates, API calls, and CloudFormation console.

An extension alias must be unique within a given account and Region. You can activate the same public resource multiple times in the same account and Region, using different type name aliases.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 204.

Pattern: `[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}(::MODULE){0,1}`

Required: No

**VersionBump**

Manually updates a previously-activated type to a new major or minor version, if available. You can also use this parameter to update the value of `AutoUpdate`.

- `MAJOR`: CloudFormation updates the extension to the newest major version, if one is available.
- `MINOR`: CloudFormation updates the extension to the newest minor version, if one is available.

Type: String

Valid Values: `MAJOR | MINOR`

Required: No

## Response Elements

The following element is returned by the service.

**Arn**

The Amazon Resource Name (ARN) of the activated extension in this account and Region.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `arn:aws[A-Za-z0-9-]{0,64}:cloudformation:[A-Za-z0-9-]{1,64}:[0-9]{12}:type/.+`

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**CFNRegistry**

An error occurred during a CloudFormation registry operation.

**Message**

A message with details about the error that occurred.

HTTP Status Code: 400

**TypeNotFound**

The specified extension doesn't exist in the CloudFormation registry.

HTTP Status Code: 404

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# BatchDescribeTypeConfigurations

Returns configuration data for the specified CloudFormation extensions, from the CloudFormation registry in your current account and Region.

For more information, see Edit configuration data for extensions in your account in the *AWS CloudFormation User Guide*.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**TypeConfigurationIdentifiers.member.N**

The list of identifiers for the desired extension configurations.

Type: Array of TypeConfigurationIdentifier objects

Array Members: Minimum number of 1 item.

Required: Yes

## Response Elements

The following elements are returned by the service.

**Errors.member.N**

A list of information concerning any errors generated during the setting of the specified configurations.

Type: Array of BatchDescribeTypeConfigurationsError objects

**TypeConfigurations.member.N**

A list of any of the specified extension configurations from the CloudFormation registry.

Type: Array of TypeConfigurationDetails objects

**UnprocessedTypeConfigurations.member.N**

A list of any of the specified extension configurations that CloudFormation could not process for any reason.

Type: Array of TypeConfigurationIdentifier objects

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**CFNRegistry**

An error occurred during a CloudFormation registry operation.

**Message**

A message with details about the error that occurred.

HTTP Status Code: 400

**TypeConfigurationNotFound**

The specified extension configuration can't be found.

HTTP Status Code: 404

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# 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.

**ClientRequestToken**

A unique identifier for this `CancelUpdateStack` request. Specify this token if you plan to retry requests so that CloudFormation knows that you're not attempting to cancel an update on a stack with the same name. You might retry `CancelUpdateStack` requests to ensure that CloudFormation successfully received them.

Type: String

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

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

Required: No

**StackName**

> **Note**
>
> If you don't pass a parameter to `StackName`, the API returns a response that describes all resources in the account.
> The IAM policy below can be added to IAM policies when you want to limit resource-level permissions and avoid returning a response when no parameter is sent in the request:

```
{ "Version": "2012-10-17", "Statement": [{ "Effect": "Deny",
"Action": "cloudformation:DescribeStacks", "NotResource":
"arn:aws:cloudformation:*:*:stack/*/*" }] }
```

The name or the unique stack ID that's associated with the stack.

Type: String

Required: Yes

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**TokenAlreadyExists**

A client request token already exists.

HTTP Status Code: 400

## Examples

### CancelUpdateStack

This example illustrates one usage of 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>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# ContinueUpdateRollback

Continues rolling back a stack from `UPDATE_ROLLBACK_FAILED` to `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 enters the `UPDATE_ROLLBACK_FAILED` state when CloudFormation can't roll back all changes after a failed stack update. For example, this might occur when a stack attempts to roll back to an old database that was deleted outside of CloudFormation. Because CloudFormation doesn't know the instance was deleted, it assumes the instance still exists and attempts to roll back to it, causing the update rollback to fail.

For more information, see Continue rolling back an update in the *AWS CloudFormation User Guide*. For information for troubleshooting a failed update rollback, see Update rollback failed.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**ClientRequestToken**

A unique identifier for this `ContinueUpdateRollback` request. Specify this token if you plan to retry requests so that CloudFormation knows that you're not attempting to continue the rollback to a stack with the same name. You might retry `ContinueUpdateRollback` requests to ensure that CloudFormation successfully received them.

Type: String

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

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

Required: No

**ResourcesToSkip.member.N**

A list of the logical IDs of the resources that CloudFormation skips during the continue update rollback operation. You can specify only resources that are in the `UPDATE_FAILED` state because a rollback failed. You can't specify resources that are in the `UPDATE_FAILED` state for other reasons, for example, because an update was canceled. To check why a resource update failed, use the DescribeStackResources action, and view the resource status reason.

> **Important**
>
> Specify this property to skip rolling back resources that CloudFormation can't successfully roll back. We recommend that you troubleshoot resources before skipping them. CloudFormation sets the status of the specified resources to `UPDATE_COMPLETE` and continues to roll back the stack. After the rollback is complete, the state of the skipped resources will be inconsistent with the state of the resources in the stack template. Before performing another stack update, you must update the stack or resources to be consistent with each other. If you don't, subsequent stack updates might fail, and the stack will become unrecoverable.

Specify the minimum number of resources required to successfully roll back your stack. For example, a failed resource update might cause dependent resources to fail. In this case, it might not be necessary to skip the dependent resources.

To skip resources that are part of nested stacks, use the following format: `NestedStackName.ResourceLogicalID`. If you want to specify the logical ID of a stack resource (`Type: AWS::CloudFormation::Stack`) in the `ResourcesToSkip` list, then its corresponding embedded stack must be in one of the following states: `DELETE_IN_PROGRESS`, `DELETE_COMPLETE`, or `DELETE_FAILED`.

> **Note**
>
> Don't confuse a child stack's name with its corresponding logical ID defined in the parent stack. For an example of a continue update rollback operation with nested stacks, see Continue rolling back from failed nested stack updates.

Type: Array of strings

Pattern: `[a-zA-Z0-9]+|[a-zA-Z][-a-zA-Z0-9]*\.[a-zA-Z0-9]+`

Required: No

**RoleARN**

The Amazon Resource Name (ARN) of an IAM role that CloudFormation assumes to roll back the stack. CloudFormation uses the role's credentials to make calls on your behalf. CloudFormation

always uses this role for all future operations on the stack. Provided that users have permission to operate on the stack, CloudFormation uses this role even if the users don't have permission to pass it. Ensure that the role grants least permission.

If you don't specify a value, CloudFormation uses the role that was previously associated with the stack. If no role is available, CloudFormation uses a temporary session that's generated from your user credentials.

Type: String

Length Constraints: Minimum length of 20. Maximum length of 2048.

Required: No

**StackName**

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

> **Note**
>
> Don't specify the name of a nested stack (a stack that was created by using the `AWS::CloudFormation::Stack` resource). Instead, use this operation on the parent stack (the stack that contains the `AWS::CloudFormation::Stack` resource).

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 Error Types.

**TokenAlreadyExists**

A client request token already exists.

HTTP Status Code: 400

# Examples

## ContinueUpdateRollback

This example illustrates one usage of 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.amazonaws.com/
doc/2010-05-15/">
  <ResponseMetadata>
    <RequestId>5ccc7dcd-744c-11e5-be70-1b08c228efb3</RequestId>
  </ResponseMetadata>
</ContinueUpdateRollbackResponse>
```

# See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2

- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# CreateChangeSet

Creates a list of changes that will be applied to a stack so that you can review the changes before executing them. You can create a change set for a stack that doesn't exist or an existing stack. If you create a change set for a stack that doesn't exist, the change set shows all of the resources that CloudFormation will create. If you create a change set for an existing stack, CloudFormation compares the stack's information with the information that you submit in the change set and lists the differences. Use change sets to understand which resources CloudFormation will create or change, and how it will change resources in an existing stack, before you create or update a stack.

To create a change set for a stack that doesn't exist, for the `ChangeSetType` parameter, specify `CREATE`. To create a change set for an existing stack, specify `UPDATE` for the `ChangeSetType` parameter. To create a change set for an import operation, specify `IMPORT` for the `ChangeSetType` parameter. After the `CreateChangeSet` call successfully completes, CloudFormation starts creating the change set. To check the status of the change set or to review it, use the DescribeChangeSet action.

When you are satisfied with the changes the change set will make, execute the change set by using the ExecuteChangeSet action. CloudFormation doesn't make changes until you execute the change set.

To create a change set for the entire stack hierarchy, set `IncludeNestedStacks` to `True`.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**Capabilities.member.N**

In some cases, you must explicitly acknowledge that your stack template contains certain capabilities in order for CloudFormation to create the stack.

- `CAPABILITY_IAM` and `CAPABILITY_NAMED_IAM`

  Some stack templates might include resources that can affect permissions in your AWS account, for example, by creating new IAM users. For those stacks, you must explicitly acknowledge this by specifying one of these capabilities.

  The following IAM resources require you to specify either the `CAPABILITY_IAM` or `CAPABILITY_NAMED_IAM` capability.

- 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 either of these capabilities, CloudFormation returns an `InsufficientCapabilities` error.

If your stack template contains these resources, we suggest that you review all permissions associated with them and edit their permissions if necessary.

- AWS::IAM::AccessKey
- AWS::IAM::Group
- AWS::IAM::InstanceProfile
- AWS::IAM::ManagedPolicy
- AWS::IAM::Policy
- AWS::IAM::Role
- AWS::IAM::User
- AWS::IAM::UserToGroupAddition

For more information, see Acknowledging IAM resources in CloudFormation templates.

- `CAPABILITY_AUTO_EXPAND`

  Some template contain macros. Macros perform custom processing on templates; this can include simple actions like find-and-replace operations, all the way to extensive transformations of entire templates. Because of this, users typically create a change set from the processed template, so that they can review the changes resulting from the macros before actually creating the stack. If your stack template contains one or more macros, and you choose to create a stack directly from the processed template, without first reviewing the resulting changes in a change set, you must acknowledge this capability. This includes the AWS::Include and AWS::Serverless transforms, which are macros hosted by CloudFormation.

  **Note**

  This capacity doesn't apply to creating change sets, and specifying it when creating change sets has no effect.
  If you want to create a stack from a stack template that contains macros *and* nested stacks, you must create or update the stack directly from the template using the CreateStack or UpdateStack action, and specifying this capability.

For more information about macros, see [Perform custom processing on CloudFormation templates with template macros].

> **Note**
>
> Only one of the `Capabilities` and `ResourceType` parameters can be specified.

Type: Array of strings

Valid Values: `CAPABILITY_IAM | CAPABILITY_NAMED_IAM | CAPABILITY_AUTO_EXPAND`

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 alphabetical character and can't 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

**ChangeSetType**

The type of change set operation. To create a change set for a new stack, specify `CREATE`. To create a change set for an existing stack, specify `UPDATE`. To create a change set for an import operation, specify `IMPORT`.

If you create a change set for a new stack, CloudFormation creates a stack with a unique stack ID, but no template or resources. The stack will be in the `REVIEW_IN_PROGRESS` state until you execute the change set.

By default, CloudFormation specifies `UPDATE`. You can't use the `UPDATE` type to create a change set for a new stack or the `CREATE` type to create a change set for an existing stack.

Type: String

Valid Values: `CREATE | UPDATE | IMPORT`

Required: No

**ClientToken**

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

Type: String

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

Required: No

**DeploymentConfig**

The deployment configuration for this stack operation, including the deployment mode.

Type: DeploymentConfig object

Required: No

**DeploymentMode**

Determines how CloudFormation handles configuration drift during deployment.

- `REVERT_DRIFT` – Creates a drift-aware change set that brings actual resource states in line with template definitions. Provides a three-way comparison between actual state, previous deployment state, and desired state.

For more information, see Using drift-aware change sets in the *AWS CloudFormation User Guide*.

Type: String

Valid Values: `REVERT_DRIFT`

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

**ImportExistingResources**

Indicates if the change set auto-imports resources that already exist. For more information, see Import AWS resources into a CloudFormation stack automatically in the *AWS CloudFormation User Guide*.

> **Note**
>
> This parameter can only import resources that have custom names in templates. For more information, see name type in the *AWS CloudFormation User Guide*. To import resources that do not accept custom names, such as EC2 instances, use the `ResourcesToImport` parameter instead.

Type: Boolean

Required: No

**IncludeNestedStacks**

Creates a change set for the all nested stacks specified in the template. The default behavior of this action is set to `False`. To include nested sets in a change set, specify `True`.

Type: Boolean

Required: No

**NotificationARNs.member.N**

The Amazon Resource Names (ARNs) of Amazon SNS topics that 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

**OnStackFailure**

Determines what action will be taken if stack creation fails. If this parameter is specified, the `DisableRollback` parameter to the ExecuteChangeSet API operation must not be specified. This must be one of these values:

- `DELETE` – Deletes the stack if the stack creation fails. This is only valid when the `ChangeSetType` parameter is set to `CREATE`. If the deletion of the stack fails, the status of the stack is `DELETE_FAILED`.
- `DO_NOTHING` – If the stack creation fails, do nothing. This is equivalent to specifying `true` for the `DisableRollback` parameter to the ExecuteChangeSet API operation.
- `ROLLBACK` – If the stack creation fails, roll back the stack. This is equivalent to specifying `false` for the `DisableRollback` parameter to the ExecuteChangeSet API operation.

For nested stacks, when the `OnStackFailure` parameter is set to `DELETE` for the change set for the parent stack, any failure in a child stack will cause the parent stack creation to fail and all stacks to be deleted.

Type: String

Valid Values: `DO_NOTHING | ROLLBACK | DELETE`

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 objects

Required: No

**ResourcesToImport.member.N**

The resources to import into your stack.

Type: Array of ResourceToImport objects

Array Members: Maximum number of 200 items.

Required: No

**ResourceTypes.member.N**

Specifies which resource types you can work with, such as `AWS::EC2::Instance` 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, CloudFormation grants permissions to all resource types. IAM uses this parameter for condition keys in IAM policies for CloudFormation. For more information, see Control CloudFormation access with AWS Identity and Access Management in the *AWS CloudFormation User Guide*.

> **Note**
>
> Only one of the `Capabilities` and `ResourceType` parameters can be specified.

Type: Array of strings

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

Required: No

**RoleARN**

The Amazon Resource Name (ARN) of an IAM role that CloudFormation assumes when executing the change set. CloudFormation uses the role's credentials to make calls on your behalf. CloudFormation uses this role for all future operations on the stack. Provided that users have permission to operate on the stack, CloudFormation uses this role even if the users don't have permission to pass it. Ensure that the role grants least permission.

If you don't specify a value, CloudFormation uses the role that was previously associated with the stack. If no role is available, CloudFormation uses a temporary session that is generated from your user credentials.

Type: String

Length Constraints: Minimum length of 20. Maximum length of 2048.

Required: No

**RollbackConfiguration**

The rollback triggers for CloudFormation to monitor during stack creation and updating operations, and for the specified monitoring period afterwards.

Type: RollbackConfiguration object

Required: No

**StackName**

The name or the unique ID of the stack for which you are creating a change set. 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. CloudFormation also propagates these tags to resources in the stack. You can specify a maximum of 50 tags.

Type: Array of Tag objects

Array Members: Maximum number of 50 items.

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. CloudFormation generates the change set by comparing this template with the template of the stack that you specified.

Conditional: You must specify only one of the following parameters: `TemplateBody`, `TemplateURL`, or set the `UsePreviousTemplate` to `true`.

Type: String

Length Constraints: Minimum length of 1.

Required: No

**TemplateURL**

The URL of the file that contains the revised template. The URL must point to a template (max size: 1 MB) that's located in an Amazon S3 bucket or a Systems Manager document. CloudFormation generates the change set by comparing this template with the stack that you specified. The location for an Amazon S3 bucket must start with `https://`. URLs from S3 static websites are not supported.

Conditional: You must specify only one of the following parameters: `TemplateBody`, `TemplateURL`, or set the `UsePreviousTemplate` to `true`.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 5120.

Required: No

**UsePreviousTemplate**

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

When using templates with the `AWS::LanguageExtensions` transform, provide the template instead of using `UsePreviousTemplate` to ensure new parameter values and Systems Manager parameter updates are applied correctly. For more information, see AWS::LanguageExtensions transform.

Conditional: You must specify only one of the following parameters: `TemplateBody`, `TemplateURL`, or set the `UsePreviousTemplate` to `true`.

Type: Boolean

Required: No

## Response Elements

The following elements are 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:/]*`

**StackId**

The unique ID of the stack.

Type: String

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**AlreadyExists**

The resource with the name requested already exists.

HTTP Status Code: 400

**InsufficientCapabilities**

The template contains resources with capabilities that weren't specified in the Capabilities parameter.

HTTP Status Code: 400

**LimitExceeded**

The quota for the resource has already been reached.

For information about resource and stack limitations, see CloudFormation quotas in the *AWS CloudFormation User Guide*.

HTTP Status Code: 400

## Examples

### CreateChangeSet

This example illustrates one usage of 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>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++

- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# CreateGeneratedTemplate

Creates a template from existing resources that are not already managed with CloudFormation. You can check the status of the template generation using the `DescribeGeneratedTemplate` API action.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**GeneratedTemplateName**

The name assigned to the generated template.

Type: String

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

Required: Yes

**Resources.member.N**

An optional list of resources to be included in the generated template.

If no resources are specified,the template will be created without any resources. Resources can be added to the template using the `UpdateGeneratedTemplate` API action.

Type: Array of ResourceDefinition objects

Array Members: Minimum number of 1 item. Maximum number of 500 items.

Required: No

**StackName**

An optional name or ARN of a stack to use as the base stack for the generated template.

Type: String

Required: No

**TemplateConfiguration**

The configuration details of the generated template, including the `DeletionPolicy` and `UpdateReplacePolicy`.

Type: TemplateConfiguration object

Required: No

## Response Elements

The following element is returned by the service.

**GeneratedTemplateId**

The ID of the generated template.

Type: String

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

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**AlreadyExists**

The resource with the name requested already exists.

HTTP Status Code: 400

**ConcurrentResourcesLimitExceeded**

No more than 5 generated templates can be in an `InProgress` or `Pending` status at one time. This error is also returned if a generated template that is in an `InProgress` or `Pending` status is attempted to be updated or deleted.

HTTP Status Code: 429

**LimitExceeded**

The quota for the resource has already been reached.

For information about resource and stack limitations, see CloudFormation quotas in the *AWS CloudFormation User Guide*.

HTTP Status Code: 400

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# 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 through the DescribeStacks operation.

For more information about creating a stack and monitoring stack progress, see Managing AWS resources as a single unit with CloudFormation stacks in the *AWS CloudFormation User Guide*.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**Capabilities.member.N**

In some cases, you must explicitly acknowledge that your stack template contains certain capabilities in order for CloudFormation to create the stack.

- `CAPABILITY_IAM` and `CAPABILITY_NAMED_IAM`

  Some stack templates might include resources that can affect permissions in your AWS account; for example, by creating new IAM users. For those stacks, you must explicitly acknowledge this by specifying one of these capabilities.

  The following IAM resources require you to specify either the `CAPABILITY_IAM` or `CAPABILITY_NAMED_IAM` capability.

  - 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 either of these capabilities, CloudFormation returns an `InsufficientCapabilities` error.

  If your stack template contains these resources, we recommend that you review all permissions associated with them and edit their permissions if necessary.

  - AWS::IAM::AccessKey
  - AWS::IAM::Group
  - AWS::IAM::InstanceProfile
  - AWS::IAM::ManagedPolicy
  - AWS::IAM::Policy
  - AWS::IAM::Role

- AWS::IAM::User
- AWS::IAM::UserToGroupAddition

For more information, see Acknowledging IAM resources in CloudFormation templates.

- `CAPABILITY_AUTO_EXPAND`

  Some template contain macros. Macros perform custom processing on templates; this can include simple actions like find-and-replace operations, all the way to extensive transformations of entire templates. Because of this, users typically create a change set from the processed template, so that they can review the changes resulting from the macros before actually creating the stack. If your stack template contains one or more macros, and you choose to create a stack directly from the processed template, without first reviewing the resulting changes in a change set, you must acknowledge this capability. This includes the AWS::Include and AWS::Serverless transforms, which are macros hosted by CloudFormation.

  If you want to create a stack from a stack template that contains macros *and* nested stacks, you must create the stack directly from the template using this capability.

  > **Important**
  >
  > You should only create stacks directly from a stack template that contains macros if you know what processing the macro performs.
  > Each macro relies on an underlying Lambda service function for processing stack templates. Be aware that the Lambda function owner can update the function operation without CloudFormation being notified.

  For more information, see Perform custom processing on CloudFormation templates with template macros.

> **Note**
>
> Only one of the `Capabilities` and `ResourceType` parameters can be specified.

Type: Array of strings

Valid Values: `CAPABILITY_IAM | CAPABILITY_NAMED_IAM | CAPABILITY_AUTO_EXPAND`

Required: No

**ClientRequestToken**

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

All events initiated by a given stack operation are assigned the same client request token, which you can use to track operations. For example, if you execute a `CreateStack` operation with the token `token1`, then all the `StackEvents` generated by that operation will have `ClientRequestToken` set as `token1`.

In the console, stack operations display the client request token on the Events tab. Stack operations that are initiated from the console use the token format *Console-StackOperation-ID*, which helps you easily identify the stack operation . For example, if you create a stack using the console, each stack event would be assigned the same token in the following format: `Console-CreateStack-7f59c3cf-00d2-40c7-b2ff-e75db0987002`.

Type: String

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

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

Required: No

**DeploymentConfig**

The deployment configuration for this stack operation, including the deployment mode.

Type: DeploymentConfig object

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

**EnableTerminationProtection**

Whether to enable termination protection on the specified stack. If a user attempts to delete a stack with termination protection enabled, the operation fails and the stack remains unchanged. For more information, see Protect CloudFormation stacks from being deleted in the *AWS CloudFormation User Guide*. Termination protection is deactivated on stacks by default.

For nested stacks, termination protection is set on the root stack and can't be changed directly on the nested stack.

Type: Boolean

Required: No

**NotificationARNs.member.N**

The Amazon SNS topic ARNs to publish stack related events. You can find your Amazon SNS topic ARNs using the Amazon 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.

> **Note**
>
> Although the default setting is `ROLLBACK`, there is one exception. This exception occurs when a StackSet attempts to deploy a stack instance and the stack instance fails to create successfully. In this case, the `CreateStack` call overrides the default setting and sets the value of `OnFailure` to `DELETE`.

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 objects

Required: No

**ResourceTypes.member.N**

Specifies which resource types you can work with, such as `AWS::EC2::Instance` or `Custom::MyCustomInstance`.

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

> **Note**
>
> Only one of the `Capabilities` and `ResourceType` parameters can be specified.

Type: Array of strings

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

Required: No

**RetainExceptOnCreate**

When set to `true`, newly created resources are deleted when the operation rolls back. This includes newly created resources marked with a deletion policy of `Retain`.

Default: `false`

Type: Boolean

Required: No

**RoleARN**

The Amazon Resource Name (ARN) of an IAM role that CloudFormation assumes to create the stack. CloudFormation uses the role's credentials to make calls on your behalf. CloudFormation always uses this role for all future operations on the stack. Provided that users have permission to operate on the stack, CloudFormation uses this role even if the users don't have permission to pass it. Ensure that the role grants least privilege.

If you don't specify a value, CloudFormation uses the role that was previously associated with the stack. If no role is available, CloudFormation uses a temporary session that's generated from your user credentials.

Type: String

Length Constraints: Minimum length of 20. Maximum length of 2048.

Required: No

**RollbackConfiguration**

The rollback triggers for CloudFormation to monitor during stack creation and updating operations, and for the specified monitoring period afterwards.

Type: RollbackConfiguration object

Required: No

**StackName**

The name that's 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 alphabetical character and can't be longer than 128 characters.

Type: String

Required: Yes

**StackPolicyBody**

Structure that contains the stack policy body. For more information, see 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 that contains 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. The location for an Amazon S3 bucket must start with `https://`. URLs from S3 static websites are not supported.

You can specify either the `StackPolicyBody` or the `StackPolicyURL` parameter, but not both.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 5120.

Required: No

**Tags.member.N**

Key-value pairs to associate with this stack. CloudFormation also propagates these tags to the resources created in the stack. A maximum number of 50 tags can be specified.

Type: Array of Tag objects

Array Members: Maximum number of 50 items.

Required: No

**TemplateBody**

Structure that contains the template body with a minimum length of 1 byte and a maximum length of 51,200 bytes.

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

Type: String

Length Constraints: Minimum length of 1.

Required: No

**TemplateURL**

The URL of a file that contains the template body. The URL must point to a template (max size: 1 MB) that's located in an Amazon S3 bucket or a Systems Manager document. The location for an Amazon S3 bucket must start with `https://`. URLs from S3 static websites are not supported.

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 5120.

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 elements are returned by the service.

**OperationId**

A unique identifier for this stack operation that can be used to track the operation's progress and events.

Type: String

**StackId**

Unique identifier of the stack.

Type: String

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**AlreadyExists**

The resource with the name requested already exists.

HTTP Status Code: 400

**InsufficientCapabilities**

The template contains resources with capabilities that weren't specified in the Capabilities parameter.

HTTP Status Code: 400

**LimitExceeded**

The quota for the resource has already been reached.

For information about resource and stack limitations, see CloudFormation quotas in the *AWS CloudFormation User Guide*.

HTTP Status Code: 400

**TokenAlreadyExists**

A client request token already exists.

HTTP Status Code: 400

## Examples

### CreateStack

This example illustrates one usage of 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>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3

- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# CreateStackInstances

Creates stack instances for the specified accounts, within the specified AWS Regions. A stack instance refers to a stack in a specific account and Region. You must specify at least one value for either `Accounts` or `DeploymentTargets`, and you must specify at least one value for `Regions`.

> **Note**
>
> The maximum number of organizational unit (OUs) supported by a `CreateStackInstances` operation is 50.
> If you need more than 50, consider the following options:
>
> - *Batch processing:* If you don't want to expose your OU hierarchy, split up the operations into multiple calls with less than 50 OUs each.
> - *Parent OU strategy:* If you don't mind exposing the OU hierarchy, target a parent OU that contains all desired child OUs.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**Accounts.member.N**

[Self-managed permissions] The account IDs of one or more AWS accounts that you want to create stack instances in the specified Region(s) for.

You can specify `Accounts` or `DeploymentTargets`, but not both.

Type: Array of strings

Pattern: `^[0-9]{12}$`

Required: No

**CallAs**

[Service-managed permissions] Specifies whether you are acting as an account administrator in the organization's management account or as a delegated administrator in a member account.

By default, `SELF` is specified. Use `SELF` for StackSets with self-managed permissions.

- If you are signed in to the management account, specify `SELF`.
- If you are signed in to a delegated administrator account, specify `DELEGATED_ADMIN`.

  Your AWS account must be registered as a delegated administrator in the management account. For more information, see Register a delegated administrator in the *AWS CloudFormation User Guide*.

Type: String

Valid Values: `SELF | DELEGATED_ADMIN`

Required: No

**DeploymentTargets**

[Service-managed permissions] The AWS Organizations accounts in which to create stack instances in the specified AWS Regions.

You can specify `Accounts` or `DeploymentTargets`, but not both.

Type: DeploymentTargets object

Required: No

**OperationId**

The unique identifier for this StackSet operation.

The operation ID also functions as an idempotency token, to ensure that CloudFormation performs the StackSet operation only once, even if you retry the request multiple times. You might retry StackSet operation requests to ensure that CloudFormation successfully received them.

Repeating this StackSet operation with a new operation ID retries all stack instances whose status is `OUTDATED`.

Type: String

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

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

Required: No

**OperationPreferences**

Preferences for how CloudFormation performs this StackSet operation.

Type: StackSetOperationPreferences object

Required: No

**ParameterOverrides.member.N**

A list of StackSet parameters whose values you want to override in the selected stack instances.

Any overridden parameter values will be applied to all stack instances in the specified accounts and AWS Regions. When specifying parameters and their values, be aware of how CloudFormation sets parameter values during stack instance operations:

- To override the current value for a parameter, include the parameter and specify its value.
- To leave an overridden parameter set to its present value, include the parameter and specify `UsePreviousValue` as `true`. (You can't specify both a value and set `UsePreviousValue` to `true`.)
- To set an overridden parameter back to the value specified in the StackSet, specify a parameter list but don't include the parameter in the list.
- To leave all parameters set to their present values, don't specify this property at all.

During StackSet updates, any parameter values overridden for a stack instance aren't updated, but retain their overridden value.

You can only override the parameter *values* that are specified in the StackSet; to add or delete a parameter itself, use UpdateStackSet to update the StackSet template.

Type: Array of Parameter objects

Required: No

**Regions.member.N**

The names of one or more AWS Regions where you want to create stack instances using the specified AWS accounts.

Type: Array of strings

Pattern: `^[a-zA-Z0-9-]{1,128}$`

Required: Yes

**StackSetName**

The name or unique ID of the StackSet that you want to create stack instances from.

Type: String

Required: Yes

## Response Elements

The following element is returned by the service.

**OperationId**

The unique identifier for this StackSet operation.

Type: String

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

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

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**InvalidOperation**

The specified operation isn't valid.

HTTP Status Code: 400

**LimitExceeded**

The quota for the resource has already been reached.

For information about resource and stack limitations, see CloudFormation quotas in the *AWS CloudFormation User Guide*.

HTTP Status Code: 400

**OperationIdAlreadyExists**

The specified operation ID already exists.

HTTP Status Code: 409

**OperationInProgress**

Another operation is currently in progress for this StackSet. Only one operation can be performed for a stack set at a given time.

HTTP Status Code: 409

**StackSetNotFound**

The specified StackSet doesn't exist.

HTTP Status Code: 404

**StaleRequest**

Another operation has been performed on this StackSet since the specified operation was performed.

HTTP Status Code: 409

# Examples

## CreateStackInstances

This example illustrates one usage of CreateStackInstances.

### Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/
 ?Action=CreateStackInstances
 &Version=2010-05-15
 &StackSetName=stack-set-example
 &Regions.member.1=us-east-1
 &Regions.member.2=us-west-2
 &OperationPreferences.MaxConcurrentCount=5
 &OperationPreferences.FailureTolerancePercentage=10
 &Accounts.member.1=[account]
```

```
 &Accounts.member.2=[account]
 &OperationId=c424b651-2fda-4d6f-a4f1-20c0example
 &X-Amz-Algorithm=AWS4-HMAC-SHA256
 &X-Amz-Credential=[Access key ID and scope]
 &X-Amz-Date=20170810T233349Z
 &X-Amz-SignedHeaders=content-type;host
 &X-Amz-Signature=[Signature]
```

### Sample Response

```
<CreateStackInstancesResponse xmlns="http://internal.amazon.com/coral/
com.amazonaws.maestro.service.v20160713/">
  <CreateStackInstancesResult>
    <OperationId>c424b651-2fda-4d6f-a4f1-20c0fc62a6fe</OperationId>
  </CreateStackInstancesResult>
  <ResponseMetadata>
    <RequestId>97564c5e-813e-11e7-a9b2-5b163763e702</RequestId>
  </ResponseMetadata>
</CreateStackInstancesResponse>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# CreateStackRefactor

Creates a refactor across multiple stacks, with the list of stacks and resources that are affected.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**Description**

A description to help you identify the stack refactor.

Type: String

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

Required: No

**EnableStackCreation**

Determines if a new stack is created with the refactor.

Type: Boolean

Required: No

**ResourceMappings.member.N**

The mappings for the stack resource `Source` and stack resource `Destination`.

Type: Array of ResourceMapping objects

Required: No

**StackDefinitions.member.N**

The stacks being refactored.

Type: Array of StackDefinition objects

Required: Yes

## Response Elements

The following element is returned by the service.

**StackRefactorId**

The ID associated with the stack refactor created from the CreateStackRefactor action.

Type: String

## Errors

For information about the errors that are common to all actions, see Common Error Types.

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# CreateStackSet

Creates a StackSet.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**AdministrationRoleARN**

The Amazon Resource Name (ARN) of the IAM role to use to create this StackSet.

Specify an IAM role only if you are using customized administrator roles to control which users or groups can manage specific StackSets within the same administrator account. For more information, see Grant self-managed permissions in the *AWS CloudFormation User Guide*.

Valid only if the permissions model is `SELF_MANAGED`.

Type: String

Length Constraints: Minimum length of 20. Maximum length of 2048.

Required: No

**AutoDeployment**

Describes whether StackSets automatically deploys to AWS Organizations accounts that are added to the target organization or organizational unit (OU). For more information, see Enable or disable automatic deployments for StackSets in AWS Organizations in the *AWS CloudFormation User Guide*.

Required if the permissions model is `SERVICE_MANAGED`. (Not used with self-managed permissions.)

Type: AutoDeployment object

Required: No

**CallAs**

Specifies whether you are acting as an account administrator in the organization's management account or as a delegated administrator in a member account.

By default, `SELF` is specified. Use `SELF` for StackSets with self-managed permissions.

- To create a StackSet with service-managed permissions while signed in to the management account, specify `SELF`.
- To create a StackSet with service-managed permissions while signed in to a delegated administrator account, specify `DELEGATED_ADMIN`.

  Your AWS account must be registered as a delegated admin in the management account. For more information, see Register a delegated administrator in the *AWS CloudFormation User Guide*.

StackSets with service-managed permissions are created in the management account, including StackSets that are created by delegated administrators.

Valid only if the permissions model is `SERVICE_MANAGED`.

Type: String

Valid Values: `SELF | DELEGATED_ADMIN`

Required: No

**Capabilities.member.N**

In some cases, you must explicitly acknowledge that your StackSet template contains certain capabilities in order for CloudFormation to create the StackSet and related stack instances.

- `CAPABILITY_IAM` and `CAPABILITY_NAMED_IAM`

  Some stack templates might include resources that can affect permissions in your AWS account; for example, by creating new IAM users. For those StackSets, you must explicitly acknowledge this by specifying one of these capabilities.

  The following IAM resources require you to specify either the `CAPABILITY_IAM` or `CAPABILITY_NAMED_IAM` capability.

  - 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 either of these capabilities, CloudFormation returns an `InsufficientCapabilities` error.

  If your stack template contains these resources, we recommend that you review all permissions associated with them and edit their permissions if necessary.

  - AWS::IAM::AccessKey

- AWS::IAM::Group
- AWS::IAM::InstanceProfile
- AWS::IAM::Policy
- AWS::IAM::Role
- AWS::IAM::User
- AWS::IAM::UserToGroupAddition

For more information, see Acknowledging IAM resources in CloudFormation templates.

- `CAPABILITY_AUTO_EXPAND`

  Some templates reference macros. If your StackSet template references one or more macros, you must create the StackSet directly from the processed template, without first reviewing the resulting changes in a change set. To create the StackSet directly, you must acknowledge this capability. For more information, see Perform custom processing on CloudFormation templates with template macros.

  > **Important**
  >
  > StackSets with service-managed permissions don't currently support the use of macros in templates. (This includes the AWS::Include and AWS::Serverless transforms, which are macros hosted by CloudFormation.) Even if you specify this capability for a StackSet with service-managed permissions, if you reference a macro in your template the StackSet operation will fail.

Type: Array of strings

Valid Values: `CAPABILITY_IAM | CAPABILITY_NAMED_IAM | CAPABILITY_AUTO_EXPAND`

Required: No

**ClientRequestToken**

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

Type: String

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

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

Required: No

**Description**

A description of the StackSet. You can use the description to identify the StackSet's purpose or other important information.

Type: String

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

Required: No

**ExecutionRoleName**

The name of the IAM execution role to use to create the StackSet. If you do not specify an execution role, CloudFormation uses the `AWSCloudFormationStackSetExecutionRole` role for the StackSet operation.

Specify an IAM role only if you are using customized execution roles to control which stack resources users and groups can include in their StackSets.

Valid only if the permissions model is `SELF_MANAGED`.

Type: String

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

Pattern: `[a-zA-Z_0-9+=,.@-]+`

Required: No

**ManagedExecution**

Describes whether CloudFormation performs non-conflicting operations concurrently and queues conflicting operations.

Type: ManagedExecution object

Required: No

**Parameters.member.N**

The input parameters for the StackSet template.

Type: Array of Parameter objects

Required: No

**PermissionModel**

Describes how the IAM roles required for StackSet operations are created. By default, `SELF-MANAGED` is specified.

- With `self-managed` permissions, you must create the administrator and execution roles required to deploy to target accounts. For more information, see Grant self-managed permissions.
- With `service-managed` permissions, StackSets automatically creates the IAM roles required to deploy to accounts managed by AWS Organizations. For more information, see Activate trusted access for StackSets with AWS Organizations.

Type: String

Valid Values: `SERVICE_MANAGED | SELF_MANAGED`

Required: No

**StackId**

The stack ID you are importing into a new StackSet. Specify the Amazon Resource Name (ARN) of the stack.

Type: String

Required: No

**StackSetName**

The name to associate with the StackSet. The name must be unique in the Region where you create your StackSet.

> **Note**
>
> A stack name can contain only alphanumeric characters (case-sensitive) and hyphens. It must start with an alphabetic character and can't be longer than 128 characters.

Type: String

Required: Yes

**Tags.member.N**

The key-value pairs to associate with this StackSet and the stacks created from it. CloudFormation also propagates these tags to supported resources that are created in the stacks. A maximum number of 50 tags can be specified.

If you specify tags as part of a `CreateStackSet` action, CloudFormation checks to see if you have the required IAM permission to tag resources. If you don't, the entire `CreateStackSet` action fails with an `access denied` error, and the StackSet is not created.

Type: Array of Tag objects

Array Members: Maximum number of 50 items.

Required: No

**TemplateBody**

The structure that contains the template body, with a minimum length of 1 byte and a maximum length of 51,200 bytes.

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**

The URL of a file that contains the template body. The URL must point to a template (maximum size: 1 MB) that's located in an Amazon S3 bucket or a Systems Manager document. The location for an Amazon S3 bucket must start with `https://`. S3 static website URLs are not supported.

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 5120.

Required: No

## Response Elements

The following element is returned by the service.

**StackSetId**

The ID of the StackSet that you're creating.

Type: String

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**CreatedButModified**

The specified resource exists, but has been changed.

HTTP Status Code: 409

**LimitExceeded**

The quota for the resource has already been reached.

For information about resource and stack limitations, see CloudFormation quotas in the *AWS CloudFormation User Guide*.

HTTP Status Code: 400

**NameAlreadyExists**

The specified name is already in use.

HTTP Status Code: 409

## Examples

### CreateStackSet

This example illustrates one usage of CreateStackSet.

### Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/
 ?Action=CreateStackSet
 &TemplateURL=https://s3.amazonaws.com/cloudformation-stackset-sample-templates-us-
east-1/EnableAWSConfig.yml
 &Version=2010-05-15
 &StackSetName=stack-set-example
 &ClientRequestToken=61806005-bde9-46f1-949d-6791example
 &X-Amz-Algorithm=AWS4-HMAC-SHA256
 &X-Amz-Credential=[Access key ID and scope]
 &X-Amz-Date=20170810T233349Z
 &X-Amz-SignedHeaders=content-type;host
 &X-Amz-Signature=[Signature]
```

### Sample Response

```
<CreateStackSetResponse xmlns="http://internal.amazon.com/coral/
com.amazonaws.maestro.service.v20160713/">
  <CreateStackSetResult>
    <StackSetId>stack-set-example:22f04391-472b-4e36-b11a-727example</StackSetId>
  </CreateStackSetResult>
  <ResponseMetadata>
    <RequestId>ad9647cb-7949-11e7-ac43-9938example</RequestId>
  </ResponseMetadata>
</CreateStackSetResponse>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3

- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# DeactivateOrganizationsAccess

Deactivates trusted access with AWS Organizations. If trusted access is deactivated, the management account does not have permissions to create and manage service-managed StackSets for your organization.

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**InvalidOperation**

The specified operation isn't valid.

HTTP Status Code: 400

**OperationNotFound**

The specified ID refers to an operation that doesn't exist.

HTTP Status Code: 404

## Examples

### DeactivateOrganizationsAccess

This example illustrates one usage of DeactivateOrganizationsAccess.

**Sample Request**

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

**Sample Response**

```
<DeactivateOrganizationsAccessResponse xmlns="http://internal.amazon.com/coral/
com.amazonaws.maestro.service.v20160713/">
  <DeactivateOrganizationsAccessResult/>
  <ResponseMetadata>
```

```
    <RequestId>f2038c6a-2ef6-45d0-a045-f2b4d15647ba</RequestId>
  </ResponseMetadata>
</DeactivateOrganizationsAccessResponse>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# DeactivateType

Deactivates a public third-party extension, such as a resource or module, or a CloudFormation Hook when you no longer use it.

Deactivating an extension deletes the configuration details that are associated with it. To temporarily disable a CloudFormation Hook instead, you can use SetTypeConfiguration.

Once deactivated, an extension can't be used in any CloudFormation operation. This includes stack update operations where the stack template includes the extension, even if no updates are being made to the extension. In addition, deactivated extensions aren't automatically updated if a new version of the extension is released.

To see which extensions are currently activated, use ListTypes.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**Arn**

The Amazon Resource Name (ARN) for the extension in this account and Region.

Conditional: You must specify either `Arn`, or `TypeName` and `Type`.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `arn:aws[A-Za-z0-9-]{0,64}:cloudformation:[A-Za-z0-9-]{1,64}:[0-9]{12}:type/.+`

Required: No

**Type**

The extension type.

Conditional: You must specify either `Arn`, or `TypeName` and `Type`.

Type: String

Valid Values: `RESOURCE | MODULE | HOOK`

Required: No

**TypeName**

The type name of the extension in this account and Region. If you specified a type name alias when enabling the extension, use the type name alias.

Conditional: You must specify either `Arn`, or `TypeName` and `Type`.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 204.

Pattern: `[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}(::MODULE){0,1}`

Required: No

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**CFNRegistry**

An error occurred during a CloudFormation registry operation.

**Message**

A message with details about the error that occurred.

HTTP Status Code: 400

**TypeNotFound**

The specified extension doesn't exist in the CloudFormation registry.

HTTP Status Code: 404

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# DeleteChangeSet

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

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

If `IncludeNestedStacks` specifies `True` during the creation of the nested change set, then `DeleteChangeSet` will delete all change sets that belong to the stacks hierarchy and will also delete all change sets for nested stacks with the status of `REVIEW_IN_PROGRESS`.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**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 Amazon Resource Name (ARN) that's 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 Error Types.

### InvalidChangeSetStatus

The specified change set can't 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

# Examples

## DeleteChangeSet

This example illustrates one usage of DeleteChangeSet.

### Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/
 ?Action=DeleteChangeSet
 &ChangeSetName=arn:aws:cloudformation:us-east-1:123456789012:changeSet/
SampleChangeSet/12a3b456-0e10-4ce0-9052-5d484a8c4e5b
 &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

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

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# DeleteGeneratedTemplate

Deleted a generated template.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**GeneratedTemplateName**

The name or Amazon Resource Name (ARN) of a generated template.

Type: String

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

Required: Yes

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**ConcurrentResourcesLimitExceeded**

No more than 5 generated templates can be in an `InProgress` or `Pending` status at one time. This error is also returned if a generated template that is in an `InProgress` or `Pending` status is attempted to be updated or deleted.

HTTP Status Code: 429

**GeneratedTemplateNotFound**

The generated template was not found.

HTTP Status Code: 404

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# DeleteStack

Deletes a specified stack. Once the call completes successfully, stack deletion starts. Deleted stacks don't show up in the DescribeStacks operation if the deletion has been completed successfully.

For more information about deleting a stack, see Delete a stack from the CloudFormation console in the *AWS CloudFormation User Guide*.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**ClientRequestToken**

A unique identifier for this `DeleteStack` request. Specify this token if you plan to retry requests so that CloudFormation knows that you're not attempting to delete a stack with the same name. You might retry `DeleteStack` requests to ensure that CloudFormation successfully received them.

All events initiated by a given stack operation are assigned the same client request token, which you can use to track operations. For example, if you execute a `CreateStack` operation with the token `token1`, then all the `StackEvents` generated by that operation will have `ClientRequestToken` set as `token1`.

In the console, stack operations display the client request token on the Events tab. Stack operations that are initiated from the console use the token format *Console-StackOperation-ID*, which helps you easily identify the stack operation . For example, if you create a stack using the console, each stack event would be assigned the same token in the following format: `Console-CreateStack-7f59c3cf-00d2-40c7-b2ff-e75db0987002`.

Type: String

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

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

Required: No

**DeletionMode**

Specifies the deletion mode for the stack. Possible values are:

- STANDARD - Use the standard behavior. Specifying this value is the same as not specifying this parameter.
- FORCE_DELETE_STACK - Delete the stack if it's stuck in a DELETE_FAILED state due to resource deletion failure.

Type: String

Valid Values: STANDARD | FORCE_DELETE_STACK

Required: No

**DeploymentConfig**

The deployment configuration for this stack operation, including the deployment mode.

Type: DeploymentConfig object

Required: No

**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, CloudFormation deletes the stack but doesn't delete the retained resources.

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

Type: Array of strings

Required: No

**RoleARN**

The Amazon Resource Name (ARN) of an IAM role that CloudFormation assumes to delete the stack. CloudFormation uses the role's credentials to make calls on your behalf.

If you don't specify a value, CloudFormation uses the role that was previously associated with the stack. If no role is available, CloudFormation uses a temporary session that's generated from your user credentials.

Type: String

Length Constraints: Minimum length of 20. Maximum length of 2048.

Required: No

**StackName**

The name or the unique stack ID that's associated with the stack.

Type: String

Required: Yes

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**TokenAlreadyExists**

A client request token already exists.

HTTP Status Code: 400

## Examples

### DeleteStack

This example illustrates one usage of 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>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# DeleteStackInstances

Deletes stack instances for the specified accounts, in the specified AWS Regions.

> **Note**
>
> The maximum number of organizational unit (OUs) supported by a `DeleteStackInstances` operation is 50.
> If you need more than 50, consider the following options:
>
> - *Batch processing:* If you don't want to expose your OU hierarchy, split up the operations into multiple calls with less than 50 OUs each.
> - *Parent OU strategy:* If you don't mind exposing the OU hierarchy, target a parent OU that contains all desired child OUs.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**Accounts.member.N**

[Self-managed permissions] The account IDs of the AWS accounts that you want to delete stack instances for.

You can specify `Accounts` or `DeploymentTargets`, but not both.

Type: Array of strings

Pattern: `^[0-9]{12}$`

Required: No

**CallAs**

[Service-managed permissions] Specifies whether you are acting as an account administrator in the organization's management account or as a delegated administrator in a member account.

By default, `SELF` is specified. Use `SELF` for StackSets with self-managed permissions.

- If you are signed in to the management account, specify `SELF`.
- If you are signed in to a delegated administrator account, specify `DELEGATED_ADMIN`.

Your AWS account must be registered as a delegated administrator in the management account. For more information, see Register a delegated administrator in the *AWS CloudFormation User Guide*.

Type: String

Valid Values: `SELF | DELEGATED_ADMIN`

Required: No

**DeploymentTargets**

[Service-managed permissions] The AWS Organizations accounts from which to delete stack instances.

You can specify `Accounts` or `DeploymentTargets`, but not both.

Type: DeploymentTargets object

Required: No

**OperationId**

The unique identifier for this StackSet operation.

The operation ID also functions as an idempotency token, to ensure that CloudFormation performs the StackSet operation only once, even if you retry the request multiple times. You can retry StackSet operation requests to ensure that CloudFormation successfully received them.

Repeating this StackSet operation with a new operation ID retries all stack instances whose status is `OUTDATED`.

Type: String

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

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

Required: No

**OperationPreferences**

Preferences for how CloudFormation performs this StackSet operation.

Type: StackSetOperationPreferences object

Required: No

**Regions.member.N**

The AWS Regions where you want to delete StackSet instances.

Type: Array of strings

Pattern: `^[a-zA-Z0-9-]{1,128}$`

Required: Yes

**RetainStacks**

Removes the stack instances from the specified StackSet, but doesn't delete the stacks. You can't reassociate a retained stack or add an existing, saved stack to a new stack set.

For more information, see StackSet operation options.

Type: Boolean

Required: Yes

**StackSetName**

The name or unique ID of the StackSet that you want to delete stack instances for.

Type: String

Required: Yes

## Response Elements

The following element is returned by the service.

**OperationId**

The unique identifier for this StackSet operation.

Type: String

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

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

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**InvalidOperation**

The specified operation isn't valid.

HTTP Status Code: 400

**OperationIdAlreadyExists**

The specified operation ID already exists.

HTTP Status Code: 409

**OperationInProgress**

Another operation is currently in progress for this StackSet. Only one operation can be performed for a stack set at a given time.

HTTP Status Code: 409

**StackSetNotFound**

The specified StackSet doesn't exist.

HTTP Status Code: 404

**StaleRequest**

Another operation has been performed on this StackSet since the specified operation was performed.

HTTP Status Code: 409

## Examples

### DeleteStackInstances

This example illustrates one usage of DeleteStackInstances.

**Sample Request**

```
https://cloudformation.us-east-1.amazonaws.com/
 ?Action=DeleteStackInstances
 &Regions.member.1=us-east-1
 &Regions.member.2=us-west-1
 &Version=2010-05-15
 &StackSetName=stack-set-example
 &RetainStacks=false
 &OperationPreferences.MaxConcurrentCount=2
 &OperationPreferences.FailureToleranceCount=1
 &Accounts.member.1=[account]
 &Accounts.member.2=[account]
 &OperationId=a0f49354-a1eb-42b7-9e5d-c0897example
 &X-Amz-Algorithm=AWS4-HMAC-SHA256
 &X-Amz-Credential=[Access key ID and scope]
 &X-Amz-Date=20170810T233349Z
 &X-Amz-SignedHeaders=content-type;host
 &X-Amz-Signature=[Signature]
```

### Sample Response

```
<DeleteStackInstancesResponse xmlns="http://internal.amazon.com/coral/
com.amazonaws.maestro.service.v20160713/">
  <DeleteStackInstancesResult>
    <OperationId>a0f49354-a1eb-42b7-9e5d-c08977e317a0</OperationId>
  </DeleteStackInstancesResult>
  <ResponseMetadata>
    <RequestId>0f3c3dcc-7945-11e7-a4ac-9503729bf9ee</RequestId>
  </ResponseMetadata>
</DeleteStackInstancesResponse>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2

- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# DeleteStackSet

Deletes a StackSet. Before you can delete a StackSet, all its member stack instances must be deleted. For more information about how to complete this, see DeleteStackInstances.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**CallAs**

[Service-managed permissions] Specifies whether you are acting as an account administrator in the organization's management account or as a delegated administrator in a member account.

By default, `SELF` is specified. Use `SELF` for StackSets with self-managed permissions.

- If you are signed in to the management account, specify `SELF`.
- If you are signed in to a delegated administrator account, specify `DELEGATED_ADMIN`.

  Your AWS account must be registered as a delegated administrator in the management account. For more information, see Register a delegated administrator in the *AWS CloudFormation User Guide*.

Type: String

Valid Values: `SELF | DELEGATED_ADMIN`

Required: No

**StackSetName**

The name or unique ID of the StackSet that you're deleting. You can obtain this value by running ListStackSets.

Type: String

Required: Yes

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**OperationInProgress**

Another operation is currently in progress for this StackSet. Only one operation can be performed for a stack set at a given time.

HTTP Status Code: 409

**StackSetNotEmpty**

You can't yet delete this StackSet, because it still contains one or more stack instances. Delete all stack instances from the StackSet before deleting the StackSet.

HTTP Status Code: 409

# Examples

## DeleteStackSet

This example illustrates one usage of DeleteStackSet.

### Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/
 ?Action=DeleteStackSet
 &Version=2010-05-15
 &StackSetName=stack-set-example
 &X-Amz-Algorithm=AWS4-HMAC-SHA256
 &X-Amz-Credential=[Access key ID and scope]
 &X-Amz-Date=20170810T233349Z
 &X-Amz-SignedHeaders=content-type;host
 &X-Amz-Signature=[Signature]
```

### Sample Response

```
<DeleteStackSetResponse xmlns="http://internal.amazon.com/coral/
com.amazonaws.maestro.service.v20160713/">
  <DeleteStackSetResult/>
  <ResponseMetadata>
    <RequestId>792b1f2b-7946-11e7-a7db-afc00fexample</RequestId>
  </ResponseMetadata>
```

```
</DeleteStackSetResponse>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# DeregisterType

Marks an extension or extension version as DEPRECATED in the CloudFormation registry, removing it from active use. Deprecated extensions or extension versions cannot be used in CloudFormation operations.

To deregister an entire extension, you must individually deregister all active versions of that extension. If an extension has only a single active version, deregistering that version results in the extension itself being deregistered and marked as deprecated in the registry.

You can't deregister the default version of an extension if there are other active version of that extension. If you do deregister the default version of an extension, the extension type itself is deregistered as well and marked as deprecated.

To view the deprecation status of an extension or extension version, use DescribeType.

For more information, see Remove third-party private extensions from your account in the *AWS CloudFormation User Guide*.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**Arn**

The Amazon Resource Name (ARN) of the extension.

Conditional: You must specify either `TypeName` and `Type`, or `Arn`.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `arn:aws[A-Za-z0-9-]{0,64}:cloudformation:[A-Za-z0-9-]{1,64}:[0-9]{12}:type/.+`

Required: No

**Type**

The kind of extension.

Conditional: You must specify either `TypeName` and `Type`, or `Arn`.

Type: String

Valid Values: `RESOURCE | MODULE | HOOK`

Required: No

**TypeName**

The name of the extension.

Conditional: You must specify either `TypeName` and `Type`, or `Arn`.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 204.

Pattern: `[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}(::MODULE){0,1}`

Required: No

**VersionId**

The ID of a specific version of the extension. The version ID is the value at the end of the Amazon Resource Name (ARN) assigned to the extension version when it is registered.

Type: String

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

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

Required: No

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**CFNRegistry**

An error occurred during a CloudFormation registry operation.

**Message**

A message with details about the error that occurred.

HTTP Status Code: 400

**TypeNotFound**

The specified extension doesn't exist in the CloudFormation registry.

HTTP Status Code: 404

# Examples

## Deregistering an extension version

The following example removes a specific version of the `My::Resource::Example` resource type from active use in the CloudFormation registry.

### Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/
 ?Action=DeregisterType
 &Version=2010-05-15
 &TypeName=My::Resource::Example
 &Type=RESOURCE
 &VersionId=00000002
 &X-Amz-Algorithm=AWS4-HMAC-SHA256
 &X-Amz-Credential=[Access key ID and scope]
 &X-Amz-Date=20191204T181601Z
 &X-Amz-SignedHeaders=content-type;host
 &X-Amz-Signature=[Signature]
```

### Sample Response

```
<DeregisterTypeResponse xmlns="http://cloudformation.amazonaws.com/doc/2010-05-15/">
  <DeregisterTypeResult/>
  <ResponseMetadata>
    <RequestId>78c291d1-4463-4845-a600-29221example</RequestId>
  </ResponseMetadata>
</DeregisterTypeResponse>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# DescribeAccountLimits

Retrieves your account's CloudFormation limits, such as the maximum number of stacks that you can create in your account. For more information about account limits, see Understand CloudFormation quotas in the *AWS CloudFormation User Guide*.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**NextToken**

The token for the next set of items to return. (You received this token from a previous call.)

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 CloudFormation account limits and their values.

Type: Array of AccountLimit 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 Error Types.

# Examples

## DescribeAccountLimits

This example illustrates one usage of 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.amazonaws.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>
```

# See Also

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

- AWS Command Line Interface V2

- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# DescribeChangeSet

Returns the inputs for the change set and a list of changes that CloudFormation will make if you execute the change set. For more information, see Update CloudFormation 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.

**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

**IncludePropertyValues**

If `true`, the returned changes include detailed changes in the property values.

Type: Boolean

Required: No

**NextToken**

The token for the next set of items to return. (You received this token from a previous call.)

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 | CAPABILITY_AUTO_EXPAND`

**Changes.member.N**

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

Type: Array of Change objects

**ChangeSetId**

The Amazon Resource Name (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

**DeploymentConfig**

The deployment configuration specified when the change set was created.

Type: DeploymentConfig object

**DeploymentMode**

The deployment mode specified when the change set was created. Valid value is `REVERT_DRIFT`. Only present for drift-aware change sets.

Type: String

Valid Values: `REVERT_DRIFT`

**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 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`

**ImportExistingResources**

Indicates if the change set imports resources that already exist.

> **Note**
>
> This parameter can only import resources that have custom names in templates. To import resources that do not accept custom names, such as EC2 instances, use the resource import feature instead.

Type: Boolean

**IncludeNestedStacks**

Verifies if `IncludeNestedStacks` is set to `True`.

Type: Boolean

**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 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.

**OnStackFailure**

Determines what action will be taken if stack creation fails. When this parameter is specified, the `DisableRollback` parameter to the ExecuteChangeSet API operation must not be specified. This must be one of these values:

- DELETE – Deletes the stack if the stack creation fails. This is only valid when the ChangeSetType parameter is set to CREATE. If the deletion of the stack fails, the status of the stack is DELETE_FAILED.
- DO_NOTHING – If the stack creation fails, do nothing. This is equivalent to specifying true for the DisableRollback parameter to the ExecuteChangeSet API operation.
- ROLLBACK – If the stack creation fails, roll back the stack. This is equivalent to specifying false for the DisableRollback parameter to the ExecuteChangeSet API operation.

Type: String

Valid Values: DO_NOTHING | ROLLBACK | DELETE

**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 objects

**ParentChangeSetId**

Specifies the change set ID of the parent change set in the current nested change set hierarchy.

Type: String

Length Constraints: Minimum length of 1.

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

**RollbackConfiguration**

The rollback triggers for CloudFormation to monitor during stack creation and updating operations, and for the specified monitoring period afterwards.

Type: RollbackConfiguration object

**RootChangeSetId**

Specifies the change set ID of the root change set in the current nested change set hierarchy.

Type: String

Length Constraints: Minimum length of 1.

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

**StackDriftStatus**

The drift status of the stack when the change set was created. Valid values:

- `DRIFTED` – The stack has drifted from its last deployment.
- `IN_SYNC` – The stack is in sync with its last deployment.
- `NOT_CHECKED` – CloudFormation doesn't currently return this value.
- `UNKNOWN` – The drift status could not be determined.

Only present for drift-aware change sets.

Type: String

Valid Values: `DRIFTED | IN_SYNC | UNKNOWN | NOT_CHECKED`

**StackId**

The Amazon Resource Name (ARN) of the stack that's associated with the change set.

Type: String

**StackName**

The name of the stack that's associated with the change set.

Type: String

**Status**

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

Type: String

Valid Values: `CREATE_PENDING | CREATE_IN_PROGRESS | CREATE_COMPLETE | DELETE_PENDING | DELETE_IN_PROGRESS | DELETE_COMPLETE | DELETE_FAILED | FAILED`

**StatusReason**

A description of the change set's status. For example, if your attempt to create a change set failed, 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 objects

Array Members: Maximum number of 50 items.

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**ChangeSetNotFound**

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

HTTP Status Code: 404

## Examples

### DescribeChangeSet

This example illustrates one usage of DescribeChangeSet.

**Sample Request**

```
https://cloudformation.us-east-1.amazonaws.com/
 ?Action=DescribeChangeSet
 &ChangeSetName=arn:aws:cloudformation:us-east-1:123456789012:changeSet/
SampleChangeSet/12a3b456-0e10-4ce0-9052-5d484a8c4e5b
 &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

```
<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/
SampleChangeSet-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>
        <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>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# DescribeChangeSetHooks

Returns Hook-related information for the change set and a list of changes that CloudFormation makes when you run the change set.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**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

**LogicalResourceId**

If specified, lists only the Hooks related to the specified `LogicalResourceId`.

Type: String

Required: No

**NextToken**

The token for the next set of items to return. (You received this token from a previous call.)

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 stack 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.

**ChangeSetId**

The change set identifier (stack ID).

Type: String

Length Constraints: Minimum length of 1.

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

**ChangeSetName**

The change set name.

Type: String

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

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

**Hooks.member.N**

List of Hook objects.

Type: Array of ChangeSetHook objects

**NextToken**

Pagination token, `null` or empty if no more results.

Type: String

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

**StackId**

The stack identifier (stack ID).

Type: String

**StackName**

The stack name.

Type: String

**Status**

Provides the status of the change set Hook.

Type: String

Valid Values: `PLANNING | PLANNED | UNAVAILABLE`

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**ChangeSetNotFound**

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

HTTP Status Code: 404

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2

- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# DescribeEvents

Returns CloudFormation events based on flexible query criteria. Groups events by operation ID, enabling you to focus on individual stack operations during deployment.

An operation is any action performed on a stack, including stack lifecycle actions (Create, Update, Delete, Rollback), change set creation, nested stack creation, and automatic rollbacks triggered by failures. Each operation has a unique identifier (Operation ID) and represents a discrete change attempt on the stack.

Returns different types of events including:

- **Progress events** - Status updates during stack operation execution.
- **Validation errors** - Failures from CloudFormation Early Validations.
- **Provisioning errors** - Resource creation and update failures.
- **Hook invocation errors** - Failures from CloudFormation Hook during stack operations.

> **Note**
>
> One of `ChangeSetName`, `OperationId` or `StackName` must be specified as input.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**ChangeSetName**

The name or Amazon Resource Name (ARN) of the change set for which you want to retrieve events.

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: No

**Filters**

Filters to apply when retrieving events.

Type: EventFilter object

Required: No

**NextToken**

The token for the next set of items to return. (You received this token from a previous call.)

Type: String

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

Required: No

**OperationId**

The unique identifier of the operation for which you want to retrieve events.

Type: String

Required: No

**StackName**

The name or unique stack ID for which you want to retrieve events. 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.

**NextToken**

If the request doesn't return all the remaining results, `NextToken` is set to a token. To retrieve the next set of results, call `DescribeEvents` again and assign that token to the request object's `NextToken` parameter. If the request returns all results, `NextToken` is set to `null`.

Type: String

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

**OperationEvents.member.N**

A list of operation events that match the specified criteria.

Type: Array of OperationEvent objects

## Errors

For information about the errors that are common to all actions, see Common Error Types.

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# DescribeGeneratedTemplate

Describes a generated template. The output includes details about the progress of the creation of a generated template started by a `CreateGeneratedTemplate` API action or the update of a generated template started with an `UpdateGeneratedTemplate` API action.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**GeneratedTemplateName**

The name or Amazon Resource Name (ARN) of a generated template.

Type: String

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

Required: Yes

## Response Elements

The following elements are returned by the service.

**CreationTime**

The time the generated template was created.

Type: Timestamp

**GeneratedTemplateId**

The Amazon Resource Name (ARN) of the generated template. The format is `arn:${Partition}:cloudformation:${Region}:${Account}:generatedtemplate/${Id}`. For example, `arn:aws:cloudformation:`*`us-east-1`*`:`*`123456789012`*`:generatedtemplate/`*`2e8465c1-9a80-43ea-a3a3-4f2d692fe6dc`* .

Type: String

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

**GeneratedTemplateName**

The name of the generated template.

Type: String

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

**LastUpdatedTime**

The time the generated template was last updated.

Type: Timestamp

**Progress**

An object describing the progress of the template generation.

Type: TemplateProgress object

**Resources.member.N**

A list of objects describing the details of the resources in the template generation.

Type: Array of ResourceDetail objects

Array Members: Minimum number of 1 item. Maximum number of 500 items.

**StackId**

The stack ARN of the base stack if a base stack was provided when generating the template.

Type: String

**Status**

The status of the template generation. Supported values are:

- `CreatePending` - the creation of the template is pending.
- `CreateInProgress` - the creation of the template is in progress.
- `DeletePending` - the deletion of the template is pending.
- `DeleteInProgress` - the deletion of the template is in progress.
- `UpdatePending` - the update of the template is pending.
- `UpdateInProgress` - the update of the template is in progress.

- `Failed` - the template operation failed.
- `Complete` - the template operation is complete.

Type: String

Valid Values: `CREATE_PENDING | UPDATE_PENDING | DELETE_PENDING | CREATE_IN_PROGRESS | UPDATE_IN_PROGRESS | DELETE_IN_PROGRESS | FAILED | COMPLETE`

**StatusReason**

The reason for the current template generation status. This will provide more details if a failure happened.

Type: String

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

**TemplateConfiguration**

The configuration details of the generated template, including the `DeletionPolicy` and `UpdateReplacePolicy`.

Type: TemplateConfiguration object

**TotalWarnings**

The number of warnings generated for this template. The warnings are found in the details of each of the resources in the template.

Type: Integer

Valid Range: Minimum value of 0.

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**GeneratedTemplateNotFound**

The generated template was not found.

HTTP Status Code: 404

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# DescribeOrganizationsAccess

Retrieves information about the account's `OrganizationAccess` status. This API can be called either by the management account or the delegated administrator by using the `CallAs` parameter. This API can also be called without the `CallAs` parameter by the management account.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**CallAs**

[Service-managed permissions] Specifies whether you are acting as an account administrator in the organization's management account or as a delegated administrator in a member account.

By default, `SELF` is specified.

- If you are signed in to the management account, specify `SELF`.
- If you are signed in to a delegated administrator account, specify `DELEGATED_ADMIN`.

  Your AWS account must be registered as a delegated administrator in the management account. For more information, see Register a delegated administrator in the *AWS CloudFormation User Guide*.

Type: String

Valid Values: `SELF | DELEGATED_ADMIN`

Required: No

## Response Elements

The following element is returned by the service.

**Status**

Presents the status of the `OrganizationAccess`.

Type: String

Valid Values: `ENABLED | DISABLED | DISABLED_PERMANENTLY`

# Errors

For information about the errors that are common to all actions, see Common Error Types.

**InvalidOperation**

The specified operation isn't valid.

HTTP Status Code: 400

**OperationNotFound**

The specified ID refers to an operation that doesn't exist.

HTTP Status Code: 404

# Examples

## DescribeOrganizationsAccess

This example illustrates one usage of DescribeOrganizationsAccess.

**Sample Request**

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

**Sample Response**

```
<DescribeOrganizationsAccessResponse xmlns="http://internal.amazon.com/coral/
com.amazonaws.maestro.service.v20160713/">
  <DescribeOrganizationsAccessResult>
    <Status>ENABLED</Status>
  </DescribeOrganizationsAccessResult>
  <ResponseMetadata>
    <RequestId>240f1cd7-48d6-41a6-b61b-65c7c81893e9</RequestId>
  </ResponseMetadata>
</DescribeOrganizationsAccessResponse>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# DescribePublisher

Returns information about a CloudFormation extension publisher.

If you don't supply a `PublisherId`, and you have registered as an extension publisher, `DescribePublisher` returns information about your own publisher account.

For more information about registering as a publisher, see:

- RegisterPublisher
- Publishing extensions to make them available for public use in the *AWS CloudFormation Command Line Interface (CLI) User Guide*

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**PublisherId**

The ID of the extension publisher.

If you don't supply a `PublisherId`, and you have registered as an extension publisher, `DescribePublisher` returns information about your own publisher account.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 40.

Pattern: `[0-9a-zA-Z]{12,40}`

Required: No

## Response Elements

The following elements are returned by the service.

**IdentityProvider**

The type of account used as the identity provider when registering this publisher with CloudFormation.

Type: String

Valid Values: `AWS_Marketplace | GitHub | Bitbucket`

**PublisherId**

The ID of the extension publisher.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 40.

Pattern: `[0-9a-zA-Z]{12,40}`

**PublisherProfile**

The URL to the publisher's profile with the identity provider.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `(http:|https:)+[^\s]+[\w]`

**PublisherStatus**

Whether the publisher is verified. Currently, all registered publishers are verified.

Type: String

Valid Values: `VERIFIED | UNVERIFIED`

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**CFNRegistry**

An error occurred during a CloudFormation registry operation.

**Message**

A message with details about the error that occurred.

HTTP Status Code: 400

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# DescribeResourceScan

Describes details of a resource scan.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**ResourceScanId**

The Amazon Resource Name (ARN) of the resource scan.

Type: String

Required: Yes

## Response Elements

The following elements are returned by the service.

**EndTime**

The time that the resource scan was finished.

Type: Timestamp

**PercentageCompleted**

The percentage of the resource scan that has been completed.

Type: Double

**ResourceScanId**

The Amazon Resource Name (ARN) of the resource scan. The format is `arn:${Partition}:cloudformation:${Region}:${Account}:resourceScan/${Id}`. An example is `arn:aws:cloudformation:us-east-1:123456789012:resourceScan/f5b490f7-7ed4-428a-aa06-31ff25db0772` .

Type: String

**ResourcesRead**

The number of resources that were read. This is only available for scans with a `Status` set to `COMPLETE`, `EXPIRED`, or `FAILED`.

> **Note**
>
> This field may be 0 if the resource scan failed with a `ResourceScanLimitExceededException`.

Type: Integer

**ResourcesScanned**

The number of resources that were listed. This is only available for scans with a `Status` set to `COMPLETE`, `EXPIRED`, or `FAILED` .

Type: Integer

**ResourceTypes.member.N**

The list of resource types for the specified scan. Resource types are only available for scans with a `Status` set to `COMPLETE` or `FAILED` .

Type: Array of strings

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

**ScanFilters.member.N**

The scan filters that were used.

Type: Array of ScanFilter objects

Array Members: Fixed number of 1 item.

**StartTime**

The time that the resource scan was started.

Type: Timestamp

**Status**

Status of the resource scan.

**IN_PROGRESS**

The resource scan is still in progress.

**COMPLETE**

The resource scan is complete.

**EXPIRED**

The resource scan has expired.

**FAILED**

The resource scan has failed.

Type: String

Valid Values: `IN_PROGRESS | FAILED | COMPLETE | EXPIRED`

**StatusReason**

The reason for the resource scan status, providing more information if a failure happened.

Type: String

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**ResourceScanNotFound**

The resource scan was not found.

HTTP Status Code: 400

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2

- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# DescribeStackDriftDetectionStatus

Returns information about a stack drift detection operation. A stack drift detection operation detects whether a stack's actual configuration differs, or has *drifted*, from its expected configuration, as defined in the stack template and any values specified as template parameters. A stack is considered to have drifted if one or more of its resources have drifted. For more information about stack and resource drift, see Detect unmanaged configuration changes to stacks and resources with drift detection.

Use DetectStackDrift to initiate a stack drift detection operation. `DetectStackDrift` returns a `StackDriftDetectionId` you can use to monitor the progress of the operation using `DescribeStackDriftDetectionStatus`. Once the drift detection operation has completed, use DescribeStackResourceDrifts to return drift information about the stack and its resources.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**StackDriftDetectionId**

The ID of the drift detection results of this operation.

CloudFormation generates new results, with a new drift detection ID, each time this operation is run. However, the number of drift results CloudFormation retains for any given stack, and for how long, may vary.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 36.

Required: Yes

## Response Elements

The following elements are returned by the service.

**DetectionStatus**

The status of the stack drift detection operation.

- DETECTION_COMPLETE: The stack drift detection operation has successfully completed for all resources in the stack that support drift detection. (Resources that don't currently support stack detection remain unchecked.)

  If you specified logical resource IDs for CloudFormation to use as a filter for the stack drift detection operation, only the resources with those logical IDs are checked for drift.
- DETECTION_FAILED: The stack drift detection operation has failed for at least one resource in the stack. Results will be available for resources on which CloudFormation successfully completed drift detection.
- DETECTION_IN_PROGRESS: The stack drift detection operation is currently in progress.

Type: String

Valid Values: DETECTION_IN_PROGRESS | DETECTION_FAILED | DETECTION_COMPLETE

**DetectionStatusReason**

The reason the stack drift detection operation has its current status.

Type: String

**DriftedStackResourceCount**

Total number of stack resources that have drifted. This is NULL until the drift detection operation reaches a status of DETECTION_COMPLETE. This value will be 0 for stacks whose drift status is IN_SYNC.

Type: Integer

**StackDriftDetectionId**

The ID of the drift detection results of this operation.

CloudFormation generates new results, with a new drift detection ID, each time this operation is run. However, the number of reports CloudFormation retains for any given stack, and for how long, may vary.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 36.

**StackDriftStatus**

Status of the stack's actual configuration compared to its expected configuration.

- DRIFTED: The stack differs from its expected template configuration. A stack is considered to have drifted if one or more of its resources have drifted.
- NOT_CHECKED: CloudFormation hasn't checked if the stack differs from its expected template configuration.
- IN_SYNC: The stack's actual configuration matches its expected template configuration.
- UNKNOWN: CloudFormation could not run drift detection for a resource in the stack. See the DetectionStatusReason for details.

Type: String

Valid Values: DRIFTED | IN_SYNC | UNKNOWN | NOT_CHECKED

**StackId**

The ID of the stack.

Type: String

**Timestamp**

Time at which the stack drift detection operation was initiated.

Type: Timestamp

## Errors

For information about the errors that are common to all actions, see Common Error Types.

## Examples

### DescribeStackDriftDetectionStatus

This example illustrates one usage of DescribeStackDriftDetectionStatus.

#### Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/
 ?Action=DescribeStackDriftDetectionStatus
 &Version=2010-05-15
 &StackDriftDetectionId=b78ac9b0-dec1-11e7-a451-503a3example
```

```
&X-Amz-Algorithm=AWS4-HMAC-SHA256
&X-Amz-Credential=[Access key ID and scope]
&X-Amz-Date=20171211T230005Z
&X-Amz-SignedHeaders=content-type;host
&X-Amz-Signature=[Signature]
```

### Sample Response

```
<DescribeStackDriftDetectionStatusResponse xmlns="http://cloudformation.amazonaws.com/
doc/2010-05-15/">
  <DescribeStackDriftDetectionStatusResult>
    <DetectionStatus>DETECTION_COMPLETE</DetectionStatus>
    <StackDriftDetectionId>b78ac9b0-dec1-11e7-a451-503a3example</StackDriftDetectionId>
    <DriftedStackResourceCount>0</DriftedStackResourceCount>
    <StackId>arn:aws:cloudformation:us-east-1:012345678910:stack/example/
cb438120-6cc7-11e7-998e-50example</StackId>
    <StackDriftStatus>IN_SYNC</StackDriftStatus>
    <Timestamp>2017-12-11T22:22:04.747Z</Timestamp>
  </DescribeStackDriftDetectionStatusResult>
  <ResponseMetadata>
    <RequestId>f89bbda1-dec1-11e7-83c6-d92bexample</RequestId>
  </ResponseMetadata>
</DescribeStackDriftDetectionStatusResponse>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)

- AWS SDK for Ruby V3

# DescribeStackEvents

Returns all stack related events for a specified stack in reverse chronological order. For more information about a stack's event history, see Understand CloudFormation stack creation events 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.

**NextToken**

The token for the next set of items to return. (You received this token from a previous call.)

Type: String

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

Required: No

**StackName**

The name or the unique stack ID that's associated with the stack, which aren't 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.

Type: String

Required: Yes

## 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 objects

## Errors

For information about the errors that are common to all actions, see Common Error Types.

## Examples

### DescribeStackEvents

This example illustrates one usage of 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>
        <PhysicalResourceIdI>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-1abc23d4</PhysicalResourceId>
        <ResourceProperties>{"ImageId":ami-8fcee4e5",...}</ResourceProperties>
        <ResourceType>AWS::EC2::Instance</ResourceType>
      </member>
      <member>
        <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-1abc23d4</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</PhysicalResourceId>
        <ResourceType>AWS::CloudFormation::Stack</ResourceType>
      </member>
    </StackEvents>
  </DescribeStackEventsResult>
  <ResponseMetadata>
    <RequestId>b9b4b068-3a41-11e5-94eb-example</RequestId>
  </ResponseMetadata>
</DescribeStackEventsResponse>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3

- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# DescribeStackInstance

Returns the stack instance that's associated with the specified StackSet, AWS account, and AWS Region.

For a list of stack instances that are associated with a specific StackSet, use ListStackInstances.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**CallAs**

[Service-managed permissions] Specifies whether you are acting as an account administrator in the organization's management account or as a delegated administrator in a member account.

By default, `SELF` is specified. Use `SELF` for StackSets with self-managed permissions.

- If you are signed in to the management account, specify `SELF`.
- If you are signed in to a delegated administrator account, specify `DELEGATED_ADMIN`.

  Your AWS account must be registered as a delegated administrator in the management account. For more information, see Register a delegated administrator in the *AWS CloudFormation User Guide*.

Type: String

Valid Values: `SELF | DELEGATED_ADMIN`

Required: No

**StackInstanceAccount**

The ID of an AWS account that's associated with this stack instance.

Type: String

Pattern: `^[0-9]{12}$`

Required: Yes

**StackInstanceRegion**

The name of a Region that's associated with this stack instance.

Type: String

Pattern: `^[a-zA-Z0-9-]{1,128}$`

Required: Yes

**StackSetName**

The name or the unique stack ID of the StackSet that you want to get stack instance information for.

Type: String

Required: Yes

## Response Elements

The following element is returned by the service.

**StackInstance**

The stack instance that matches the specified request parameters.

Type: StackInstance object

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**StackInstanceNotFound**

The specified stack instance doesn't exist.

HTTP Status Code: 404

**StackSetNotFound**

The specified StackSet doesn't exist.

HTTP Status Code: 404

# Examples

## DescribeStackInstance

This example illustrates one usage of DescribeStackInstance.

### Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/
 ?Action=DescribeStackInstance
 &StackInstanceRegion=ap-northeast-2
 &Version=2010-05-15
 &StackSetName=stack-set-example
 &StackInstanceAccount=012345678910
 &X-Amz-Algorithm=AWS4-HMAC-SHA256
 &X-Amz-Credential=[Access key ID and scope]
 &X-Amz-Date=20170810T233349Z
 &X-Amz-SignedHeaders=content-type;host
 &X-Amz-Signature=[Signature]
```

### Sample Response

```
<DescribeStackInstanceResponse xmlns="http://internal.amazon.com/coral/
com.amazonaws.maestro.service.v20160713/">
  <DescribeStackInstanceResult>
    <StackInstance>
      <DriftStatus>IN_SYNC</DriftStatus>
      <StackSetId>stack-set-example:45331555-4b18-45a1-aa43-ecf5example</StackSetId>
      <StackId>arn:aws:cloudformation:ap-northeast-2:012345678910:stack/StackSet-stack-
set-example-0ca3eed7-0b67-4be7-8a71-828641fa5193/ea68eca0-f9c1-11e9-aac0-0aaexample</
StackId>
      <ParameterOverrides/>
      <Region>ap-northeast-2</Region>
      <Account>012345678910</Account>
      <LastDriftCheckTimestamp>2019-12-03T20:01:04.511Z</LastDriftCheckTimestamp>
      <Status>CURRENT</Status>
    </StackInstance>
  </DescribeStackInstanceResult>
  <ResponseMetadata>
    <RequestId>afc959f5-a87c-4e16-95a9-ca25example</RequestId>
  </ResponseMetadata>
</DescribeStackInstanceResponse>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# DescribeStackRefactor

Describes the stack refactor status.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**StackRefactorId**

The ID associated with the stack refactor created from the CreateStackRefactor action.

Type: String

Required: Yes

## Response Elements

The following elements are returned by the service.

**Description**

A description to help you identify the refactor.

Type: String

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

**ExecutionStatus**

The stack refactor execution operation status that's provided after calling the ExecuteStackRefactor action.

Type: String

Valid Values: `UNAVAILABLE | AVAILABLE | OBSOLETE | EXECUTE_IN_PROGRESS | EXECUTE_COMPLETE | EXECUTE_FAILED | ROLLBACK_IN_PROGRESS | ROLLBACK_COMPLETE | ROLLBACK_FAILED`

**ExecutionStatusReason**

A detailed explanation for the stack refactor `ExecutionStatus`.

Type: String

**StackIds.member.N**

The unique ID for each stack.

Type: Array of strings

**StackRefactorId**

The ID associated with the stack refactor created from the CreateStackRefactor action.

Type: String

**Status**

The stack refactor operation status that's provided after calling the CreateStackRefactor action.

Type: String

Valid Values: `CREATE_IN_PROGRESS | CREATE_COMPLETE | CREATE_FAILED | DELETE_IN_PROGRESS | DELETE_COMPLETE | DELETE_FAILED`

**StatusReason**

A detailed explanation for the stack refactor operation `Status`.

Type: String

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**StackRefactorNotFound**

The specified stack refactor can't be found.

HTTP Status Code: 404

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# 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.

**LogicalResourceId**

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

Type: String

Required: Yes

**StackName**

The name or the unique stack ID that's associated with the stack, which aren't 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.

Type: String

Required: Yes

## Response Elements

The following element is returned by the service.

**StackResourceDetail**

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

Type: StackResourceDetail object

# Errors

For information about the errors that are common to all actions, see Common Error Types.

# Examples

## DescribeStackResource

This example illustrates one usage of 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
 &AWSAccessKeyId=[AWS Access KeyID]
 &Signature=[Signature]
```

### Sample Response

```
<DescribeStackResourceResponse xmlns="http://cloudformation.amazonaws.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>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# DescribeStackResourceDrifts

Returns drift information for the resources that have been checked for drift in the specified stack. This includes actual and expected configuration values for resources where CloudFormation detects configuration drift.

For a given stack, there will be one `StackResourceDrift` for each stack resource that has been checked for drift. Resources that haven't yet been checked for drift aren't included. Resources that don't currently support drift detection aren't checked, and so not included. For a list of resources that support drift detection, see Resource type support for imports and drift detection.

Use DetectStackResourceDrift to detect drift on individual resources, or DetectStackDrift to detect drift on all supported resources for a given stack.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**MaxResults**

The maximum number of results to be returned with a single call. If the number of available results exceeds this maximum, the response includes a `NextToken` value that you can assign to the `NextToken` request parameter to get the next set of results.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 100.

Required: No

**NextToken**

The token for the next set of items to return. (You received this token from a previous call.)

Type: String

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

Required: No

**StackName**

The name of the stack for which you want drift information.

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

**StackResourceDriftStatusFilters.member.N**

The resource drift status values to use as filters for the resource drift results returned.

- `DELETED`: The resource differs from its expected template configuration in that the resource has been deleted.
- `MODIFIED`: One or more resource properties differ from their expected template values.
- `IN_SYNC`: The resource's actual configuration matches its expected template configuration.
- `NOT_CHECKED`: CloudFormation doesn't currently return this value.
- `UNKNOWN`: CloudFormation could not run drift detection for the resource.

Type: Array of strings

Array Members: Minimum number of 1 item. Maximum number of 4 items.

Valid Values: `IN_SYNC | MODIFIED | DELETED | NOT_CHECKED | UNKNOWN | UNSUPPORTED`

Required: No

## Response Elements

The following elements are returned by the service.

**NextToken**

If the request doesn't return all the remaining results, `NextToken` is set to a token. To retrieve the next set of results, call `DescribeStackResourceDrifts` again and assign that token to the request object's `NextToken` parameter. If the request returns all results, `NextToken` is set to `null`.

Type: String

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

**StackResourceDrifts.member.N**

Drift information for the resources that have been checked for drift in the specified stack. This includes actual and expected configuration values for resources where CloudFormation detects drift.

For a given stack, there will be one `StackResourceDrift` for each stack resource that has been checked for drift. Resources that haven't yet been checked for drift aren't included. Resources that do not currently support drift detection aren't checked, and so not included. For a list of resources that support drift detection, see Resource type support for imports and drift detection.

Type: Array of StackResourceDrift objects

## Errors

For information about the errors that are common to all actions, see Common Error Types.

## Examples

### DescribeStackResourceDrifts

This example illustrates one usage of DescribeStackResourceDrifts.

#### Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/
 ?Action=DescribeStackResourceDrifts
 &Version=2010-05-15
 &StackName=my-stack-with-resource-drift
 &StackResourceDriftStatusFilters.member.1=MODIFIED
 &X-Amz-Algorithm=AWS4-HMAC-SHA256
 &X-Amz-Credential=[Access key ID and scope]
 &X-Amz-Date=20171228T233658Z
 &X-Amz-SignedHeaders=content-type;host
 &X-Amz-Signature=[Signature]
```

## Sample Response

```
<DescribeStackResourceDriftsResponse xmlns="http://cloudformation.amazonaws.com/
doc/2010-05-15/">
  <DescribeStackResourceDriftsResult>
    <StackResourceDrifts>
      <member>
        <PropertyDifferences>
          <member>
            <ActualValue>120</ActualValue>
            <ExpectedValue>20</ExpectedValue>
            <DifferenceType>NOT_EQUAL</DifferenceType>
            <PropertyPath>/DelaySeconds</PropertyPath>
          </member>
          <member>
            <ActualValue>12</ActualValue>
            <ExpectedValue>10</ExpectedValue>
            <DifferenceType>NOT_EQUAL</DifferenceType>
            <PropertyPath>/RedrivePolicy/maxReceiveCount</PropertyPath>
          </member>
        </PropertyDifferences>
        <PhysicalResourceId>https://sqs.us-east-1.amazonaws.com/012345678910/my-stack-
with-resource-drift-Queue-494PBHCO76H4</PhysicalResourceId>
        <ExpectedProperties>{
          "ReceiveMessageWaitTimeSeconds":0,
          "DelaySeconds":20,
          "RedrivePolicy":{
            "deadLetterTargetArn":"arn:aws:sqs:us-east-1:012345678910:my-stack-with-
resource-drift-DLQ-1BCY7HHD5QIM3",
            "maxReceiveCount":10
            },
          "MessageRetentionPeriod":345600,
          "MaximumMessageSize":262144,
          "VisibilityTimeout":60,
          "QueueName":"my-stack-with-resource-drift-Queue-494PBHCO76H4"
        }
        </ExpectedProperties>
        <StackResourceDriftStatus>MODIFIED</StackResourceDriftStatus>
        <StackId>arn:aws:cloudformation:us-east-1:012345678910:stack/my-stack-with-
resource-drift/489e5570-df85-11e7-a7d9-503acac5c0fd</StackId>
        <LogicalResourceId>Queue</LogicalResourceId>
        <ActualProperties>{
          "ReceiveMessageWaitTimeSeconds":0,
```

```
          "DelaySeconds":120,
          "RedrivePolicy":{
            "deadLetterTargetArn":"arn:aws:sqs:us-east-1:012345678910:my-stack-with-
resource-drift-DLQ-1BCY7HHD5QIM3",
            "maxReceiveCount":12
            },
          "MessageRetentionPeriod":345600,
          "MaximumMessageSize":262144,
          "VisibilityTimeout":60,
          "QueueName":"my-stack-with-resource-drift-Queue-494PBHCO76H4"
          }
        </ActualProperties>
        <Timestamp>2017-12-28T23:18:45.997Z</Timestamp>
        <ResourceType>AWS::SQS::Queue</ResourceType>
      </member>
    </StackResourceDrifts>
  </DescribeStackResourceDriftsResult>
  <ResponseMetadata>
    <RequestId>fee6d615-ec27-11e7-948a-0bec95751ba6</RequestId>
  </ResponseMetadata>
</DescribeStackResourceDriftsResponse>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# 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`, see 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.

**LogicalResourceId**

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

Type: String

Required: No

**PhysicalResourceId**

The name or unique identifier that corresponds to a physical instance ID of a resource supported by 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 don't specify `PhysicalResourceId`, you must specify `StackName`.

Type: String

Required: No

**StackName**

The name or the unique stack ID that is associated with the stack, which aren't 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.

Required: Conditional. If you don't 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 objects

## Errors

For information about the errors that are common to all actions, see Common Error Types.

# Examples

## DescribeStackResources

This example illustrates one usage of 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.amazonaws.com/
doc/2010-05-15/">
  <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>
  <ResponseMetadata>
    <RequestId>b9b4b068-3a41-11e5-94eb-example</RequestId>
  </ResponseMetadata>
</DescribeStackResourcesResponse>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# DescribeStacks

Returns the description for the specified stack; if no stack name was specified, then it returns the description for all the stacks created. For more information about a stack's event history, see Understand CloudFormation stack creation events in the *AWS CloudFormation User Guide*.

> **Note**
>
> If the stack doesn't exist, a `ValidationError` is returned.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**NextToken**

The token for the next set of items to return. (You received this token from a previous call.)

Type: String

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

Required: No

**StackName**

> **Note**
>
> If you don't pass a parameter to `StackName`, the API returns a response that describes all resources in the account, which can impact performance. This requires `ListStacks` and `DescribeStacks` permissions.
> Consider using the ListStacks API if you're not passing a parameter to `StackName`.
> The IAM policy below can be added to IAM policies when you want to limit resource-level permissions and avoid returning a response when no parameter is sent in the request:
> { "Version": "2012-10-17", "Statement": [{ "Effect": "Deny", "Action": "cloudformation:DescribeStacks", "NotResource": "arn:aws:cloudformation:*:*:stack/*/*" }] }

The name or the unique stack ID that's associated with the stack, which aren't 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.

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 objects

## Errors

For information about the errors that are common to all actions, see Common Error Types.

## Examples

### DescribeStacks

This example illustrates one usage of 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>
```

## See Also

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

- AWS Command Line Interface V2

- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# DescribeStackSet

Returns the description of the specified StackSet.

> **Note**
>
> This API provides *strongly consistent* reads meaning it will always return the most up-to-date data.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**CallAs**

[Service-managed permissions] Specifies whether you are acting as an account administrator in the organization's management account or as a delegated administrator in a member account.

By default, `SELF` is specified. Use `SELF` for StackSets with self-managed permissions.

- If you are signed in to the management account, specify `SELF`.
- If you are signed in to a delegated administrator account, specify `DELEGATED_ADMIN`.

  Your AWS account must be registered as a delegated administrator in the management account. For more information, see Register a delegated administrator in the *AWS CloudFormation User Guide*.

Type: String

Valid Values: `SELF | DELEGATED_ADMIN`

Required: No

**StackSetName**

The name or unique ID of the StackSet whose description you want.

Type: String

Required: Yes

## Response Elements

The following element is returned by the service.

**StackSet**

The specified StackSet.

Type: StackSet object

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**StackSetNotFound**

The specified StackSet doesn't exist.

HTTP Status Code: 404

## Examples

### DescribeStackSet

This example illustrates one usage of DescribeStackSet.

**Sample Request**

```
https://cloudformation.us-east-1.amazonaws.com/
 ?Action=DescribeStackSet
 &Version=2010-05-15
 &StackSetName=stack-set-example
 &X-Amz-Algorithm=AWS4-HMAC-SHA256
 &X-Amz-Credential=[Access key ID and scope]
 &X-Amz-Date=20170810T233349Z
 &X-Amz-SignedHeaders=content-type;host
 &X-Amz-Signature=[Signature]
```

**Sample Response**

```
<DescribeStackSetResponse xmlns="http://internal.amazon.com/coral/
com.amazonaws.maestro.service.v20160713/">
  <DescribeStackSetResult>
    <StackSet>
      <Capabilities>
        <member>CAPABILITY_IAM</member>
      </Capabilities>
      <StackSetId>stack-set-example:c14cd6d1-cd17-40bd-82ed-ff97example</StackSetId>
      <TemplateBody>
        [details omitted]
      </TemplateBody>
      <StackSetName>stack-set-example</StackSetName>
      <Description>Enable AWS Config</Description>
      <Parameters>
        <member>
          <ParameterKey>AllSupported</ParameterKey>
          <UsePreviousValue>false</UsePreviousValue>
          <ParameterValue>true</ParameterValue>
        </member>
        <member>
          <ParameterKey>DeliveryChannelName</ParameterKey>
          <UsePreviousValue>false</UsePreviousValue>
          <ParameterValue><Generated></ParameterValue>
        </member>
        <member>
          <ParameterKey>Frequency</ParameterKey>
          <UsePreviousValue>false</UsePreviousValue>
          <ParameterValue>24hours</ParameterValue>
        </member>
        <member>
          <ParameterKey>IncludeGlobalResourceTypes</ParameterKey>
          <UsePreviousValue>false</UsePreviousValue>
          <ParameterValue>true</ParameterValue>
        </member>
        <member>
          <ParameterKey>NotificationEmail</ParameterKey>
          <UsePreviousValue>false</UsePreviousValue>
          <ParameterValue><None></ParameterValue>
        </member>
        <member>
          <ParameterKey>ResourceTypes</ParameterKey>
          <UsePreviousValue>false</UsePreviousValue>
          <ParameterValue><All></ParameterValue>
        </member>
```

```
        <member>
          <ParameterKey>TopicArn</ParameterKey>
          <UsePreviousValue>false</UsePreviousValue>
          <ParameterValue><New Topic></ParameterValue>
        </member>
      </Parameters>
      <Tags>
        <member>
          <Value>marketing</Value>
          <Key>business-unit</Key>
        </member>
      </Tags>
      <StackSetDriftDetectionDetails>
        <DriftDetectionStatus>COMPLETED</DriftDetectionStatus>
        <InSyncStackInstancesCount>5</InSyncStackInstancesCount>
        <FailedStackInstancesCount>0</FailedStackInstancesCount>
        <DriftStatus>IN_SYNC</DriftStatus>
        <TotalStackInstancesCount>5</TotalStackInstancesCount>
        <DriftedStackInstancesCount>0</DriftedStackInstancesCount>
        <InProgressStackInstancesCount>0</InProgressStackInstancesCount>
        <LastDriftCheckTimestamp>2019-12-03T20:00:27.877Z</LastDriftCheckTimestamp>
      </StackSetDriftDetectionDetails>
      <Status>ACTIVE</Status>
    </StackSet>
  </DescribeStackSetResult>
  <ResponseMetadata>
    <RequestId>48d13e76-794b-11e7-95e6-f946example</RequestId>
  </ResponseMetadata>
</DescribeStackSetResponse>
```

## How to view which Regions a StackSet has stack instances deployed to.

Use the `DescribeStackSets` API to output a list of Regions. This list consists of Regions where a given StackSet has stack instances deployed.

In the following example, the StackSet named "MyStackSet" has stack instances deployed in Regions "us-east-1" and "us-west-2":

```
{
    "StackSet": {
        "StackSetName": "MyStackSet",
        //...
        "Regions": [
```

```
            "us-east-1",
            "us-west-2"
        ]
    }
}
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# DescribeStackSetOperation

Returns the description of the specified StackSet operation.

> **Note**
>
> This API provides *strongly consistent* reads meaning it will always return the most up-to-date data.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**CallAs**

[Service-managed permissions] Specifies whether you are acting as an account administrator in the organization's management account or as a delegated administrator in a member account.

By default, `SELF` is specified. Use `SELF` for StackSets with self-managed permissions.

- If you are signed in to the management account, specify `SELF`.
- If you are signed in to a delegated administrator account, specify `DELEGATED_ADMIN`.

  Your AWS account must be registered as a delegated administrator in the management account. For more information, see Register a delegated administrator in the *AWS CloudFormation User Guide*.

Type: String

Valid Values: `SELF | DELEGATED_ADMIN`

Required: No

**OperationId**

The unique ID of the StackSet operation.

Type: String

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

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

Required: Yes

**StackSetName**

The name or the unique stack ID of the StackSet for the stack operation.

Type: String

Required: Yes

## Response Elements

The following element is returned by the service.

**StackSetOperation**

The specified StackSet operation.

Type: StackSetOperation object

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**OperationNotFound**

The specified ID refers to an operation that doesn't exist.

HTTP Status Code: 404

**StackSetNotFound**

The specified StackSet doesn't exist.

HTTP Status Code: 404

## Examples

### Describing an Update StackSet Operation

The following example returns information about a successful update of a StackSet and its associated stack instances.

### Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/
 ?Action=DescribeStackSetOperation
 &Version=2010-05-15
 &StackSetName=stack-set-example
 &OperationId=61806005-bde9-46f1-949d-6791example
 &X-Amz-Algorithm=AWS4-HMAC-SHA256
 &X-Amz-Credential=[Access key ID and scope]
 &X-Amz-Date=20170810T233349Z
 &X-Amz-SignedHeaders=content-type;host
 &X-Amz-Signature=[Signature]
```

### Sample Response

```
<DescribeStackSetOperationResponse xmlns="http://internal.amazon.com/coral/
com.amazonaws.maestro.service.v20160713/">
  <DescribeStackSetOperationResult>
    <StackSetOperation>
      <StackSetId>stack-set-example:c14cd6d1-cd17-40bd-82ed-ff97example</StackSetId>
      <CreationTimestamp>2017-08-04T18:01:29.508Z</CreationTimestamp>
      <OperationId>ddf16f54-ad62-4d9b-b0ab-3ed8e9example</OperationId>
      <Action>UPDATE</Action>
      <OperationPreferences>
        <FailureToleranceCount>0</FailureToleranceCount>
        <MaxConcurrentCount>1</MaxConcurrentCount>
        <RegionOrder/>
      </OperationPreferences>
      <EndTimestamp>2017-08-04T18:03:43.672Z</EndTimestamp>
      <Status>SUCCEEDED</Status>
    </StackSetOperation>
  </DescribeStackSetOperationResult>
  <ResponseMetadata>
    <RequestId>20133b62-7e1a-11e7-838a-a182example</RequestId>
  </ResponseMetadata>
</DescribeStackSetOperationResponse>
```

## Describing a Drift Detection StackSet Operation

The following example returns information about a drift detection operation run on a StackSet.

## Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/
 ?Action=DescribeStackSetOperation
 &Version=2010-05-15
 &StackSetName=stack-set-drift-example
 &OperationId=9cc082fa-df4c-45cd-b9a8-7e5example
 &X-Amz-Algorithm=AWS4-HMAC-SHA256
 &X-Amz-Credential=[Access key ID and scope]
 &X-Amz-Date=20191203T201942Z
 &X-Amz-SignedHeaders=content-type;host
 &X-Amz-Signature=[Signature]
```

## Sample Response

```
<DescribeStackSetOperationResponse xmlns="http://internal.amazon.com/coral/
com.amazonaws.maestro.service.v20160713/">
  <DescribeStackSetOperationResult>
    <StackSetOperation>
      <ExecutionRoleName>AWSCloudFormationStackSetExecutionRole</ExecutionRoleName>
      <AdministrationRoleARN>arn:aws:iam::012345678910:role/
AWSCloudFormationStackSetAdministrationRole</AdministrationRoleARN>
      <StackSetId>stack-set-drift-example:bd1f4017-d4f9-432e-a73f-8c22eb708dd5</
StackSetId>
      <OperationPreferences>
        <RegionOrder/>
      </OperationPreferences>
      <StackSetDriftDetectionDetails>
        <InSyncStackInstancesCount>2</InSyncStackInstancesCount>
        <FailedStackInstancesCount>0</FailedStackInstancesCount>
        <DriftStatus>DRIFTED</DriftStatus>
        <TotalStackInstancesCount>7</TotalStackInstancesCount>
        <DriftedStackInstancesCount>1</DriftedStackInstancesCount>
        <InProgressStackInstancesCount>4</InProgressStackInstancesCount>
        <LastDriftCheckTimestamp>2019-12-04T20:34:28.543Z</LastDriftCheckTimestamp>
      </StackSetDriftDetectionDetails>
      <CreationTimestamp>2019-12-04T20:33:13.673Z</CreationTimestamp>
      <OperationId>9cc082fa-df4c-45cd-b9a8-7e5example</OperationId>
      <Action>DETECT_DRIFT</Action>
      <Status>RUNNING</Status>
    </StackSetOperation>
  </DescribeStackSetOperationResult>
```

```
  <ResponseMetadata>
    <RequestId>e81844dc-6121-4b59-923a-e2417example</RequestId>
  </ResponseMetadata>
</DescribeStackSetOperationResponse>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# DescribeType

Returns detailed information about an extension from the CloudFormation registry in your current account and Region.

If you specify a `VersionId`, `DescribeType` returns information about that specific extension version. Otherwise, it returns information about the default extension version.

For more information, see Edit configuration data for extensions in your account in the *AWS CloudFormation User Guide*.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**Arn**

The Amazon Resource Name (ARN) of the extension.

Conditional: You must specify either `TypeName` and `Type`, or `Arn`.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `arn:aws[A-Za-z0-9-]{0,64}:cloudformation:[A-Za-z0-9-]{1,64}:([0-9]{12})?:type/.+`

Required: No

**PublicVersionNumber**

The version number of a public third-party extension.

Type: String

Length Constraints: Minimum length of 5.

Pattern: `^(0|[1-9]\d*)\.(0|[1-9]\d*)\.(.*)$`

Required: No

**PublisherId**

The publisher ID of the extension publisher.

Extensions provided by AWS are not assigned a publisher ID.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 40.

Pattern: `[0-9a-zA-Z]{12,40}`

Required: No

**Type**

The kind of extension.

Conditional: You must specify either `TypeName` and `Type`, or `Arn`.

Type: String

Valid Values: `RESOURCE | MODULE | HOOK`

Required: No

**TypeName**

The name of the extension.

Conditional: You must specify either `TypeName` and `Type`, or `Arn`.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 204.

Pattern: `[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}(::MODULE){0,1}`

Required: No

**VersionId**

The ID of a specific version of the extension. The version ID is the value at the end of the Amazon Resource Name (ARN) assigned to the extension version when it is registered.

If you specify a `VersionId`, `DescribeType` returns information about that specific extension version. Otherwise, it returns information about the default extension version.

Type: String

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

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

Required: No

## Response Elements

The following elements are returned by the service.

**Arn**

The Amazon Resource Name (ARN) of the extension.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `arn:aws[A-Za-z0-9-]{0,64}:cloudformation:[A-Za-z0-9-]{1,64}:([0-9]{12})?:type/.+`

**AutoUpdate**

Whether CloudFormation automatically updates the extension in this account and Region when a new *minor* version is published by the extension publisher. Major versions released by the publisher must be manually updated. For more information, see Automatically use new versions of extensions in the *AWS CloudFormation User Guide*.

Type: Boolean

**ConfigurationSchema**

A JSON string that represent the current configuration data for the extension in this account and Region.

To set the configuration data for an extension, use SetTypeConfiguration.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 60000.

Pattern: `[\s\S]+`

**DefaultVersionId**

The ID of the default version of the extension. The default version is used when the extension version isn't specified.

This applies only to private extensions you have registered in your account. For public extensions, both those provided by AWS and published by third parties, CloudFormation returns `null`. For more information, see RegisterType.

To set the default version of an extension, use SetTypeDefaultVersion.

Type: String

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

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

**DeprecatedStatus**

The deprecation status of the extension version.

Valid values include:

- `LIVE`: The extension is activated or registered and can be used in CloudFormation operations, dependent on its provisioning behavior and visibility scope.
- `DEPRECATED`: The extension has been deactivated or deregistered and can no longer be used in CloudFormation operations.

For public third-party extensions, CloudFormation returns `null`.

Type: String

Valid Values: `LIVE | DEPRECATED`

**Description**

The description of the extension.

Type: String

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

**DocumentationUrl**

The URL of a page providing detailed documentation for this extension.

Type: String

Length Constraints: Maximum length of 4096.

**ExecutionRoleArn**

The Amazon Resource Name (ARN) of the IAM execution role used to register the extension. This applies only to private extensions you have registered in your account. For more information, see RegisterType.

If the registered extension calls any AWS APIs, you must create an *IAM execution role* that includes the necessary permissions to call those AWS APIs, and provision that execution role in your account. CloudFormation then assumes that execution role to provide your extension with the appropriate credentials.

Type: String

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

Pattern: `arn:.+:iam::[0-9]{12}:role/.+`

**IsActivated**

Whether the extension is activated in the account and Region.

This only applies to public third-party extensions. For all other extensions, CloudFormation returns `null`.

Type: Boolean

**IsDefaultVersion**

Whether the specified extension version is set as the default version.

This applies only to private extensions you have registered in your account, and extensions published by AWS. For public third-party extensions, whether they are activated in your account, CloudFormation returns `null`.

Type: Boolean

**LastUpdated**

When the specified extension version was registered. This applies only to:

- Private extensions you have registered in your account. For more information, see RegisterType.
- Public extensions you have activated in your account with auto-update specified. For more information, see ActivateType.

Type: Timestamp

**LatestPublicVersion**

The latest version of a public extension *that is available* for use.

This only applies if you specify a public extension, and you don't specify a version. For all other requests, CloudFormation returns `null`.

Type: String

Length Constraints: Minimum length of 5.

Pattern: `^(0|[1-9]\d*)\.(0|[1-9]\d*)\.(.*)$`

**LoggingConfig**

Contains logging configuration information for private extensions. This applies only to private extensions you have registered in your account. For public extensions, both those provided by AWS and published by third parties, CloudFormation returns `null`. For more information, see RegisterType.

Type: LoggingConfig object

**OriginalTypeArn**

For public extensions that have been activated for this account and Region, the Amazon Resource Name (ARN) of the public extension.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `arn:aws[A-Za-z0-9-]{0,64}:cloudformation:[A-Za-z0-9-]{1,64}:([0-9]{12})?:type/.+`

**OriginalTypeName**

For public extensions that have been activated for this account and Region, the type name of the public extension.

If you specified a `TypeNameAlias` when enabling the extension in this account and Region, CloudFormation treats that alias as the extension's type name within the account and Region, not the type name of the public extension. For more information, see Use aliases to refer to extensions in the *AWS CloudFormation User Guide*.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 204.

Pattern: `[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}(::MODULE){0,1}`

**ProvisioningType**

For resource type extensions, the provisioning behavior of the resource type. CloudFormation determines the provisioning type during registration, based on the types of handlers in the schema handler package submitted.

Valid values include:

- `FULLY_MUTABLE`: The resource type includes an update handler to process updates to the type during stack update operations.
- `IMMUTABLE`: The resource type doesn't include an update handler, so the type can't be updated and must instead be replaced during stack update operations.
- `NON_PROVISIONABLE`: The resource type doesn't include all the following handlers, and therefore can't actually be provisioned.
  - create
  - read
  - delete

Type: String

Valid Values: `NON_PROVISIONABLE | IMMUTABLE | FULLY_MUTABLE`

**PublicVersionNumber**

The version number of a public third-party extension.

This applies only if you specify a public extension you have activated in your account, or specify a public extension without specifying a version. For all other extensions, CloudFormation returns `null`.

Type: String

Length Constraints: Minimum length of 5.

Pattern: `^(0|[1-9]\d*)\.(0|[1-9]\d*)\.(.*)$`

**PublisherId**

The publisher ID of the extension publisher.

This applies only to public third-party extensions. For private registered extensions, and extensions provided by AWS, CloudFormation returns `null`.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 40.

Pattern: `[0-9a-zA-Z]{12,40}`

**RequiredActivatedTypes.member.N**

For extensions that are modules, the public third-party extensions that must be activated in your account in order for the module itself to be activated.

Type: Array of RequiredActivatedType objects

**Schema**

The schema that defines the extension.

For more information, see Resource type schema in the *AWS CloudFormation Command Line Interface (CLI) User Guide* and the CloudFormation Hooks User Guide.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 16777216.

**SourceUrl**

The URL of the source code for the extension.

Type: String

Length Constraints: Maximum length of 4096.

**TimeCreated**

When the specified private extension version was registered or activated in your account.

Type: Timestamp

**Type**

The kind of extension.

Type: String

Valid Values: `RESOURCE | MODULE | HOOK`

**TypeName**

The name of the extension.

If the extension is a public third-party type you have activated with a type name alias, CloudFormation returns the type name alias. For more information, see ActivateType.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 204.

Pattern: `[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}(::MODULE){0,1}`

**TypeTestsStatus**

The contract test status of the registered extension version. To return the extension test status of a specific extension version, you must specify `VersionId`.

This applies only to registered private extension versions. CloudFormation doesn't return this information for public extensions, whether they are activated in your account.

- `PASSED`: The extension has passed all its contract tests.

  An extension must have a test status of `PASSED` before it can be published. For more information, see Publishing extensions to make them available for public use in the *AWS CloudFormation Command Line Interface (CLI) User Guide*.
- `FAILED`: The extension has failed one or more contract tests.
- `IN_PROGRESS`: Contract tests are currently being performed on the extension.

- NOT_TESTED: Contract tests haven't been performed on the extension.

Type: String

Valid Values: PASSED | FAILED | IN_PROGRESS | NOT_TESTED

**TypeTestsStatusDescription**

The description of the test status. To return the extension test status of a specific extension version, you must specify VersionId.

This applies only to registered private extension versions. CloudFormation doesn't return this information for public extensions, whether they are activated in your account.

Type: String

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

Pattern: [\s\S]+

**Visibility**

The scope at which the extension is visible and usable in CloudFormation operations.

Valid values include:

- PRIVATE: The extension is only visible and usable within the account in which it is registered. CloudFormation marks any extensions you register as PRIVATE.
- PUBLIC: The extension is publicly visible and usable within any AWS account.

Type: String

Valid Values: PUBLIC | PRIVATE

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**CFNRegistry**

An error occurred during a CloudFormation registry operation.

**Message**

A message with details about the error that occurred.

HTTP Status Code: 400

**TypeNotFound**

The specified extension doesn't exist in the CloudFormation registry.

HTTP Status Code: 404

# Examples

## DescribeType

This example illustrates one usage of DescribeType.

### Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/
 ?Action=DescribeType
 &Version=2010-05-15
 &TypeName=My::Resource::Example
 &VersionId=00000002
 &Type=RESOURCE
 &X-Amz-Algorithm=AWS4-HMAC-SHA256
 &X-Amz-Credential=[Access key ID and scope]
 &X-Amz-Date=20191203T234428Z
 &X-Amz-SignedHeaders=content-type;host
 &X-Amz-Signature=[Signature]
```

### Sample Response

```
<DescribeTypeResponse xmlns="http://cloudformation.amazonaws.com/doc/2010-05-15/">
  <DescribeTypeResult>
    <Schema>{
    [details omitted]
}
</Schema>
    <Visibility>PRIVATE</Visibility>
    <DeprecatedStatus>LIVE</DeprecatedStatus>
    <TypeName>My::Resource::Example</TypeName>
    <Description>Resource schema for My::Resource::Example</Description>
    <Type>RESOURCE</Type>
```

```
    <SourceUrl>https://github.com/aws-cloudformation/aws-cloudformation-resource-
providers-logs.git</SourceUrl>
    <LastUpdated>2019-12-03T23:29:33.321Z</LastUpdated>
    <ProvisioningType>FULLY_MUTABLE</ProvisioningType>
    <TimeCreated>2019-12-03T23:29:33.321Z</TimeCreated>
    <Arn>arn:aws:cloudformation:us-east-1:012345678910:type/resource/My-Resource-
Example/00000002</Arn>
  </DescribeTypeResult>
  <ResponseMetadata>
    <RequestId>8d2dd588-b16f-4096-8516-ee941example</RequestId>
  </ResponseMetadata>
</DescribeTypeResponse>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# DescribeTypeRegistration

Returns information about an extension's registration, including its current status and type and version identifiers.

When you initiate a registration request using RegisterType, you can then use DescribeTypeRegistration to monitor the progress of that registration request.

Once the registration request has completed, use DescribeType to return detailed information about an extension.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**RegistrationToken**

The identifier for this registration request.

This registration token is generated by CloudFormation when you initiate a registration request using RegisterType.

Type: String

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

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

Required: Yes

## Response Elements

The following elements are returned by the service.

**Description**

The description of the extension registration request.

Type: String

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

**ProgressStatus**

The current status of the extension registration request.

Type: String

Valid Values: `COMPLETE | IN_PROGRESS | FAILED`

**TypeArn**

The Amazon Resource Name (ARN) of the extension being registered.

For registration requests with a `ProgressStatus` of other than `COMPLETE`, this will be `null`.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `arn:aws[A-Za-z0-9-]{0,64}:cloudformation:[A-Za-z0-9-]{1,64}:([0-9]{12})?:type/.+`

**TypeVersionArn**

The Amazon Resource Name (ARN) of this specific version of the extension being registered.

For registration requests with a `ProgressStatus` of other than `COMPLETE`, this will be `null`.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `arn:aws[A-Za-z0-9-]{0,64}:cloudformation:[A-Za-z0-9-]{1,64}:([0-9]{12})?:type/.+`

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**CFNRegistry**

An error occurred during a CloudFormation registry operation.

**Message**

A message with details about the error that occurred.

HTTP Status Code: 400

# Examples

## DescribeTypeRegistration while registration is in progress

The following example shows a typical response to `DescribeTypeRegistration` while CloudFormation is in the process of registering the extension.

### Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/
 ?Action=DescribeTypeRegistration
 &Version=2010-05-15
 &RegistrationToken=03458954-61b1-44e9-90d8-f1b81example
 &X-Amz-Algorithm=AWS4-HMAC-SHA256
 &X-Amz-Credential=[Access key ID and scope]
 &X-Amz-Date=20191203T232905Z
 &X-Amz-SignedHeaders=content-type;host
 &X-Amz-Signature=[Signature]
```

### Sample Response

```
<DescribeTypeRegistrationResponse xmlns="http://cloudformation.amazonaws.com/
doc/2010-05-15/">
  <DescribeTypeRegistrationResult>
    <Description>Deployment is currently in VALIDATION_STAGE of status IN_PROGRESS;
 Next is DEPLOY_STAGE with status PENDING</Description>
    <ProgressStatus>IN_PROGRESS</ProgressStatus>
  </DescribeTypeRegistrationResult>
  <ResponseMetadata>
    <RequestId>5feae575-40a4-474c-b81c-ca861example</RequestId>
  </ResponseMetadata>
</DescribeTypeRegistrationResponse>
```

## DescribeTypeRegistration once registration complete

The following example shows the response to `DescribeTypeRegistration` once CloudFormation has successfully completed registering the extension.

### Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/
 ?Action=DescribeTypeRegistration
 &Version=2010-05-15
 &RegistrationToken=03458954-61b1-44e9-90d8-f1b81example
 &X-Amz-Algorithm=AWS4-HMAC-SHA256
 &X-Amz-Credential=[Access key ID and scope]
 &X-Amz-Date=20191203T233327Z
 &X-Amz-SignedHeaders=content-type;host
 &X-Amz-Signature=[Signature]
```

### Sample Response

```
<DescribeTypeRegistrationResponse xmlns="http://cloudformation.amazonaws.com/
doc/2010-05-15/">
  <DescribeTypeRegistrationResult>
    <Description>Deployment is currently in DEPLOY_STAGE of status COMPLETED; </
Description>
    <ProgressStatus>COMPLETE</ProgressStatus>
    <TypeArn>arn:aws:cloudformation:us-east-1:012345678910:type/resource/My-Resource-
Example</TypeArn>
    <TypeVersionArn>arn:aws:cloudformation:us-east-1:012345678910:type/resource/My-
Resource-Example/00000001</TypeVersionArn>
  </DescribeTypeRegistrationResult>
  <ResponseMetadata>
    <RequestId>2d187120-6f6e-4d43-80f5-99b588example</RequestId>
  </ResponseMetadata>
</DescribeTypeRegistrationResponse>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2

- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# DetectStackDrift

Detects whether a stack's actual configuration differs, or has *drifted*, from its expected configuration, as defined in the stack template and any values specified as template parameters. For each resource in the stack that supports drift detection, CloudFormation compares the actual configuration of the resource with its expected template configuration. Only resource properties explicitly defined in the stack template are checked for drift. A stack is considered to have drifted if one or more of its resources differ from their expected template configurations. For more information, see Detect unmanaged configuration changes to stacks and resources with drift detection.

Use `DetectStackDrift` to detect drift on all supported resources for a given stack, or DetectStackResourceDrift to detect drift on individual resources.

For a list of stack resources that currently support drift detection, see Resource type support for imports and drift detection.

`DetectStackDrift` can take up to several minutes, depending on the number of resources contained within the stack. Use DescribeStackDriftDetectionStatus to monitor the progress of a detect stack drift operation. Once the drift detection operation has completed, use DescribeStackResourceDrifts to return drift information about the stack and its resources.

When detecting drift on a stack, CloudFormation doesn't detect drift on any nested stacks belonging to that stack. Perform `DetectStackDrift` directly on the nested stack itself.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**LogicalResourceIds.member.N**

The logical names of any resources you want to use as filters.

Type: Array of strings

Array Members: Minimum number of 1 item. Maximum number of 200 items.

Required: No

**StackName**

The name of the stack for which you want to detect drift.

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 element is returned by the service.

**StackDriftDetectionId**

The ID of the drift detection results of this operation.

CloudFormation generates new results, with a new drift detection ID, each time this operation is run. However, the number of drift results CloudFormation retains for any given stack, and for how long, may vary.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 36.

## Errors

For information about the errors that are common to all actions, see Common Error Types.

## Examples

### DetectStackDrift

This example illustrates one usage of DetectStackDrift.

**Sample Request**

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

```
&Version=2010-05-15
&StackName=my-stack-with-resource-drift
&X-Amz-Algorithm=AWS4-HMAC-SHA256
&X-Amz-Credential=[Access key ID and scope]
&X-Amz-Date=20171211T230005Z
&X-Amz-SignedHeaders=content-type;host
&X-Amz-Signature=[Signature]
```

### Sample Response

```
<DetectStackDriftResponse xmlns="http://cloudformation.amazonaws.com/doc/2010-05-15/">
  <DetectStackDriftResult>
    <StackDriftDetectionId>2f2b2d60-df86-11e7-bea1-500c2example</StackDriftDetectionId>
  </DetectStackDriftResult>
  <ResponseMetadata>
    <RequestId>2f07c75d-df86-11e7-8270-89489example</RequestId>
  </ResponseMetadata>
</DetectStackDriftResponse>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# DetectStackResourceDrift

Returns information about whether a resource's actual configuration differs, or has *drifted*, from its expected configuration, as defined in the stack template and any values specified as template parameters. This information includes actual and expected property values for resources in which CloudFormation detects drift. Only resource properties explicitly defined in the stack template are checked for drift. For more information about stack and resource drift, see Detect unmanaged configuration changes to stacks and resources with drift detection.

Use `DetectStackResourceDrift` to detect drift on individual resources, or DetectStackDrift to detect drift on all resources in a given stack that support drift detection.

Resources that don't currently support drift detection can't be checked. For a list of resources that support drift detection, see Resource type support for imports and drift detection.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**LogicalResourceId**

The logical name of the resource for which to return drift information.

Type: String

Required: Yes

**StackName**

The name of the stack to which the resource belongs.

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 element is returned by the service.

**StackResourceDrift**

Information about whether the resource's actual configuration has drifted from its expected template configuration, including actual and expected property values and any differences detected.

Type: StackResourceDrift object

## Errors

For information about the errors that are common to all actions, see Common Error Types.

## Examples

### DetectStackResourceDrift

This example illustrates one usage of DetectStackResourceDrift.

**Sample Request**

```
https://cloudformation.us-east-1.amazonaws.com/
 ?Action=DetectStackResourceDrift
 &Version=2010-05-15
 &LogicalResourceId=Queue
 &StackName=my-stack-with-resource-drift
 &X-Amz-Algorithm=AWS4-HMAC-SHA256
 &X-Amz-Credential=[Access key ID and scope]
 &X-Amz-Date=20171211T230005Z
 &X-Amz-SignedHeaders=content-type;host
 &X-Amz-Signature=[Signature]
```

**Sample Response**

```
<DetectStackResourceDriftResponse xmlns="http://cloudformation.amazonaws.com/
doc/2010-05-15/">
  <DetectStackResourceDriftResult>
    <StackResourceDrift>
      <PropertyDifferences>
        <member>
          <ActualValue>120</ActualValue>
```

```
          <ExpectedValue>20</ExpectedValue>
          <DifferenceType>NOT_EQUAL</DifferenceType>
          <PropertyPath>/DelaySeconds</PropertyPath>
        </member>
        <member>
          <ActualValue>12</ActualValue>
          <ExpectedValue>10</ExpectedValue>
          <DifferenceType>NOT_EQUAL</DifferenceType>
          <PropertyPath>/RedrivePolicy/maxReceiveCount</PropertyPath>
        </member>
      </PropertyDifferences>
      <PhysicalResourceId>https://sqs.us-east-1.amazonaws.com/012345678910/my-stack-
with-resource-drift-Queue-494PBHCO76H4</PhysicalResourceId>
      <ExpectedProperties>{
        "ReceiveMessageWaitTimeSeconds":0,
        "DelaySeconds":20,
        "RedrivePolicy":{
          "deadLetterTargetArn":"arn:aws:sqs:us-east-1:012345678910:my-stack-with-
resource-drift-DLQ-1BCY7HHD5QIM3",
          "maxReceiveCount":10
          },
        "MessageRetentionPeriod":345600,
        "MaximumMessageSize":262144,
        "VisibilityTimeout":60,
        "QueueName":"my-stack-with-resource-drift-Queue-494PBHCO76H4"
        }
      </ExpectedProperties>
      <StackResourceDriftStatus>MODIFIED</StackResourceDriftStatus>
      <StackId>arn:aws:cloudformation:us-east-1:012345678910:stack/my-stack-with-
resource-drift/489e5570-df85-11e7-a7d9-503acac5c0fd</StackId>
      <LogicalResourceId>Queue</LogicalResourceId>
      <ActualProperties>{
        "ReceiveMessageWaitTimeSeconds":0,
        "DelaySeconds":120,
        "RedrivePolicy":{
          "deadLetterTargetArn":"arn:aws:sqs:us-east-1:012345678910:my-stack-with-
resource-drift-DLQ-1BCY7HHD5QIM3",
          "maxReceiveCount":12
          },
        "MessageRetentionPeriod":345600,
        "MaximumMessageSize":262144,
        "VisibilityTimeout":60,
        "QueueName":"my-stack-with-resource-drift-Queue-494PBHCO76H4"
        }
```

```
      </ActualProperties>
      <Timestamp>2017-12-28T23:51:49.616Z</Timestamp>
      <ResourceType>AWS::SQS::Queue</ResourceType>
    </StackResourceDrift>
  </DetectStackResourceDriftResult>
  <ResponseMetadata>
    <RequestId>1229a48a-ec2a-11e7-a8e5-97a4c2fc6398</RequestId>
  </ResponseMetadata>
</DetectStackResourceDriftResponse>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# DetectStackSetDrift

Detect drift on a StackSet. When CloudFormation performs drift detection on a StackSet, it performs drift detection on the stack associated with each stack instance in the StackSet. For more information, see Performing drift detection on CloudFormation StackSets.

`DetectStackSetDrift` returns the `OperationId` of the StackSet drift detection operation. Use this operation id with DescribeStackSetOperation to monitor the progress of the drift detection operation. The drift detection operation may take some time, depending on the number of stack instances included in the StackSet, in addition to the number of resources included in each stack.

Once the operation has completed, use the following actions to return drift information:

- Use DescribeStackSet to return detailed information about the stack set, including detailed information about the last *completed* drift operation performed on the StackSet. (Information about drift operations that are in progress isn't included.)
- Use ListStackInstances to return a list of stack instances belonging to the StackSet, including the drift status and last drift time checked of each instance.
- Use DescribeStackInstance to return detailed information about a specific stack instance, including its drift status and last drift time checked.

You can only run a single drift detection operation on a given StackSet at one time.

To stop a drift detection StackSet operation, use StopStackSetOperation.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**CallAs**

[Service-managed permissions] Specifies whether you are acting as an account administrator in the organization's management account or as a delegated administrator in a member account.

By default, `SELF` is specified. Use `SELF` for StackSets with self-managed permissions.

- If you are signed in to the management account, specify `SELF`.
- If you are signed in to a delegated administrator account, specify `DELEGATED_ADMIN`.

Your AWS account must be registered as a delegated administrator in the management account. For more information, see Register a delegated administrator in the *AWS CloudFormation User Guide*.

Type: String

Valid Values: `SELF | DELEGATED_ADMIN`

Required: No

**OperationId**

*The ID of the StackSet operation.*

Type: String

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

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

Required: No

**OperationPreferences**

The user-specified preferences for how CloudFormation performs a StackSet operation.

For more information about maximum concurrent accounts and failure tolerance, see StackSet operation options.

Type: StackSetOperationPreferences object

Required: No

**StackSetName**

The name of the StackSet on which to perform the drift detection operation.

Type: String

Pattern: `[a-zA-Z][-a-zA-Z0-9]*(?::[a-zA-Z0-9]{8}-[a-zA-Z0-9]{4}-[a-zA-Z0-9]{4}-[a-zA-Z0-9]{4}-[a-zA-Z0-9]{12})?`

Required: Yes

## Response Elements

The following element is returned by the service.

**OperationId**

The ID of the drift detection StackSet operation.

You can use this operation ID with DescribeStackSetOperation to monitor the progress of the drift detection operation.

Type: String

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

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

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**InvalidOperation**

The specified operation isn't valid.

HTTP Status Code: 400

**OperationInProgress**

Another operation is currently in progress for this StackSet. Only one operation can be performed for a stack set at a given time.

HTTP Status Code: 409

**StackSetNotFound**

The specified StackSet doesn't exist.

HTTP Status Code: 404

# Examples

## DetectStackSetDrift

This example illustrates one usage of DetectStackSetDrift.

### Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/
 ?Action=DetectStackSetDrift
 &Version=2010-05-15
 &StackSetName=stack-set-example
 &OperationId=9cc082fa-df4c-45cd-b9a8-7e56example
 &X-Amz-Algorithm=AWS4-HMAC-SHA256
 &X-Amz-Credential=[Access key ID and scope]
 &X-Amz-Date=20191203T195756Z
 &X-Amz-SignedHeaders=content-type;host
 &X-Amz-Signature=[Signature]
```

### Sample Response

```
<DetectStackSetDriftResponse xmlns="http://internal.amazon.com/coral/
com.amazonaws.maestro.service.v20160713/">
  <DetectStackSetDriftResult>
    <OperationId>9cc082fa-df4c-45cd-b9a8-7e56example</OperationId>
  </DetectStackSetDriftResult>
  <ResponseMetadata>
    <RequestId>38309f0a-d5f5-4330-b6ca-8eb1example</RequestId>
  </ResponseMetadata>
</DetectStackSetDriftResponse>
```

# See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++

- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# 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.

**Parameters.member.N**

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

Type: Array of Parameter objects

Required: No

**TemplateBody**

Structure that contains the template body with a minimum length of 1 byte and a maximum length of 51,200 bytes.

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**

The URL of a file that contains the template body. The URL must point to a template that's located in an Amazon S3 bucket or a Systems Manager document. The location for an Amazon S3 bucket must start with `https://`. URLs from S3 static websites are not supported.

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 5120.

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 Error Types.

## Examples

### EstimateTemplateCost

This example illustrates one usage of 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>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# ExecuteChangeSet

Updates a stack using the input information that was provided when the specified change set was created. After the call successfully completes, CloudFormation starts updating the stack. Use the DescribeStacks action to view the status of the update.

When you execute a change set, 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, CloudFormation enforces the policy during the update. You can't specify a temporary stack policy that overrides the current policy.

To create a change set for the entire stack hierarchy, `IncludeNestedStacks` must have been set to `True`.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**ChangeSetName**

The name or Amazon Resource Name (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

**ClientRequestToken**

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

Type: String

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

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

Required: No

**DisableRollback**

Preserves the state of previously provisioned resources when an operation fails. This parameter can't be specified when the `OnStackFailure` parameter to the CreateChangeSet API operation was specified.

- `True` - if the stack creation fails, do nothing. This is equivalent to specifying `DO_NOTHING` for the `OnStackFailure` parameter to the CreateChangeSet API operation.
- `False` - if the stack creation fails, roll back the stack. This is equivalent to specifying `ROLLBACK` for the `OnStackFailure` parameter to the CreateChangeSet API operation.

Default: `True`

Type: Boolean

Required: No

**RetainExceptOnCreate**

When set to `true`, newly created resources are deleted when the operation rolls back. This includes newly created resources marked with a deletion policy of `Retain`.

Default: `false`

Type: Boolean

Required: No

**StackName**

If you specified the name of a change set, specify the stack name or Amazon Resource Name (ARN) that's 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 Error Types.

**ChangeSetNotFound**

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

HTTP Status Code: 404

**InsufficientCapabilities**

The template contains resources with capabilities that weren't specified in the Capabilities parameter.

HTTP Status Code: 400

**InvalidChangeSetStatus**

The specified change set can't 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

**TokenAlreadyExists**

A client request token already exists.

HTTP Status Code: 400

## Examples

### ExecuteChangeSet

This example illustrates one usage of ExecuteChangeSet.

**Sample Request**

```
https://cloudformation.us-east-1.amazonaws.com/
 ?Action=ExecuteChangeSet
 &ChangeSetName=arn:aws:cloudformation:us-east-1:123456789012:changeSet/
SampleChangeSet/12a3b456-0e10-4ce0-9052-5d484a8c4e5b
```

```
&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

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

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# ExecuteStackRefactor

Executes the stack refactor operation.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**StackRefactorId**

The ID associated with the stack refactor created from the CreateStackRefactor action.

Type: String

Required: Yes

## Errors

For information about the errors that are common to all actions, see Common Error Types.

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# GetGeneratedTemplate

Retrieves a generated template. If the template is in an `InProgress` or `Pending` status then the template returned will be the template when the template was last in a `Complete` status. If the template has not yet been in a `Complete` status then an empty template will be returned.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**Format**

The language to use to retrieve for the generated template. Supported values are:

- `JSON`
- `YAML`

Type: String

Valid Values: `JSON | YAML`

Required: No

**GeneratedTemplateName**

The name or Amazon Resource Name (ARN) of the generated template.
The format is `arn:${Partition}:cloudformation:${Region}:${Account}:generatedtemplate/${Id}`. For example, `arn:aws:cloudformation:`*`us-east-1`*`:`*`123456789012`*`:generatedtemplate/`*`2e8465c1-9a80-43ea-a3a3-4f2d692fe6dc`* .

Type: String

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

Required: Yes

## Response Elements

The following elements are returned by the service.

**Status**

The status of the template generation. Supported values are:

- `CreatePending` - the creation of the template is pending.
- `CreateInProgress` - the creation of the template is in progress.
- `DeletePending` - the deletion of the template is pending.
- `DeleteInProgress` - the deletion of the template is in progress.
- `UpdatePending` - the update of the template is pending.
- `UpdateInProgress` - the update of the template is in progress.
- `Failed` - the template operation failed.
- `Complete` - the template operation is complete.

Type: String

Valid Values: `CREATE_PENDING | UPDATE_PENDING | DELETE_PENDING | CREATE_IN_PROGRESS | UPDATE_IN_PROGRESS | DELETE_IN_PROGRESS | FAILED | COMPLETE`

**TemplateBody**

The template body of the generated template, in the language specified by the `Language` parameter.

Type: String

Length Constraints: Minimum length of 1.

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**GeneratedTemplateNotFound**

The generated template was not found.

HTTP Status Code: 404

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# GetHookResult

Retrieves detailed information and remediation guidance for a Hook invocation result.

If the Hook uses a KMS key to encrypt annotations, callers of the `GetHookResult` operation must have `kms:Decrypt` permissions. For more information, see AWS KMS key policy and permissions for encrypting AWS CloudFormation Hooks results at rest in the *CloudFormation Hooks User Guide*.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**HookResultId**

The unique identifier (ID) of the Hook invocation result that you want details about. You can get the ID from the ListHookResults operation.

Type: String

Length Constraints: Fixed length of 36.

Pattern: `^[a-f0-9]{8}-[a-f0-9]{4}-[a-f0-9]{4}-[a-f0-9]{4}-[a-f0-9]{12}$`

Required: No

## Response Elements

The following elements are returned by the service.

**Annotations.member.N**

A list of objects with additional information and guidance that can help you resolve a failed Hook invocation.

Type: Array of Annotation objects

**FailureMode**

The failure mode of the invocation.

Type: String

Valid Values: `FAIL | WARN`

**HookResultId**

The unique identifier of the Hook result.

Type: String

Length Constraints: Fixed length of 36.

Pattern: `^[a-f0-9]{8}-[a-f0-9]{4}-[a-f0-9]{4}-[a-f0-9]{4}-[a-f0-9]{12}$`

**HookStatusReason**

A message that provides additional details about the Hook invocation status.

Type: String

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

**InvocationPoint**

The specific point in the provisioning process where the Hook is invoked.

Type: String

Valid Values: `PRE_PROVISION`

**InvokedAt**

The timestamp when the Hook was invoked.

Type: Timestamp

**OriginalTypeName**

The original public type name of the Hook when an alias is used.

For example, if you activate `AWS::Hooks::GuardHook` with alias `MyCompany::Custom::GuardHook`, then `TypeName` will be `MyCompany::Custom::GuardHook` and `OriginalTypeName` will be `AWS::Hooks::GuardHook`.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 196.

**Status**

The status of the Hook invocation. The following statuses are possible:

- `HOOK_IN_PROGRESS`: The Hook is currently running.
- `HOOK_COMPLETE_SUCCEEDED`: The Hook completed successfully.
- `HOOK_COMPLETE_FAILED`: The Hook completed but failed validation.
- `HOOK_FAILED`: The Hook encountered an error during execution.

Type: String

Valid Values: `HOOK_IN_PROGRESS | HOOK_COMPLETE_SUCCEEDED | HOOK_COMPLETE_FAILED | HOOK_FAILED`

**Target**

Information about the target of the Hook invocation.

Type: HookTarget object

**TypeArn**

The Amazon Resource Name (ARN) of the Hook.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `arn:aws[A-Za-z0-9-]{0,64}:cloudformation:[A-Za-z0-9-]{1,64}:([0-9]{12})?:type/hook/[A-Za-z0-9-]+/?`

**TypeConfigurationVersionId**

The version identifier of the Hook configuration data that was used during invocation.

Type: String

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

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

**TypeName**

The name of the Hook that was invoked.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 196.

**TypeVersionId**

The version identifier of the Hook that was invoked.

Type: String

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

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

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**HookResultNotFound**

The specified target doesn't have any requested Hook invocations.

HTTP Status Code: 404

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)

- AWS SDK for Ruby V3

# 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.

**StackName**

The name or unique stack ID that's 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 that contains the stack policy body. For more information, see 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 Error Types.

## Examples

### GetStackPolicy

This example illustrates one usage of 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>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# 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 doesn't exist, a `ValidationError` is returned.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**ChangeSetName**

The name or Amazon Resource Name (ARN) of a change set for which CloudFormation returns the associated template. If you specify a name, you must also specify the `StackName`.

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: No

**StackName**

The name or the unique stack ID that's associated with the stack, which aren't 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.

Type: String

Required: No

**TemplateStage**

For templates that include transforms, the stage of the template that CloudFormation returns. To get the user-submitted template, specify `Original`. To get the template after CloudFormation has processed all transforms, specify `Processed`.

If the template doesn't include transforms, `Original` and `Processed` return the same template. By default, CloudFormation specifies `Processed`.

Type: String

Valid Values: `Original | Processed`

Required: No

## Response Elements

The following elements are returned by the service.

**StagesAvailable.member.N**

The stage of the template that you can retrieve. For stacks, the `Original` and `Processed` templates are always available. For change sets, the `Original` template is always available. After CloudFormation finishes creating the change set, the `Processed` template becomes available.

Type: Array of strings

Valid Values: `Original | Processed`

**TemplateBody**

Structure that contains the template body.

CloudFormation returns the same template that was used when the stack was created.

Type: String

Length Constraints: Minimum length of 1.

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**ChangeSetNotFound**

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

HTTP Status Code: 404

# Examples

## GetTemplate

This example illustrates one usage of 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" : {
      "MySQS" : {
        "Type" : "AWS::SQS::Queue",
        "Properties" : {
        }
      }
    }
  }</TemplateBody>
  </GetTemplateResult>
```

```
  <ResponseMetadata>
    <RequestId>b9b4b068-3a41-11e5-94eb-example</RequestId>
  </ResponseMetadata>
</GetTemplateResponse>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# 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 or StackSet.

You can use the `GetTemplateSummary` action when you submit a template, or you can get template information for a StackSet, or 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 doesn't exist, a `ValidationError` is returned.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**CallAs**

[Service-managed permissions] Specifies whether you are acting as an account administrator in the organization's management account or as a delegated administrator in a member account.

By default, `SELF` is specified. Use `SELF` for StackSets with self-managed permissions.

- If you are signed in to the management account, specify `SELF`.
- If you are signed in to a delegated administrator account, specify `DELEGATED_ADMIN`.

  Your AWS account must be registered as a delegated administrator in the management account. For more information, see Register a delegated administrator in the *AWS CloudFormation User Guide*.

Type: String

Valid Values: `SELF | DELEGATED_ADMIN`

Required: No

**StackName**

The name or the stack ID that's associated with the stack, which aren't 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`, `StackSetName`, `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

**StackSetName**

The name or unique ID of the StackSet from which the stack was created.

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

Type: String

Pattern: `[a-zA-Z][-a-zA-Z0-9]*(?::[a-zA-Z0-9]{8}-[a-zA-Z0-9]{4}-[a-zA-Z0-9]{4}-[a-zA-Z0-9]{4}-[a-zA-Z0-9]{12})?`

Required: No

**TemplateBody**

Structure that contains the template body with a minimum length of 1 byte and a maximum length of 51,200 bytes.

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

Type: String

Length Constraints: Minimum length of 1.

Required: No

**TemplateSummaryConfig**

Specifies options for the `GetTemplateSummary` API action.

Type: TemplateSummaryConfig object

Required: No

**TemplateURL**

The URL of a file that contains the template body. The URL must point to a template (max size: 1 MB) that's located in an Amazon S3 bucket or a Systems Manager document. The location for an Amazon S3 bucket must start with `https://`.

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

Type: String

Length Constraints: Minimum length of 1. Maximum length of 5120.

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 or UpdateStack actions with your template; otherwise, those actions return an `InsufficientCapabilities` error.

For more information, see Acknowledging IAM resources in CloudFormation templates.

Type: Array of strings

Valid Values: `CAPABILITY_IAM | CAPABILITY_NAMED_IAM | CAPABILITY_AUTO_EXPAND`

**CapabilitiesReason**

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

Type: String

**DeclaredTransforms.member.N**

A list of the transforms that are declared in the template.

Type: Array of strings

**Description**

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

Type: String

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

**Metadata**

The value that's 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 objects

**ResourceIdentifierSummaries.member.N**

A list of resource identifier summaries that describe the target resources of an import operation and the properties you can provide during the import to identify the target resources. For example, `BucketName` is a possible identifier property for an `AWS::S3::Bucket` resource.

Type: Array of ResourceIdentifierSummary 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

**Warnings**

An object that contains any warnings returned.

Type: Warnings object

## Errors

For information about the errors that are common to all actions, see Common Error Types.

### StackSetNotFound

The specified StackSet doesn't exist.

HTTP Status Code: 404

## Examples

### GetTemplateSummary

This example illustrates one usage of GetTemplateSummary.

#### Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/
 ?Action=GetTemplateSummary
 &TemplateURL=https%3A%2F%2Fs3-us-east-1.amazonaws.com%2Fsamplebucketname
%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 instances"}}</
Metadata>
    <Version>2010-09-09</Version>
  </GetTemplateSummaryResult>
  <ResponseMetadata>
    <RequestId>b9b4b068-3a41-11e5-94eb-example</RequestId>
  </ResponseMetadata>
</GetTemplateSummaryResponse>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# ImportStacksToStackSet

Import existing stacks into a new StackSets. Use the stack import operation to import up to 10 stacks into a new StackSet in the same account as the source stack or in a different administrator account and Region, by specifying the stack ID of the stack you intend to import.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**CallAs**

By default, `SELF` is specified. Use `SELF` for StackSets with self-managed permissions.

- If you are signed in to the management account, specify `SELF`.
- For service managed StackSets, specify `DELEGATED_ADMIN`.

Type: String

Valid Values: `SELF | DELEGATED_ADMIN`

Required: No

**OperationId**

A unique, user defined, identifier for the StackSet operation.

Type: String

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

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

Required: No

**OperationPreferences**

The user-specified preferences for how CloudFormation performs a StackSet operation.

For more information about maximum concurrent accounts and failure tolerance, see StackSet operation options.

Type: StackSetOperationPreferences object

Required: No

**OrganizationalUnitIds.member.N**

The list of OU ID's to which the imported stacks must be mapped as deployment targets.

Type: Array of strings

Pattern: `^(ou-[a-z0-9]{4,32}-[a-z0-9]{8,32}|r-[a-z0-9]{4,32})$`

Required: No

**StackIds.member.N**

The IDs of the stacks you are importing into a StackSet. You import up to 10 stacks per StackSet at a time.

Specify either `StackIds` or `StackIdsUrl`.

Type: Array of strings

Required: No

**StackIdsUrl**

The Amazon S3 URL which contains list of stack ids to be inputted.

Specify either `StackIds` or `StackIdsUrl`.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 5120.

Pattern: `(s3://|http(s?)://).+`

Required: No

**StackSetName**

The name of the StackSet. The name must be unique in the Region where you create your StackSet.

Type: String

Pattern: `[a-zA-Z][-a-zA-Z0-9]*(?::[a-zA-Z0-9]{8}-[a-zA-Z0-9]{4}-[a-zA-Z0-9]{4}-[a-zA-Z0-9]{4}-[a-zA-Z0-9]{12})?`

Required: Yes

## Response Elements

The following element is returned by the service.

**OperationId**

The unique identifier for the StackSet operation.

Type: String

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

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

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**InvalidOperation**

The specified operation isn't valid.

HTTP Status Code: 400

**LimitExceeded**

The quota for the resource has already been reached.

For information about resource and stack limitations, see CloudFormation quotas in the *AWS CloudFormation User Guide*.

HTTP Status Code: 400

**OperationIdAlreadyExists**

The specified operation ID already exists.

HTTP Status Code: 409

**OperationInProgress**

Another operation is currently in progress for this StackSet. Only one operation can be performed for a stack set at a given time.

HTTP Status Code: 409

**StackNotFound**

The specified stack ARN doesn't exist or stack doesn't exist corresponding to the ARN in input.

HTTP Status Code: 404

**StackSetNotFound**

The specified StackSet doesn't exist.

HTTP Status Code: 404

**StaleRequest**

Another operation has been performed on this StackSet since the specified operation was performed.

HTTP Status Code: 409

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# ListChangeSets

Returns the ID and status of each active change set for a stack. For example, 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.

**NextToken**

The token for the next set of items to return. (You received this token from a previous call.)

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 objects

## Errors

For information about the errors that are common to all actions, see Common Error Types.

## Examples

### ListChangeSets

This example illustrates one usage of ListChangeSets.

#### Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/
 ?Action=ListChangeSets
 &StackName=arn:aws:cloudformation:us-east-1:123456789012:changeSet/
SampleChangeSet/12a3b456-0e10-4ce0-9052-5d484a8c4e5b
 &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

```
<ListChangeSetsResponse xmlns="http://cloudformation.amazonaws.com/doc/2010-05-15/">
  <ListChangeSetsResult>
    <Summaries>
      <member>
        <StackId>arn:aws:cloudformation:us-east-1:123456789012:changeSet/
SampleChangeSet/12a3b456-0e10-4ce0-9052-5d484a8c4e5b</StackId>
```

```
        <Status>CREATE_COMPLETE</Status>
        <ChangeSetId>arn:aws:cloudformation:us-east-1:123456789012:changeSet/
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/
SampleChangeSet/12a3b456-0e10-4ce0-9052-5d484a8c4e5b</StackId>
        <Status>CREATE_COMPLETE</Status>
        <ChangeSetId>arn:aws:cloudformation:us-east-1:123456789012:changeSet/
SampleChangeSet-conditional/12a3b456-0e10-4ce0-9052-5d484a8c4e5b</ChangeSetId>
        <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/
SampleChangeSet/12a3b456-0e10-4ce0-9052-5d484a8c4e5b</StackId>
        <Status>CREATE_COMPLETE</Status>
        <ChangeSetId>arn:aws:cloudformation:us-east-1:123456789012:changeSet/
SampleChangeSet-replacement/12a3b456-0e10-4ce0-9052-5d484a8c4e5b</ChangeSetId>
        <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>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++

- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# ListExports

Lists all exported output values in the account and Region in which you call this action. Use this action to see the exported output values that you can import into other stacks. To import values, use the Fn::ImportValue function.

For more information, see Get exported outputs from a deployed CloudFormation stack.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**NextToken**

The token for the next set of items to return. (You received this token from a previous call.)

Type: String

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

Required: No

## Response Elements

The following elements are returned by the service.

**Exports.member.N**

The output for the ListExports action.

Type: Array of Export objects

**NextToken**

If the output exceeds 100 exported output values, a string that identifies the next page of exports. If there is no additional page, 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 Error Types.

# Examples

## ListExports

This example illustrates one usage of ListExports.

### Sample Request

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

```
<ListExportsResponse xmlns="http://cloudformation.amazonaws.com/doc/2010-05-15/">
  <ListExportsResult>
    <Exports>
      <member>
        <Name>mySampleStack1-SecurityGroupID</Name>
        <ExportingStackId>arn:aws:cloudformation:us-east-1:123456789012:stack/
mySampleStack1/12a3b456-0e10-4ce0-9052-5d484a8c4e5b</ExportingStackId>
        <Value>sg-0a123b45</Value>
      </member>
      <member>
        <Name>mySampleStack1-SubnetID</Name>
        <ExportingStackId>arn:aws:cloudformation:us-east-1:123456789012:stack/
mySampleStack1/12a3b456-0e10-4ce0-9052-5d484a8c4e5b</ExportingStackId>
        <Value>subnet-0a123b45</Value>
      </member>
      <member>
        <Name>mySampleStack1-VPCID</Name>
```

```
        <ExportingStackId>arn:aws:cloudformation:us-east-1:123456789012:stack/
mySampleStack1/12a3b456-0e10-4ce0-9052-5d484a8c4e5b</ExportingStackId>
        <Value>vpc-0a123b45</Value>
      </member>
      <member>
        <Name>WebSiteURL</Name>
        <ExportingStackId>arn:aws:cloudformation:us-east-1:123456789012:stack/
myS3StaticSite/12a3b456-0e10-4ce0-9052-5d484a8c4e5b</ExportingStackId>
        <Value>http://testsite.com.s3-website-us-east-1.amazonaws.com</Value>
      </member>
    </Exports>
  </ListExportsResult>
  <ResponseMetadata>
    <RequestId>5ccc7dcd-744c-11e5-be70-1b08c228efb3</RequestId>
  </ResponseMetadata>
</ListExportsResponse>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# ListGeneratedTemplates

Lists your generated templates in this Region.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**MaxResults**

If the number of available results exceeds this maximum, the response includes a `NextToken` value that you can use for the `NextToken` parameter to get the next set of results. By default the `ListGeneratedTemplates` API action will return at most 50 results in each response. The maximum value is 100.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 100.

Required: No

**NextToken**

The token for the next set of items to return. (You received this token from a previous call.)

Type: String

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

Required: No

## Response Elements

The following elements are returned by the service.

**NextToken**

If the request doesn't return all the remaining results, `NextToken` is set to a token. To retrieve the next set of results, call `ListGeneratedTemplates` again and use that value for the `NextToken` parameter. If the request returns all results, `NextToken` is set to an empty string.

Type: String

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

**Summaries.member.N**

A list of summaries of the generated templates.

Type: Array of TemplateSummary objects

## Errors

For information about the errors that are common to all actions, see Common Error Types.

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# ListHookResults

Returns summaries of invoked Hooks. For more information, see View invocation summaries for CloudFormation Hooks in the *CloudFormation Hooks User Guide*.

This operation supports the following parameter combinations:

- No parameters: Returns all Hook invocation summaries.
- `TypeArn` only: Returns summaries for a specific Hook.
- `TypeArn` and `Status`: Returns summaries for a specific Hook filtered by status.
- `TargetId` and `TargetType`: Returns summaries for a specific Hook invocation target.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**NextToken**

The token for the next set of items to return. (You received this token from a previous call.)

Type: String

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

Required: No

**Status**

Filters results by the status of Hook invocations. Can only be used in combination with `TypeArn`. Valid values are:

- `HOOK_IN_PROGRESS`: The Hook is currently running.
- `HOOK_COMPLETE_SUCCEEDED`: The Hook completed successfully.
- `HOOK_COMPLETE_FAILED`: The Hook completed but failed validation.
- `HOOK_FAILED`: The Hook encountered an error during execution.

Type: String

Valid Values: `HOOK_IN_PROGRESS | HOOK_COMPLETE_SUCCEEDED | HOOK_COMPLETE_FAILED | HOOK_FAILED`

Required: No

**TargetId**

Filters results by the unique identifier of the target the Hook was invoked against.

For change sets, this is the change set ARN. When the target is a Cloud Control API operation, this value must be the `HookRequestToken` returned by the Cloud Control API request. For more information on the `HookRequestToken`, see ProgressEvent.

Required when `TargetType` is specified and cannot be used otherwise.

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:/]*|^[a-f0-9]{8}-[a-f0-9]{4}-[a-f0-9]{4}-[a-f0-9]{4}-[a-f0-9]{12}$`

Required: No

**TargetType**

Filters results by target type. Currently, only `CHANGE_SET` and `CLOUD_CONTROL` are supported filter options.

Required when `TargetId` is specified and cannot be used otherwise.

Type: String

Valid Values: `CHANGE_SET | STACK | RESOURCE | CLOUD_CONTROL`

Required: No

**TypeArn**

Filters results by the ARN of the Hook. Can be used alone or in combination with `Status`.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `arn:aws[A-Za-z0-9-]{0,64}:cloudformation:[A-Za-z0-9-]{1,64}:([0-9]{12})?:type/hook/[A-Za-z0-9-]+/?`

Required: No

## Response Elements

The following elements are returned by the service.

**HookResults.member.N**

A list of `HookResultSummary` structures that provides the status and Hook status reason for each Hook invocation for the specified target.

Type: Array of HookResultSummary objects

**NextToken**

Pagination token, `null` or empty if no more results.

Type: String

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

**TargetId**

The unique identifier of the Hook invocation target.

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:/]*|^[a-f0-9]{8}-[a-f0-9]{4}-[a-f0-9]{4}-[a-f0-9]{4}-[a-f0-9]{12}$`

**TargetType**

The target type.

Type: String

Valid Values: `CHANGE_SET | STACK | RESOURCE | CLOUD_CONTROL`

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**HookResultNotFound**

The specified target doesn't have any requested Hook invocations.

HTTP Status Code: 404

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# ListImports

Lists all stacks that are importing an exported output value. To modify or remove an exported output value, first use this action to see which stacks are using it. To see the exported output values in your account, see ListExports.

For more information about importing an exported output value, see the Fn::ImportValue function.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**ExportName**

The name of the exported output value. CloudFormation returns the stack names that are importing this value.

Type: String

Required: Yes

**NextToken**

The token for the next set of items to return. (You received this token from a previous call.)

Type: String

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

Required: No

## Response Elements

The following elements are returned by the service.

**Imports.member.N**

A list of stack names that are importing the specified exported output value.

Type: Array of strings

**NextToken**

A string that identifies the next page of exports. If there is no additional page, 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 Error Types.

## Examples

### ListExports

This example illustrates one usage of ListImports.

#### Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/
 ?Action=ListImports
 &ExportName=SampleStack-MyExportedValue
 &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

```
<ListImportsResponse xmlns="http://cloudformation.amazonaws.com/doc/2010-05-15/">
  <ListImportsResult>
    <Imports>
      <member>Import-SampleStack</member>
    </Imports>
  </ListImportsResult>
  <ResponseMetadata>
    <RequestId>a13656a8-a7b9-11e6-964c-41b56747ddb0</RequestId>
  </ResponseMetadata>
</ListImportsResponse>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# ListResourceScanRelatedResources

Lists the related resources for a list of resources from a resource scan. The response indicates whether each returned resource is already managed by CloudFormation.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**MaxResults**

If the number of available results exceeds this maximum, the response includes a `NextToken` value that you can use for the `NextToken` parameter to get the next set of results. By default the `ListResourceScanRelatedResources` API action will return up to 100 results in each response. The maximum value is 100.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 100.

Required: No

**NextToken**

The token for the next set of items to return. (You received this token from a previous call.)

Type: String

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

Required: No

**Resources.member.N**

The list of resources for which you want to get the related resources. Up to 100 resources can be provided.

Type: Array of ScannedResourceIdentifier objects

Required: Yes

**ResourceScanId**

The Amazon Resource Name (ARN) of the resource scan.

Type: String

Required: Yes

## Response Elements

The following elements are returned by the service.

**NextToken**

If the request doesn't return all the remaining results, `NextToken` is set to a token. To retrieve the next set of results, call `ListResourceScanRelatedResources` again and use that value for the `NextToken` parameter. If the request returns all results, `NextToken` is set to an empty string.

Type: String

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

**RelatedResources.member.N**

List of up to `MaxResults` resources in the specified resource scan related to the specified resources.

Type: Array of ScannedResource objects

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**ResourceScanInProgress**

A resource scan is currently in progress. Only one can be run at a time for an account in a Region.

HTTP Status Code: 400

**ResourceScanNotFound**

The resource scan was not found.

HTTP Status Code: 400

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# ListResourceScanResources

Lists the resources from a resource scan. The results can be filtered by resource identifier, resource type prefix, tag key, and tag value. Only resources that match all specified filters are returned. The response indicates whether each returned resource is already managed by CloudFormation.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**MaxResults**

If the number of available results exceeds this maximum, the response includes a `NextToken` value that you can use for the `NextToken` parameter to get the next set of results. By default the `ListResourceScanResources` API action will return at most 100 results in each response. The maximum value is 100.

Type: Integer

Required: No

**NextToken**

The token for the next set of items to return. (You received this token from a previous call.)

Type: String

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

Required: No

**ResourceIdentifier**

If specified, the returned resources will have the specified resource identifier (or one of them in the case where the resource has multiple identifiers).

Type: String

Required: No

**ResourceScanId**

The Amazon Resource Name (ARN) of the resource scan.

Type: String

Required: Yes

**ResourceTypePrefix**

If specified, the returned resources will be of any of the resource types with the specified prefix.

Type: String

Required: No

**TagKey**

If specified, the returned resources will have a matching tag key.

Type: String

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

Required: No

**TagValue**

If specified, the returned resources will have a matching tag value.

Type: String

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

Required: No

## Response Elements

The following elements are returned by the service.

**NextToken**

If the request doesn't return all the remaining results, `NextToken` is set to a token. To retrieve the next set of results, call `ListResourceScanResources` again and use that value for the `NextToken` parameter. If the request returns all results, `NextToken` is set to an empty string.

Type: String

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

**Resources.member.N**

List of up to `MaxResults` resources in the specified resource scan that match all of the specified filters.

Type: Array of ScannedResource objects

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**ResourceScanInProgress**

A resource scan is currently in progress. Only one can be run at a time for an account in a Region.

HTTP Status Code: 400

**ResourceScanNotFound**

The resource scan was not found.

HTTP Status Code: 400

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)

- AWS SDK for Ruby V3

# ListResourceScans

List the resource scans from newest to oldest. By default it will return up to 10 resource scans.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**MaxResults**

If the number of available results exceeds this maximum, the response includes a `NextToken` value that you can use for the `NextToken` parameter to get the next set of results. The default value is 10. The maximum value is 100.

Type: Integer

Required: No

**NextToken**

The token for the next set of items to return. (You received this token from a previous call.)

Type: String

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

Required: No

**ScanTypeFilter**

The scan type that you want to get summary information about. The default is `FULL`.

Type: String

Valid Values: `FULL | PARTIAL`

Required: No

## Response Elements

The following elements are returned by the service.

**NextToken**

If the request doesn't return all the remaining results, `NextToken` is set to a token. To retrieve the next set of results, call `ListResourceScans` again and use that value for the `NextToken` parameter. If the request returns all results, `NextToken` is set to an empty string.

Type: String

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

**ResourceScanSummaries.member.N**

The list of scans returned.

Type: Array of ResourceScanSummary objects

## Errors

For information about the errors that are common to all actions, see Common Error Types.

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# ListStackInstanceResourceDrifts

Returns drift information for resources in a stack instance.

> **Note**
>
> `ListStackInstanceResourceDrifts` returns drift information for the most recent drift detection operation. If an operation is in progress, it may only return partial results.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**CallAs**

[Service-managed permissions] Specifies whether you are acting as an account administrator in the organization's management account or as a delegated administrator in a member account.

By default, `SELF` is specified. Use `SELF` for StackSets with self-managed permissions.

- If you are signed in to the management account, specify `SELF`.
- If you are signed in to a delegated administrator account, specify `DELEGATED_ADMIN`.

  Your AWS account must be registered as a delegated administrator in the management account. For more information, see Register a delegated administrator in the *AWS CloudFormation User Guide*.

Type: String

Valid Values: `SELF | DELEGATED_ADMIN`

Required: No

**MaxResults**

The maximum number of results to be returned with a single call. If the number of available results exceeds this maximum, the response includes a `NextToken` value that you can assign to the `NextToken` request parameter to get the next set of results.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 100.

Required: No

**NextToken**

The token for the next set of items to return. (You received this token from a previous call.)

Type: String

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

Required: No

**OperationId**

The unique ID of the drift operation.

Type: String

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

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

Required: Yes

**StackInstanceAccount**

The name of the AWS account that you want to list resource drifts for.

Type: String

Pattern: `^[0-9]{12}$`

Required: Yes

**StackInstanceRegion**

The name of the Region where you want to list resource drifts.

Type: String

Pattern: `^[a-zA-Z0-9-]{1,128}$`

Required: Yes

**StackInstanceResourceDriftStatuses.member.N**

The resource drift status of the stack instance.

- `DELETED`: The resource differs from its expected template configuration in that the resource has been deleted.
- `MODIFIED`: One or more resource properties differ from their expected template values.
- `IN_SYNC`: The resource's actual configuration matches its expected template configuration.
- `NOT_CHECKED`: CloudFormation doesn't currently return this value.

Type: Array of strings

Array Members: Minimum number of 1 item. Maximum number of 4 items.

Valid Values: `IN_SYNC | MODIFIED | DELETED | NOT_CHECKED | UNKNOWN | UNSUPPORTED`

Required: No

**StackSetName**

The name or unique ID of the StackSet that you want to list drifted resources for.

Type: String

Pattern: `[a-zA-Z][-a-zA-Z0-9]*(?::[a-zA-Z0-9]{8}-[a-zA-Z0-9]{4}-[a-zA-Z0-9]{4}-[a-zA-Z0-9]{4}-[a-zA-Z0-9]{12})?`

Required: Yes

## Response Elements

The following elements are returned by the service.

**NextToken**

If the previous paginated request didn't return all of the remaining results, the response object's `NextToken` parameter value is set to a token. To retrieve the next set of results, call this action again and assign that token to the request object's `NextToken` parameter. If there are no remaining results, the previous response object's `NextToken` parameter is set to `null`.

Type: String

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

**Summaries.member.N**

A list of `StackInstanceResourceDriftsSummary` structures that contain information about the specified stack instances.

Type: Array of StackInstanceResourceDriftsSummary objects

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**OperationNotFound**

The specified ID refers to an operation that doesn't exist.

HTTP Status Code: 404

**StackInstanceNotFound**

The specified stack instance doesn't exist.

HTTP Status Code: 404

**StackSetNotFound**

The specified StackSet doesn't exist.

HTTP Status Code: 404

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2

- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# ListStackInstances

Returns summary information about stack instances that are associated with the specified StackSet. You can filter for stack instances that are associated with a specific AWS account name or Region, or that have a specific status.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**CallAs**

[Service-managed permissions] Specifies whether you are acting as an account administrator in the organization's management account or as a delegated administrator in a member account.

By default, `SELF` is specified. Use `SELF` for StackSets with self-managed permissions.

- If you are signed in to the management account, specify `SELF`.
- If you are signed in to a delegated administrator account, specify `DELEGATED_ADMIN`.

  Your AWS account must be registered as a delegated administrator in the management account. For more information, see Register a delegated administrator in the *AWS CloudFormation User Guide*.

Type: String

Valid Values: `SELF | DELEGATED_ADMIN`

Required: No

**Filters.member.N**

The filter to apply to stack instances

Type: Array of StackInstanceFilter objects

Array Members: Maximum number of 3 items.

Required: No

**MaxResults**

The maximum number of results to be returned with a single call. If the number of available results exceeds this maximum, the response includes a `NextToken` value that you can assign to the `NextToken` request parameter to get the next set of results.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 100.

Required: No

**NextToken**

The token for the next set of items to return. (You received this token from a previous call.)

Type: String

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

Required: No

**StackInstanceAccount**

The name of the AWS account that you want to list stack instances for.

Type: String

Pattern: `^[0-9]{12}$`

Required: No

**StackInstanceRegion**

The name of the Region where you want to list stack instances.

Type: String

Pattern: `^[a-zA-Z0-9-]{1,128}$`

Required: No

**StackSetName**

The name or unique ID of the StackSet that you want to list stack instances for.

Type: String

Required: Yes

## Response Elements

The following elements are returned by the service.

**NextToken**

If the request doesn't return all the remaining results, `NextToken` is set to a token. To retrieve the next set of results, call `ListStackInstances` again and assign that token to the request object's `NextToken` parameter. If the request returns all results, `NextToken` is set to `null`.

Type: String

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

**Summaries.member.N**

A list of `StackInstanceSummary` structures that contain information about the specified stack instances.

Type: Array of StackInstanceSummary objects

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**StackSetNotFound**

The specified StackSet doesn't exist.

HTTP Status Code: 404

## Examples

### ListStackInstances

The following example returns summary information about the stack instances associated with the specified StackSet in the specified account.

## Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/
 ?Action=ListStackInstances
 &StackInstanceAccount=012345678910
 &Version=2010-05-15
 &StackSetName=stack-set-example
 &MaxResults=10
 &X-Amz-Algorithm=AWS4-HMAC-SHA256
 &X-Amz-Credential=[Access key ID and scope]
 &X-Amz-Date=20170810T233349Z
 &X-Amz-SignedHeaders=content-type;host
 &X-Amz-Signature=[Signature]
```

## Sample Response

```
<ListStackInstancesResponse xmlns="http://internal.amazon.com/coral/
com.amazonaws.maestro.service.v20160713/">
  <ListStackInstancesResult>
    <Summaries>
      <member>
        <DriftStatus>IN_SYNC</DriftStatus>
        <StackSetId>stack-set-example:45331555-4b18-45a1-aa43-ecf5example</StackSetId>
        <StackId>arn:aws:cloudformation:ap-northeast-2:012345678910:stack/
StackSet-stack-set-example-0ca3eed7-0b67-4be7-8a71-828641fa5193/ea68eca0-f9c1-11e9-
aac0-0example</StackId>
        <Region>ap-northeast-2</Region>
        <Account>012345678910</Account>
        <LastDriftCheckTimestamp>2019-12-03T20:01:04.511Z</LastDriftCheckTimestamp>
        <Status>CURRENT</Status>
      </member>
      <member>
        <DriftStatus>IN_SYNC</DriftStatus>
        <StackSetId>stack-set-example:45331555-4b18-45a1-aa43-ecf5example</StackSetId>
        <StackId>arn:aws:cloudformation:eu-west-2:012345678910:stack/StackSet-stack-
set-example-da07ae82-0478-485e-a32f-c1cb8cec57c2/e0df84a0-f9c1-11e9-bb3e-06afexamplec</
StackId>
        <Region>eu-west-2</Region>
        <Account>012345678910</Account>
        <LastDriftCheckTimestamp>2019-12-03T19:59:14.488Z</LastDriftCheckTimestamp>
        <Status>CURRENT</Status>
      </member>
      <member>
```

```
        <DriftStatus>IN_SYNC</DriftStatus>
        <StackSetId>stack-set-example:45331555-4b18-45a1-aa43-ecf5example</StackSetId>
        <StackId>arn:aws:cloudformation:us-east-1:012345678910:stack/StackSet-stack-
set-example-35588cf5-396d-4469-8a9e-912214ce3a7a/c684ff40-f9c1-11e9-b738-1245bexample</
StackId>
        <Region>us-east-1</Region>
        <Account>012345678910</Account>
        <LastDriftCheckTimestamp>2019-12-03T19:58:37.477Z</LastDriftCheckTimestamp>
        <Status>CURRENT</Status>
      </member>
      <member>
        <DriftStatus>IN_SYNC</DriftStatus>
        <StackSetId>stack-set-example:45331555-4b18-45a1-aa43-ecf5example</StackSetId>
        <StackId>arn:aws:cloudformation:us-east-2:012345678910:stack/StackSet-stack-
set-example-d3db3374-7683-4e82-bdeb-c388d7b16dc9/d8c208b0-f9c1-11e9-81c9-02300example</
StackId>
        <Region>us-east-2</Region>
        <Account>012345678910</Account>
        <LastDriftCheckTimestamp>2019-12-03T20:00:27.570Z</LastDriftCheckTimestamp>
        <Status>CURRENT</Status>
      </member>
      <member>
        <DriftStatus>IN_SYNC</DriftStatus>
        <StackSetId>stack-set-example:45331555-4b18-45a1-aa43-ecf5example</StackSetId>
        <StackId>arn:aws:cloudformation:us-west-2:012345678910:stack/StackSet-stack-
set-example-05f9348f-3f6e-4051-9083-8663c59f0352/cffefdf0-f9c1-11e9-a552-02ca0example</
StackId>
        <Region>us-west-2</Region>
        <Account>012345678910</Account>
        <LastDriftCheckTimestamp>2019-12-03T19:59:51.501Z</LastDriftCheckTimestamp>
        <Status>CURRENT</Status>
      </member>
    </Summaries>
  </ListStackInstancesResult>
  <ResponseMetadata>
    <RequestId>6a94faf0-5632-4618-9c0a-cf273example</RequestId>
  </ResponseMetadata>
</ListStackInstancesResponse>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# ListStackRefactorActions

Lists the stack refactor actions that will be taken after calling the ExecuteStackRefactor action.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**MaxResults**

The maximum number of results to be returned with a single call. If the number of available results exceeds this maximum, the response includes a `NextToken` value that you can assign to the `NextToken` request parameter to get the next set of results.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 100.

Required: No

**NextToken**

The token for the next set of items to return. (You received this token from a previous call.)

Type: String

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

Required: No

**StackRefactorId**

The ID associated with the stack refactor created from the CreateStackRefactor action.

Type: String

Required: Yes

## Response Elements

The following elements are returned by the service.

**NextToken**

If the request doesn't return all the remaining results, `NextToken` is set to a token. To retrieve the next set of results, call this action again and assign that token to the request object's `NextToken` parameter. If the request returns all results, `NextToken` is set to `null`.

Type: String

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

**StackRefactorActions.member.N**

The stack refactor actions.

Type: Array of StackRefactorAction objects

## Errors

For information about the errors that are common to all actions, see Common Error Types.

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# ListStackRefactors

Lists all account stack refactor operations and their statuses.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**ExecutionStatusFilter.member.N**

Execution status to use as a filter. Specify one or more execution status codes to list only stack refactors with the specified execution status codes.

Type: Array of strings

Valid Values: `UNAVAILABLE | AVAILABLE | OBSOLETE | EXECUTE_IN_PROGRESS | EXECUTE_COMPLETE | EXECUTE_FAILED | ROLLBACK_IN_PROGRESS | ROLLBACK_COMPLETE | ROLLBACK_FAILED`

Required: No

**MaxResults**

The maximum number of results to be returned with a single call. If the number of available results exceeds this maximum, the response includes a `NextToken` value that you can assign to the `NextToken` request parameter to get the next set of results.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 100.

Required: No

**NextToken**

The token for the next set of items to return. (You received this token from a previous call.)

Type: String

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

Required: No

## Response Elements

The following elements are returned by the service.

**NextToken**

If the request doesn't return all the remaining results, `NextToken` is set to a token. To retrieve the next set of results, call this action again and assign that token to the request object's `NextToken` parameter. If the request returns all results, `NextToken` is set to `null`.

Type: String

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

**StackRefactorSummaries.member.N**

Provides a summary of a stack refactor, including the following:

- `StackRefactorId`
- `Status`
- `StatusReason`
- `ExecutionStatus`
- `ExecutionStatusReason`
- `Description`

Type: Array of StackRefactorSummary objects

## Errors

For information about the errors that are common to all actions, see Common Error Types.

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++

- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# 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.

**NextToken**

The token for the next set of items to return. (You received this token from a previous call.)

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 aren't 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.

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 objects

## Errors

For information about the errors that are common to all actions, see Common Error Types.

## Examples

### ListStackResources

This example illustrates one usage of 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</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-example</RequestId>
  </ResponseMetadata>
</ListStackResourcesResponse>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# 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.

**NextToken**

The token for the next set of items to return. (You received this token from a previous call.)

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 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_FAILED | UPDATE_ROLLBACK_IN_PROGRESS | UPDATE_ROLLBACK_FAILED | UPDATE_ROLLBACK_COMPLETE_CLEANUP_IN_PROGRESS | UPDATE_ROLLBACK_COMPLETE | REVIEW_IN_PROGRESS | IMPORT_IN_PROGRESS | IMPORT_COMPLETE | IMPORT_ROLLBACK_IN_PROGRESS | IMPORT_ROLLBACK_FAILED | IMPORT_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 that contains information about the specified stacks.

Type: Array of StackSummary objects

## Errors

For information about the errors that are common to all actions, see Common Error Types.

## Examples

### ListStacks

This example illustrates one usage of 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/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>
        <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>
  <ResponseMetadata>
    <RequestId>b9b4b068-3a41-11e5-94eb-example</RequestId>
  </ResponseMetadata>
```

```
</ListStacksResponse>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# ListStackSetAutoDeploymentTargets

Returns summary information about deployment targets for a StackSet.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**CallAs**

Specifies whether you are acting as an account administrator in the organization's management account or as a delegated administrator in a member account.

By default, `SELF` is specified. Use `SELF` for StackSets with self-managed permissions.

- If you are signed in to the management account, specify `SELF`.
- If you are signed in to a delegated administrator account, specify `DELEGATED_ADMIN`.

  Your AWS account must be registered as a delegated administrator in the management account. For more information, see Register a delegated administrator in the *AWS CloudFormation User Guide*.

Type: String

Valid Values: `SELF | DELEGATED_ADMIN`

Required: No

**MaxResults**

The maximum number of results to be returned with a single call. If the number of available results exceeds this maximum, the response includes a `NextToken` value that you can assign to the `NextToken` request parameter to get the next set of results.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 100.

Required: No

**NextToken**

The token for the next set of items to return. (You received this token from a previous call.)

Type: String

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

Required: No

**StackSetName**

The name or unique ID of the StackSet that you want to get automatic deployment targets for.

Type: String

Pattern: `[a-zA-Z][-a-zA-Z0-9]*(?::[a-zA-Z0-9]{8}-[a-zA-Z0-9]{4}-[a-zA-Z0-9]{4}-[a-zA-Z0-9]{4}-[a-zA-Z0-9]{12})?`

Required: Yes

## Response Elements

The following elements are returned by the service.

**NextToken**

If the request doesn't return all the remaining results, `NextToken` is set to a token. To retrieve the next set of results, call ListStackSetAutoDeploymentTargets again and use that value for the `NextToken` parameter. If the request returns all results, `NextToken` is set to an empty string.

Type: String

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

**Summaries.member.N**

An array of summaries of the deployment targets for the StackSet.

Type: Array of StackSetAutoDeploymentTargetSummary objects

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**StackSetNotFound**

The specified StackSet doesn't exist.

HTTP Status Code: 404

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# ListStackSetOperationResults

Returns summary information about the results of a StackSet operation.

> **Note**
>
> This API provides *eventually consistent* reads meaning it may take some time but will eventually return the most up-to-date data.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**CallAs**

[Service-managed permissions] Specifies whether you are acting as an account administrator in the organization's management account or as a delegated administrator in a member account.

By default, `SELF` is specified. Use `SELF` for StackSets with self-managed permissions.

- If you are signed in to the management account, specify `SELF`.
- If you are signed in to a delegated administrator account, specify `DELEGATED_ADMIN`.

  Your AWS account must be registered as a delegated administrator in the management account. For more information, see Register a delegated administrator in the *AWS CloudFormation User Guide*.

Type: String

Valid Values: `SELF | DELEGATED_ADMIN`

Required: No

**Filters.member.N**

The filter to apply to operation results.

Type: Array of OperationResultFilter objects

Array Members: Maximum number of 1 item.

Required: No

**MaxResults**

The maximum number of results to be returned with a single call. If the number of available results exceeds this maximum, the response includes a `NextToken` value that you can assign to the `NextToken` request parameter to get the next set of results.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 100.

Required: No

**NextToken**

The token for the next set of items to return. (You received this token from a previous call.)

Type: String

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

Required: No

**OperationId**

The ID of the StackSet operation.

Type: String

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

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

Required: Yes

**StackSetName**

The name or unique ID of the StackSet that you want to get operation results for.

Type: String

Required: Yes

## Response Elements

The following elements are returned by the service.

**NextToken**

If the request doesn't return all results, `NextToken` is set to a token. To retrieve the next set of results, call `ListOperationResults` again and assign that token to the request object's `NextToken` parameter. If there are no remaining results, `NextToken` is set to `null`.

Type: String

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

**Summaries.member.N**

A list of `StackSetOperationResultSummary` structures that contain information about the specified operation results, for accounts and AWS Regions that are included in the operation.

Type: Array of StackSetOperationResultSummary objects

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**OperationNotFound**

The specified ID refers to an operation that doesn't exist.

HTTP Status Code: 404

**StackSetNotFound**

The specified StackSet doesn't exist.

HTTP Status Code: 404

## Examples

### ListStackSetOperationResults

This example illustrates one usage of ListStackSetOperationResults.

**Sample Request**

```
https://cloudformation.us-east-1.amazonaws.com/
```

```
 ?Action=ListStackSetOperationResults
 &Version=2010-05-15
 &StackSetName=stack-set-example
 &OperationId=61806005-bde9-46f1-949d-6791example
 &X-Amz-Algorithm=AWS4-HMAC-SHA256
 &X-Amz-Credential=[Access key ID and scope]
 &X-Amz-Date=20170810T233349Z
 &X-Amz-SignedHeaders=content-type;host
 &X-Amz-Signature=[Signature]
```

### Sample Response

```
<ListStackSetOperationResultsResponse xmlns="http://internal.amazon.com/coral/
com.amazonaws.maestro.service.v20160713/">
  <ListStackSetOperationResultsResult>
    <Summaries>
      <member>
        <StatusReason>Cancelled since failure tolerance has exceeded</StatusReason>
        <Region>us-west-2</Region>
        <Account>[account]</Account>
        <Status>CANCELLED</Status>
      </member>
      <member>
        <AccountGateResult>
          <StatusReason>Account [account] should have
 'AWSCloudFormationStackSetAdministrationRole' role with trust relationship to
 CloudFormation service.</StatusReason>
          <Status>FAILED</Status>
        </AccountGateResult>
        <StatusReason>Account [account] should have
 'AWSCloudFormationStackSetAdministrationRole' role with trust relationship to
 CloudFormation service.</StatusReason>
        <Region>us-east-1</Region>
        <Account>[account]</Account>
        <Status>FAILED</Status>
      </member>
    </Summaries>
  </ListStackSetOperationResultsResult>
  <ResponseMetadata>
    <RequestId>bf662a8d-7e1b-11e7-98fb-db38example</RequestId>
  </ResponseMetadata>
</ListStackSetOperationResultsResponse>
```

## ListStackSetOperationResults

This example illustrates one usage of ListStackSetOperationResults.

### Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/
 ?Action=ListStackSetOperationResults
 &Version=2010-05-15
 &StackSetName=stack-set-example
 &OperationId=61806005-bde9-46f1-949d-6791example
 &X-Amz-Algorithm=AWS4-HMAC-SHA256
 &X-Amz-Credential=[Access key ID and scope]
 &X-Amz-Date=20170810T233349Z
 &X-Amz-SignedHeaders=content-type;host
 &X-Amz-Signature=[Signature]
```

### Sample Response

```
<ListStackSetOperationResultsResponse xmlns="http://internal.amazon.com/coral/
com.amazonaws.maestro.service.v20160713/">
  <ListStackSetOperationResultsResult>
    <Summaries>
      <member>
        <AccountGateResult>
          <StatusReason>AWSCloudFormationStackSetAccountGate function not found</
StatusReason>
          <Status>SKIPPED</Status>
        </AccountGateResult>
        <Region>us-west-2</Region>
        <Account>[account]</Account>
        <Status>SUCCEEDED</Status>
      </member>
      <member>
        <AccountGateResult>
          <StatusReason>AWSCloudFormationStackSetAccountGate function not found</
StatusReason>
          <Status>SKIPPED</Status>
        </AccountGateResult>
        <Region>us-east-1</Region>
        <Account>[account]</Account>
```

```
        <Status>SUCCEEDED</Status>
      </member>
    </Summaries>
  </ListStackSetOperationResultsResult>
  <ResponseMetadata>
    <RequestId>ee444e6b-7e1b-11e7-8bb3-1f65example</RequestId>
  </ResponseMetadata>
</ListStackSetOperationResultsResponse>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# ListStackSetOperations

Returns summary information about operations performed on a StackSet.

> **Note**
>
> This API provides *eventually consistent* reads meaning it may take some time but will eventually return the most up-to-date data.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**CallAs**

[Service-managed permissions] Specifies whether you are acting as an account administrator in the organization's management account or as a delegated administrator in a member account.

By default, `SELF` is specified. Use `SELF` for StackSets with self-managed permissions.

- If you are signed in to the management account, specify `SELF`.
- If you are signed in to a delegated administrator account, specify `DELEGATED_ADMIN`.

  Your AWS account must be registered as a delegated administrator in the management account. For more information, see Register a delegated administrator in the *AWS CloudFormation User Guide*.

Type: String

Valid Values: `SELF | DELEGATED_ADMIN`

Required: No

**MaxResults**

The maximum number of results to be returned with a single call. If the number of available results exceeds this maximum, the response includes a `NextToken` value that you can assign to the `NextToken` request parameter to get the next set of results.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 100.

Required: No

**NextToken**

The token for the next set of items to return. (You received this token from a previous call.)

Type: String

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

Required: No

**StackSetName**

The name or unique ID of the StackSet that you want to get operation summaries for.

Type: String

Required: Yes

## Response Elements

The following elements are returned by the service.

**NextToken**

If the request doesn't return all results, `NextToken` is set to a token. To retrieve the next set of results, call `ListOperationResults` again and assign that token to the request object's `NextToken` parameter. If there are no remaining results, `NextToken` is set to `null`.

Type: String

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

**Summaries.member.N**

A list of `StackSetOperationSummary` structures that contain summary information about operations for the specified StackSet.

Type: Array of StackSetOperationSummary objects

## Errors

For information about the errors that are common to all actions, see Common Error Types.

### StackSetNotFound

The specified StackSet doesn't exist.

HTTP Status Code: 404

## Examples

### ListStackSetOperations

This example illustrates one usage of ListStackSetOperations.

#### Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/
 ?Action=ListStackSetOperations
 &Version=2010-05-15
 &StackSetName=stack-set-example
 &MaxResults=10
 &X-Amz-Algorithm=AWS4-HMAC-SHA256
 &X-Amz-Credential=[Access key ID and scope]
 &X-Amz-Date=20170810T233349Z
 &X-Amz-SignedHeaders=content-type;host
 &X-Amz-Signature=[Signature]
```

#### Sample Response

```
<ListStackSetOperationsResponse xmlns="http://internal.amazon.com/coral/
com.amazonaws.maestro.service.v20160713/">
  <ListStackSetOperationsResult>
    <Summaries>
       <member>
        <CreationTimestamp>2019-12-03T19:57:57.573Z</CreationTimestamp>
        <OperationId>9cc082fa-df4c-45cd-b9a8-7e563e88418e</OperationId>
        <Action>DETECT_DRIFT</Action>
        <EndTimestamp>2019-12-03T20:01:04.630Z</EndTimestamp>
        <Status>SUCCEEDED</Status>
```

```
      </member>
      <member>
        <CreationTimestamp>2017-08-04T18:01:29.508Z</CreationTimestamp>
        <OperationId>ddf16f54-ad62-4d9b-b0ab-3ed8example</OperationId>
        <Action>UPDATE</Action>
        <EndTimestamp>2017-08-04T18:03:43.672Z</EndTimestamp>
        <Status>SUCCEEDED</Status>
      </member>
      <member>
        <CreationTimestamp>2017-08-04T17:40:05.828Z</CreationTimestamp>
        <OperationId>fadffcdd-4ae1-4a26-aa02-cb81example</OperationId>
        <Action>CREATE</Action>
        <EndTimestamp>2017-08-04T17:40:24.107Z</EndTimestamp>
        <Status>FAILED</Status>
      </member>
    </Summaries>
  </ListStackSetOperationsResult>
  <ResponseMetadata>
    <RequestId>39602b0c-7e1b-11e7-a79f-5d957example</RequestId>
  </ResponseMetadata>
</ListStackSetOperationsResponse>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# ListStackSets

Returns summary information about StackSets that are associated with the user.

> **Note**
>
> This API provides *strongly consistent* reads meaning it will always return the most up-to-date data.

- [Self-managed permissions] If you set the `CallAs` parameter to `SELF` while signed in to your AWS account, `ListStackSets` returns all self-managed StackSets in your AWS account.
- [Service-managed permissions] If you set the `CallAs` parameter to `SELF` while signed in to the organization's management account, `ListStackSets` returns all StackSets in the management account.
- [Service-managed permissions] If you set the `CallAs` parameter to `DELEGATED_ADMIN` while signed in to your member account, `ListStackSets` returns all StackSets with service-managed permissions in the management account.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**CallAs**

[Service-managed permissions] Specifies whether you are acting as an account administrator in the management account or as a delegated administrator in a member account.

By default, `SELF` is specified. Use `SELF` for StackSets with self-managed permissions.

- If you are signed in to the management account, specify `SELF`.
- If you are signed in to a delegated administrator account, specify `DELEGATED_ADMIN`.

  Your AWS account must be registered as a delegated administrator in the management account. For more information, see Register a delegated administrator in the *AWS CloudFormation User Guide*.

Type: String

Valid Values: `SELF | DELEGATED_ADMIN`

Required: No

**MaxResults**

The maximum number of results to be returned with a single call. If the number of available results exceeds this maximum, the response includes a `NextToken` value that you can assign to the `NextToken` request parameter to get the next set of results.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 100.

Required: No

**NextToken**

The token for the next set of items to return. (You received this token from a previous call.)

Type: String

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

Required: No

**Status**

The status of the StackSets that you want to get summary information about.

Type: String

Valid Values: `ACTIVE | DELETED`

Required: No

## Response Elements

The following elements are returned by the service.

**NextToken**

If the request doesn't return all of the remaining results, `NextToken` is set to a token. To retrieve the next set of results, call `ListStackInstances` again and assign that token to the

request object's `NextToken` parameter. If the request returns all results, `NextToken` is set to `null`.

Type: String

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

**Summaries.member.N**

A list of `StackSetSummary` structures that contain information about the user's StackSets.

Type: Array of StackSetSummary objects

## Errors

For information about the errors that are common to all actions, see Common Error Types.

## Examples

### ListStackSets

This example illustrates one usage of ListStackSets.

#### Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/
 ?Action=ListStackSets
 &Status=ACTIVE
 &Version=2010-05-15
 &X-Amz-Algorithm=AWS4-HMAC-SHA256
 &X-Amz-Credential=[Access key ID and scope]
 &X-Amz-Date=20170810T233349Z
 &X-Amz-SignedHeaders=content-type;host
 &X-Amz-Signature=[Signature]
```

#### Sample Response

```
<ListStackSetsResponse xmlns="http://internal.amazon.com/coral/
com.amazonaws.maestro.service.v20160713/">
  <ListStackSetsResult>
    <Summaries>
```

```
      <member>
        <StackSetName>stack-set-example-one</StackSetName>
        <Description>Description of the StackSet</Description>
        <StackSetId>stack-set-example-one:c14cd6d1-cd17-40bd-82ed-ff97example</
StackSetId>
        <Status>ACTIVE</Status>
      </member>
      <member>
        <StackSetName>stack-set-example-two</StackSetName>
        <StackSetId>stack-set-example-two:22f04391-472b-4e36-b11a-727example</
StackSetId>
        <Status>ACTIVE</Status>
      </member>
    </Summaries>
  </ListStackSetsResult>
  <ResponseMetadata>
    <RequestId>35ec5187-794a-11e7-8c45-3f18example</RequestId>
  </ResponseMetadata>
</ListStackSetsResponse>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# ListTypeRegistrations

Returns a list of registration tokens for the specified extension(s).

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**MaxResults**

The maximum number of results to be returned with a single call. If the number of available results exceeds this maximum, the response includes a `NextToken` value that you can assign to the `NextToken` request parameter to get the next set of results.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 100.

Required: No

**NextToken**

The token for the next set of items to return. (You received this token from a previous call.)

Type: String

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

Required: No

**RegistrationStatusFilter**

The current status of the extension registration request.

The default is `IN_PROGRESS`.

Type: String

Valid Values: `COMPLETE | IN_PROGRESS | FAILED`

Required: No

**Type**

The kind of extension.

Conditional: You must specify either TypeName and Type, or Arn.

Type: String

Valid Values: RESOURCE | MODULE | HOOK

Required: No

**TypeArn**

The Amazon Resource Name (ARN) of the extension.

Conditional: You must specify either TypeName and Type, or Arn.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: arn:aws[A-Za-z0-9-]{0,64}:cloudformation:[A-Za-z0-9-]{1,64}:([0-9]{12})?:type/.+

Required: No

**TypeName**

The name of the extension.

Conditional: You must specify either TypeName and Type, or Arn.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 204.

Pattern: [A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}(::MODULE){0,1}

Required: No

## Response Elements

The following elements are returned by the service.

**NextToken**

If the request doesn't return all the remaining results, `NextToken` is set to a token. To retrieve the next set of results, call this action again and assign that token to the request object's `NextToken` parameter. If the request returns all results, `NextToken` is set to `null`.

Type: String

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

**RegistrationTokenList.member.N**

A list of extension registration tokens.

Use DescribeTypeRegistration to return detailed information about a type registration request.

Type: Array of strings

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

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

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**CFNRegistry**

An error occurred during a CloudFormation registry operation.

**Message**

A message with details about the error that occurred.

HTTP Status Code: 400

## Examples

### ListTypeRegistrations

The example below returns a list of the registration tokens for the three versions of `My::Resource::Example`, a private resource type, that have completed registration.

### Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/
 ?Action=ListTypeRegistrations
 &Version=2010-05-15
 &TypeName=My::Resource::Example
 &Type=RESOURCE
 &RegistrationStatusFilter=COMPLETE
 &X-Amz-Algorithm=AWS4-HMAC-SHA256
 &X-Amz-Credential=[Access key ID and scope]
 &X-Amz-Date=20191204T071759Z
 &X-Amz-SignedHeaders=content-type;host
 &X-Amz-Signature=[Signature]
```

### Sample Response

```
<ListTypeRegistrationsResponse xmlns="http://cloudformation.amazonaws.com/
doc/2010-05-15/">
  <ListTypeRegistrationsResult>
    <RegistrationTokenList>
      <member>b5c40e0e-68da-47d2-8ed2-b8db7example</member>
      <member>03458954-61b1-44e9-90d8-f1b8aexample</member>
      <member>356b9e72-7d1e-43aa-83ba-81c2example</member>
    </RegistrationTokenList>
  </ListTypeRegistrationsResult>
  <ResponseMetadata>
    <RequestId>de6b93f6-c68b-4840-9537-eb2357example</RequestId>
  </ResponseMetadata>
</ListTypeRegistrationsResponse>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2

- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# ListTypes

Returns summary information about all extensions, including your private resource types, modules, and Hooks as well as all public extensions from AWS and third-party publishers.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**DeprecatedStatus**

The deprecation status of the extension that you want to get summary information about.

Valid values include:

- `LIVE`: The extension is registered for use in CloudFormation operations.
- `DEPRECATED`: The extension has been deregistered and can no longer be used in CloudFormation operations.

Type: String

Valid Values: `LIVE | DEPRECATED`

Required: No

**Filters**

Filter criteria to use in determining which extensions to return.

Filters must be compatible with `Visibility` to return valid results. For example, specifying `AWS_TYPES` for `Category` and `PRIVATE` for `Visibility` returns an empty list of types, but specifying `PUBLIC` for `Visibility` returns the desired list.

Type: TypeFilters object

Required: No

**MaxResults**

The maximum number of results to be returned with a single call. If the number of available results exceeds this maximum, the response includes a `NextToken` value that you can assign to the `NextToken` request parameter to get the next set of results.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 100.

Required: No

**NextToken**

The token for the next set of items to return. (You received this token from a previous call.)

Type: String

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

Required: No

**ProvisioningType**

For resource types, the provisioning behavior of the resource type. CloudFormation determines the provisioning type during registration, based on the types of handlers in the schema handler package submitted.

Valid values include:

- `FULLY_MUTABLE`: The resource type includes an update handler to process updates to the type during stack update operations.
- `IMMUTABLE`: The resource type doesn't include an update handler, so the type can't be updated and must instead be replaced during stack update operations.
- `NON_PROVISIONABLE`: The resource type doesn't include create, read, and delete handlers, and therefore can't actually be provisioned.

The default is `FULLY_MUTABLE`.

Type: String

Valid Values: `NON_PROVISIONABLE | IMMUTABLE | FULLY_MUTABLE`

Required: No

**Type**

The type of extension.

Type: String

Valid Values: RESOURCE | MODULE | HOOK

Required: No

**Visibility**

The scope at which the extensions are visible and usable in CloudFormation operations.

Valid values include:

- PRIVATE: Extensions that are visible and usable within this account and Region. This includes:
  - Private extensions you have registered in this account and Region.
  - Public extensions that you have activated in this account and Region.
- PUBLIC: Extensions that are publicly visible and available to be activated within any AWS account. This includes extensions from AWS and third-party publishers.

The default is PRIVATE.

Type: String

Valid Values: PUBLIC | PRIVATE

Required: No

## Response Elements

The following elements are returned by the service.

**NextToken**

If the request doesn't return all the remaining results, NextToken is set to a token. To retrieve the next set of results, call this action again and assign that token to the request object's NextToken parameter. If the request returns all results, NextToken is set to null.

Type: String

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

**TypeSummaries.member.N**

A list of TypeSummary structures that contain information about the specified extensions.

Type: Array of TypeSummary objects

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**CFNRegistry**

An error occurred during a CloudFormation registry operation.

**Message**

A message with details about the error that occurred.

HTTP Status Code: 400

## Examples

### ListTypes

The following example returns summary information for all the private resource types registered in this AWS account.

**Sample Request**

```
https://cloudformation.us-east-1.amazonaws.com/
 ?Action=ListTypes
 &Version=2010-05-15
 &X-Amz-Algorithm=AWS4-HMAC-SHA256
 &X-Amz-Credential=[Access key ID and scope]
 &X-Amz-Date=20191204T183443Z
 &X-Amz-SignedHeaders=content-type;host
 &X-Amz-Signature=[Signature]
```

**Sample Response**

```
  <ListTypesResult>
    <TypeSummaries>
      <member>
        <LastUpdated>2019-12-04T18:28:15.059Z</LastUpdated>
        <DefaultVersionId>00000003</DefaultVersionId>
        <TypeArn>arn:aws:cloudformation:us-east-1:012345678910:type/resource/My-
Resource-Example</TypeArn>
        <TypeName>My::Resource::Example</TypeName>
```

```
        <Description>Resource schema for My::Resource::Example</Description>
        <Type>RESOURCE</Type>
      </member>
      <member>
        <LastUpdated>2019-12-04T18:28:15.059Z</LastUpdated>
        <DefaultVersionId>00000001</DefaultVersionId>
        <TypeArn>arn:aws:cloudformation:us-east-1:012345678910:type/resource/My-Second-
Example</TypeArn>
        <TypeName>My::Second::Example</TypeName>
        <Description>Resource schema for My::Second::Example</Description>
        <Type>RESOURCE</Type>
      </member>
    </TypeSummaries>
  </ListTypesResult>
  <ResponseMetadata>
    <RequestId>69dc5a34-5462-4e1b-81fb-7a310example</RequestId>
  </ResponseMetadata>
</ListTypesResponse>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# ListTypeVersions

Returns summary information about the versions of an extension.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**Arn**

The Amazon Resource Name (ARN) of the extension for which you want version summary information.

Conditional: You must specify either `TypeName` and `Type`, or `Arn`.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `arn:aws[A-Za-z0-9-]{0,64}:cloudformation:[A-Za-z0-9-]{1,64}:([0-9]{12})?:type/.+`

Required: No

**DeprecatedStatus**

The deprecation status of the extension versions that you want to get summary information about.

Valid values include:

- `LIVE`: The extension version is registered and can be used in CloudFormation operations, dependent on its provisioning behavior and visibility scope.
- `DEPRECATED`: The extension version has been deregistered and can no longer be used in CloudFormation operations.

The default is `LIVE`.

Type: String

Valid Values: `LIVE | DEPRECATED`

Required: No

**MaxResults**

The maximum number of results to be returned with a single call. If the number of available results exceeds this maximum, the response includes a `NextToken` value that you can assign to the `NextToken` request parameter to get the next set of results.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 100.

Required: No

**NextToken**

The token for the next set of items to return. (You received this token from a previous call.)

Type: String

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

Required: No

**PublisherId**

The publisher ID of the extension publisher.

Extensions published by Amazon aren't assigned a publisher ID.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 40.

Pattern: `[0-9a-zA-Z]{12,40}`

Required: No

**Type**

The kind of the extension.

Conditional: You must specify either `TypeName` and `Type`, or `Arn`.

Type: String

Valid Values: `RESOURCE | MODULE | HOOK`

Required: No

**TypeName**

The name of the extension for which you want version summary information.

Conditional: You must specify either `TypeName` and `Type`, or `Arn`.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 204.

Pattern: `[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}(::MODULE){0,1}`

Required: No

## Response Elements

The following elements are returned by the service.

**NextToken**

If the request doesn't return all of the remaining results, `NextToken` is set to a token. To retrieve the next set of results, call this action again and assign that token to the request object's `NextToken` parameter. If the request returns all results, `NextToken` is set to `null`.

Type: String

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

**TypeVersionSummaries.member.N**

A list of `TypeVersionSummary` structures that contain information about the specified extension's versions.

Type: Array of TypeVersionSummary objects

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**CFNRegistry**

An error occurred during a CloudFormation registry operation.

**Message**

A message with details about the error that occurred.

HTTP Status Code: 400

# Examples

## ListTypeRegistrations

The following example returns summary information about the two extension versions with a status of `LIVE` for the private resource type `My::Resource::Example`.

### Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/
 ?Action=ListTypeRegistrations
 &Version=2010-05-15
 &TypeName=My::Resource::Example
 &Type=RESOURCE
 &DeprecatedStatus=LIVE
 &X-Amz-Algorithm=AWS4-HMAC-SHA256
 &X-Amz-Credential=[Access key ID and scope]
 &X-Amz-Date=20191204T070338Z
 &X-Amz-SignedHeaders=content-type;host
 &X-Amz-Signature=[Signature]
```

### Sample Response

```
<ListTypeVersionsResponse xmlns="http://cloudformation.amazonaws.com/doc/2010-05-15/">
  <ListTypeVersionsResult>
    <TypeVersionSummaries>
      <member>
        <VersionId>00000001</VersionId>
        <TypeName>My::Resource::Example</TypeName>
        <Description>Resource schema for My::Resource::Example</Description>
        <TimeCreated>2019-12-03T23:29:33.321Z</TimeCreated>
        <Arn>arn:aws:cloudformation:us-east-1:012345678910:type/resource/My-Resource-
Example/00000001</Arn>
```

```
        <Type>RESOURCE</Type>
      </member>
      <member>
        <VersionId>00000002</VersionId>
        <TypeName>My::Resource::Example</TypeName>
        <Description>Resource schema for My::Resource::Example</Description>
        <TimeCreated>2019-12-04T06:58:14.902Z</TimeCreated>
        <Arn>arn:aws:cloudformation:us-east-1:012345678910:type/resource/My-Resource-
Example/00000002</Arn>
        <Type>RESOURCE</Type>
      </member>
    </TypeVersionSummaries>
  </ListTypeVersionsResult>
  <ResponseMetadata>
    <RequestId>caedd974-e865-4518-b7f0-a6972example</RequestId>
  </ResponseMetadata>
</ListTypeVersionsResponse>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# PublishType

Publishes the specified extension to the CloudFormation registry as a public extension in this Region. Public extensions are available for use by all CloudFormation users. For more information about publishing extensions, see Publishing extensions to make them available for public use in the *AWS CloudFormation Command Line Interface (CLI) User Guide*.

To publish an extension, you must be registered as a publisher with CloudFormation. For more information, see RegisterPublisher.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**Arn**

The Amazon Resource Name (ARN) of the extension.

Conditional: You must specify `Arn`, or `TypeName` and `Type`.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `arn:aws[A-Za-z0-9-]{0,64}:cloudformation:[A-Za-z0-9-]{1,64}:[0-9]{12}:type/.+`

Required: No

**PublicVersionNumber**

The version number to assign to this version of the extension.

Use the following format, and adhere to semantic versioning when assigning a version number to your extension:

`MAJOR.MINOR.PATCH`

For more information, see Semantic Versioning 2.0.0.

If you don't specify a version number, CloudFormation increments the version number by one minor version release.

You cannot specify a version number the first time you publish a type. CloudFormation automatically sets the first version number to be `1.0.0`.

Type: String

Length Constraints: Minimum length of 5.

Pattern: `^(0|[1-9]\d*)\.(0|[1-9]\d*)\.(.*)$`

Required: No

**Type**

The type of the extension.

Conditional: You must specify `Arn`, or `TypeName` and `Type`.

Type: String

Valid Values: `RESOURCE | MODULE | HOOK`

Required: No

**TypeName**

The name of the extension.

Conditional: You must specify `Arn`, or `TypeName` and `Type`.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 204.

Pattern: `[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}(::MODULE){0,1}`

Required: No

## Response Elements

The following element is returned by the service.

**PublicTypeArn**

The Amazon Resource Name (ARN) assigned to the public extension upon publication.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `arn:aws[A-Za-z0-9-]{0,64}:cloudformation:[A-Za-z0-9-]{1,64}:([0-9]{12})?:type/.+`

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**CFNRegistry**

An error occurred during a CloudFormation registry operation.

**Message**

A message with details about the error that occurred.

HTTP Status Code: 400

**TypeNotFound**

The specified extension doesn't exist in the CloudFormation registry.

HTTP Status Code: 404

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin

- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# RecordHandlerProgress

Reports progress of a resource handler to CloudFormation.

Reserved for use by the CloudFormation CLI. Don't use this API in your code.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**BearerToken**

Reserved for use by the CloudFormation CLI.

Type: String

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

Required: Yes

**ClientRequestToken**

Reserved for use by the CloudFormation CLI.

Type: String

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

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

Required: No

**CurrentOperationStatus**

Reserved for use by the CloudFormation CLI.

Type: String

Valid Values: `PENDING | IN_PROGRESS | SUCCESS | FAILED`

Required: No

**ErrorCode**

Reserved for use by the CloudFormation CLI.

Type: String

Valid Values: `NotUpdatable | InvalidRequest | AccessDenied | InvalidCredentials | AlreadyExists | NotFound | ResourceConflict | Throttling | ServiceLimitExceeded | NotStabilized | GeneralServiceException | ServiceInternalError | NetworkFailure | InternalFailure | InvalidTypeConfiguration | HandlerInternalFailure | NonCompliant | Unknown | UnsupportedTarget`

Required: No

**OperationStatus**

Reserved for use by the CloudFormation CLI.

Type: String

Valid Values: `PENDING | IN_PROGRESS | SUCCESS | FAILED`

Required: Yes

**ResourceModel**

Reserved for use by the CloudFormation CLI.

Type: String

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

Required: No

**StatusMessage**

Reserved for use by the CloudFormation CLI.

Type: String

Length Constraints: Maximum length of 1024.

Required: No

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**ConditionalCheckFailed**

Error reserved for use by the CloudFormation CLI. CloudFormation doesn't return this error to users.

HTTP Status Code: 400

**InvalidStateTransition**

Error reserved for use by the CloudFormation CLI. CloudFormation doesn't return this error to users.

HTTP Status Code: 400

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# RegisterPublisher

Registers your account as a publisher of public extensions in the CloudFormation registry. Public extensions are available for use by all CloudFormation users. This publisher ID applies to your account in all AWS Regions.

For information about requirements for registering as a public extension publisher, see Prerequisite: Registering your account to publish CloudFormation extensions in the *AWS CloudFormation Command Line Interface (CLI) User Guide*.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**AcceptTermsAndConditions**

Whether you accept the Terms and Conditions for publishing extensions in the CloudFormation registry. You must accept the terms and conditions in order to register to publish public extensions to the CloudFormation registry.

The default is `false`.

Type: Boolean

Required: No

**ConnectionArn**

If you are using a Bitbucket or GitHub account for identity verification, the Amazon Resource Name (ARN) for your connection to that account.

For more information, see Prerequisite: Registering your account to publish CloudFormation extensions in the *AWS CloudFormation Command Line Interface (CLI) User Guide*.

Type: String

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

Pattern: `arn:aws(-[\w]+)*:.+:.+:[0-9]{12}:.+`

Required: No

## Response Elements

The following element is returned by the service.

**PublisherId**

The ID assigned this account by CloudFormation for publishing extensions.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 40.

Pattern: `[0-9a-zA-Z]{12,40}`

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**CFNRegistry**

An error occurred during a CloudFormation registry operation.

**Message**

A message with details about the error that occurred.

HTTP Status Code: 400

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3

- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# RegisterType

Registers an extension with the CloudFormation service. Registering an extension makes it available for use in CloudFormation templates in your AWS account, and includes:

- Validating the extension schema.
- Determining which handlers, if any, have been specified for the extension.
- Making the extension available for use in your account.

For more information about how to develop extensions and ready them for registration, see Creating resource types using the CloudFormation CLI in the *AWS CloudFormation Command Line Interface (CLI) User Guide*.

You can have a maximum of 50 resource extension versions registered at a time. This maximum is per account and per Region. Use DeregisterType to deregister specific extension versions if necessary.

Once you have initiated a registration request using RegisterType, you can use DescribeTypeRegistration to monitor the progress of the registration request.

Once you have registered a private extension in your account and Region, use SetTypeConfiguration to specify configuration properties for the extension. For more information, see Edit configuration data for extensions in your account in the *AWS CloudFormation User Guide*.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**ClientRequestToken**

A unique identifier that acts as an idempotency key for this registration request. Specifying a client request token prevents CloudFormation from generating more than one version of an extension from the same registration request, even if the request is submitted multiple times.

Type: String

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

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

Required: No

**ExecutionRoleArn**

The Amazon Resource Name (ARN) of the IAM role for CloudFormation to assume when invoking the extension.

For CloudFormation to assume the specified execution role, the role must contain a trust relationship with the CloudFormation service principal (`resources.cloudformation.amazonaws.com`). For more information about adding trust relationships, see Modifying a role trust policy in the *AWS Identity and Access Management User Guide*.

If your extension calls AWS APIs in any of its handlers, you must create an *IAM execution role* that includes the necessary permissions to call those AWS APIs, and provision that execution role in your account. When CloudFormation needs to invoke the resource type handler, CloudFormation assumes this execution role to create a temporary session token, which it then passes to the resource type handler, thereby supplying your resource type with the appropriate credentials.

Type: String

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

Pattern: `arn:.+:iam::[0-9]{12}:role/.+`

Required: No

**LoggingConfig**

Specifies logging configuration information for an extension.

Type: LoggingConfig object

Required: No

**SchemaHandlerPackage**

A URL to the S3 bucket that contains the extension project package that contains the necessary files for the extension you want to register.

For information about generating a schema handler package for the extension you want to register, see submit in the *AWS CloudFormation Command Line Interface (CLI) User Guide*.

> **Note**
>
> The user registering the extension must be able to access the package in the S3 bucket. That's, the user needs to have GetObject permissions for the schema handler package. For more information, see Actions, Resources, and Condition Keys for Amazon S3 in the *AWS Identity and Access Management User Guide*.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 4096.

Required: Yes

**Type**

The kind of extension.

Type: String

Valid Values: `RESOURCE | MODULE | HOOK`

Required: No

**TypeName**

The name of the extension being registered.

We suggest that extension names adhere to the following patterns:

- For resource types, `company_or_organization::service::type`.
- For modules, `company_or_organization::service::type::MODULE`.
- For Hooks, `MyCompany::Testing::MyTestHook`.

> **Note**
>
> The following organization namespaces are reserved and can't be used in your extension names:
>
> - `Alexa`
> - `AMZN`
> - `Amazon`
> - `AWS`

- `Custom`
- `Dev`

Type: String

Length Constraints: Minimum length of 10. Maximum length of 204.

Pattern: `[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}(::MODULE){0,1}`

Required: Yes

## Response Elements

The following element is returned by the service.

**RegistrationToken**

The identifier for this registration request.

Use this registration token when calling DescribeTypeRegistration, which returns information about the status and IDs of the extension registration.

Type: String

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

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

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**CFNRegistry**

An error occurred during a CloudFormation registry operation.

**Message**

A message with details about the error that occurred.

HTTP Status Code: 400

# Examples

## RegisterType

This example illustrates one usage of RegisterType.

### Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/
 ?Action=RegisterType
 &Version=2010-05-15
 &TypeName=My::Resource::Example
 &SchemaHandlerPackage=[s3 url]
 &Type=RESOURCE
 &X-Amz-Algorithm=AWS4-HMAC-SHA256
 &X-Amz-Credential=[Access key ID and scope]
 &X-Amz-Date=20171211T230005Z
 &X-Amz-SignedHeaders=content-type;host
 &X-Amz-Signature=[Signature]
```

### Sample Response

```
<RegisterTypeResponse xmlns="http://cloudformation.amazonaws.com/doc/2010-05-15/">
  <RegisterTypeResult>
    <RegistrationToken>f5525280-104e-4d35-bef5-8f1f1example</RegistrationToken>
  </RegisterTypeResult>
  <ResponseMetadata>
    <RequestId>4d121847-1d2b-4ebe-8ca5-499405example</RequestId>
  </ResponseMetadata>
</RegisterTypeResponse>
```

# See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4

- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# RollbackStack

When specifying `RollbackStack`, you preserve the state of previously provisioned resources when an operation fails. You can check the status of the stack through the DescribeStacks operation.

Rolls back the specified stack to the last known stable state from `CREATE_FAILED` or `UPDATE_FAILED` stack statuses.

This operation will delete a stack if it doesn't contain a last known stable state. A last known stable state includes any status in a `*_COMPLETE`. This includes the following stack statuses.

- `CREATE_COMPLETE`
- `UPDATE_COMPLETE`
- `UPDATE_ROLLBACK_COMPLETE`
- `IMPORT_COMPLETE`
- `IMPORT_ROLLBACK_COMPLETE`

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**ClientRequestToken**

A unique identifier for this `RollbackStack` request.

Type: String

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

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

Required: No

**DeploymentConfig**

The deployment configuration for this stack operation, including the deployment mode.

Type: DeploymentConfig object

Required: No

**RetainExceptOnCreate**

When set to `true`, newly created resources are deleted when the operation rolls back. This includes newly created resources marked with a deletion policy of `Retain`.

Default: `false`

Type: Boolean

Required: No

**RoleARN**

The Amazon Resource Name (ARN) of an IAM role that CloudFormation assumes to rollback the stack.

Type: String

Length Constraints: Minimum length of 20. Maximum length of 2048.

Required: No

**StackName**

The name that's associated with the stack.

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.

**OperationId**

A unique identifier for this rollback operation that can be used to track the operation's progress and events.

Type: String

**StackId**

Unique identifier of the stack.

Type: String

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**TokenAlreadyExists**

A client request token already exists.

HTTP Status Code: 400

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# 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.

**StackName**

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

Type: String

Required: Yes

**StackPolicyBody**

Structure that contains the stack policy body. For more information, see 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 that contains the stack policy. The URL must point to a policy (maximum size: 16 KB) located in an Amazon S3 bucket in the same AWS Region as the stack. The location for an Amazon S3 bucket must start with `https://`. URLs from S3 static websites are not supported.

You can specify either the `StackPolicyBody` or the `StackPolicyURL` parameter, but not both.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 5120.

Required: No

## Errors

For information about the errors that are common to all actions, see Common Error Types.

## Examples

### SetStackPolicy

This example illustrates one usage of 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>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++

- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# SetTypeConfiguration

Specifies the configuration data for a CloudFormation extension, such as a resource or Hook, in the given account and Region.

For more information, see Edit configuration data for extensions in your account in the *AWS CloudFormation User Guide*.

To view the current configuration data for an extension, refer to the `ConfigurationSchema` element of DescribeType.

> **Important**
>
> It's strongly recommended that you use dynamic references to restrict sensitive configuration definitions, such as third-party credentials. For more information, see Specify values stored in other services using dynamic references in the *AWS CloudFormation User Guide*.

For more information about setting the configuration data for resource types, see Defining the account-level configuration of an extension in the *AWS CloudFormation Command Line Interface (CLI) User Guide*. For more information about setting the configuration data for Hooks, see the CloudFormation Hooks User Guide.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**Configuration**

The configuration data for the extension in this account and Region.

The configuration data must be formatted as JSON and validate against the extension's schema returned in the `Schema` response element of DescribeType.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 204800.

Pattern: `[\s\S]+`

Required: Yes

**ConfigurationAlias**

An alias by which to refer to this extension configuration data.

Conditional: Specifying a configuration alias is required when setting a configuration for a resource type extension.

Type: String

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

Pattern: `^[a-zA-Z0-9]{1,256}$`

Required: No

**Type**

The type of extension.

Conditional: You must specify `ConfigurationArn`, or `Type` and `TypeName`.

Type: String

Valid Values: `RESOURCE | MODULE | HOOK`

Required: No

**TypeArn**

The Amazon Resource Name (ARN) for the extension in this account and Region.

For public extensions, this will be the ARN assigned when you call the ActivateType API operation in this account and Region. For private extensions, this will be the ARN assigned when you call the RegisterType API operation in this account and Region.

Do not include the extension versions suffix at the end of the ARN. You can set the configuration for an extension, but not for a specific extension version.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `arn:aws[A-Za-z0-9-]{0,64}:cloudformation:[A-Za-z0-9-]{1,64}:([0-9]{12})?:type/.+`

Required: No

**TypeName**

The name of the extension.

Conditional: You must specify `ConfigurationArn`, or `Type` and `TypeName`.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 204.

Pattern: `[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}(::MODULE){0,1}`

Required: No

## Response Elements

The following element is returned by the service.

**ConfigurationArn**

The Amazon Resource Name (ARN) for the configuration data in this account and Region.

Conditional: You must specify `ConfigurationArn`, or `Type` and `TypeName`.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `arn:aws[A-Za-z0-9-]{0,64}:cloudformation:[A-Za-z0-9-]{1,64}:([0-9]{12})?:type-configuration/.+`

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**CFNRegistry**

An error occurred during a CloudFormation registry operation.

**Message**

A message with details about the error that occurred.

HTTP Status Code: 400

**TypeNotFound**

The specified extension doesn't exist in the CloudFormation registry.

HTTP Status Code: 404

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# SetTypeDefaultVersion

Specify the default version of an extension. The default version of an extension will be used in CloudFormation operations.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**Arn**

The Amazon Resource Name (ARN) of the extension for which you want version summary information.

Conditional: You must specify either `TypeName` and `Type`, or `Arn`.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `arn:aws[A-Za-z0-9-]{0,64}:cloudformation:[A-Za-z0-9-]{1,64}:[0-9]{12}:type/.+`

Required: No

**Type**

The kind of extension.

Conditional: You must specify either `TypeName` and `Type`, or `Arn`.

Type: String

Valid Values: `RESOURCE | MODULE | HOOK`

Required: No

**TypeName**

The name of the extension.

Conditional: You must specify either `TypeName` and `Type`, or `Arn`.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 204.

Pattern: `[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}(::MODULE){0,1}`

Required: No

**VersionId**

The ID of a specific version of the extension. The version ID is the value at the end of the Amazon Resource Name (ARN) assigned to the extension version when it is registered.

Type: String

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

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

Required: No

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**CFNRegistry**

An error occurred during a CloudFormation registry operation.

**Message**

A message with details about the error that occurred.

HTTP Status Code: 400

**TypeNotFound**

The specified extension doesn't exist in the CloudFormation registry.

HTTP Status Code: 404

## Examples

### SetTypeDefaultVersion

This example illustrates one usage of SetTypeDefaultVersion.

### Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/
 ?Action=SetTypeDefaultVersion
 &Version=2010-05-15
 &TypeName=My::Resource::Example
 &VersionId=00000003
 &Type=RESOURCE
 &X-Amz-Algorithm=AWS4-HMAC-SHA256
 &X-Amz-Credential=[Access key ID and scope]
 &X-Amz-Date=20191204T182814Z
 &X-Amz-SignedHeaders=content-type;host
 &X-Amz-Signature=[Signature]
```

### Sample Response

```
<SetTypeDefaultVersionResponse xmlns="http://cloudformation.amazonaws.com/
doc/2010-05-15/">
  <SetTypeDefaultVersionResult/>
  <ResponseMetadata>
    <RequestId>dc46ff50-4ab3-485a-a104-bbbd3example</RequestId>
  </ResponseMetadata>
</SetTypeDefaultVersionResponse>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)

- AWS SDK for Ruby V3

# SignalResource

Sends a signal to the specified resource with a success or failure status. You can use the `SignalResource` operation in conjunction with a creation policy or update policy. 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` operation 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.

**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 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 Error Types.

## Examples

### SignalResource

This example illustrates one usage of 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>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# StartResourceScan

Starts a scan of the resources in this account in this Region. You can the status of a scan using the `ListResourceScans` API action.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**ClientRequestToken**

A unique identifier for this `StartResourceScan` request. Specify this token if you plan to retry requests so that CloudFormation knows that you're not attempting to start a new resource scan.

Type: String

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

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

Required: No

**ScanFilters.member.N**

The scan filters to use.

Type: Array of ScanFilter objects

Array Members: Fixed number of 1 item.

Required: No

## Response Elements

The following element is returned by the service.

**ResourceScanId**

The Amazon Resource Name (ARN) of the resource scan. The format is `arn:${Partition}:cloudformation:${Region}:${Account}:resourceScan/${Id}`. An example is `arn:aws:cloudformation:us-east-1:123456789012:resourceScan/f5b490f7-7ed4-428a-aa06-31ff25db0772` .

Type: String

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**ResourceScanInProgress**

A resource scan is currently in progress. Only one can be run at a time for an account in a Region.

HTTP Status Code: 400

**ResourceScanLimitExceeded**

The limit on resource scans has been exceeded. Reasons include:

- Exceeded the daily quota for resource scans.
- A resource scan recently failed. You must wait 10 minutes before starting a new resource scan.
- The last resource scan failed after exceeding 100,000 resources. When this happens, you must wait 24 hours before starting a new resource scan.

HTTP Status Code: 400

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3

- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# StopStackSetOperation

Stops an in-progress operation on a StackSet and its associated stack instances. StackSets will cancel all the unstarted stack instance deployments and wait for those are in-progress to complete.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**CallAs**

Specifies whether you are acting as an account administrator in the organization's management account or as a delegated administrator in a member account. Valid only if the StackSet uses service-managed permissions.

By default, `SELF` is specified. Use `SELF` for StackSets with self-managed permissions.

- If you are signed in to the management account, specify `SELF`.
- If you are signed in to a delegated administrator account, specify `DELEGATED_ADMIN`.

  Your AWS account must be registered as a delegated administrator in the management account. For more information, see Register a delegated administrator in the *AWS CloudFormation User Guide*.

Type: String

Valid Values: `SELF | DELEGATED_ADMIN`

Required: No

**OperationId**

The ID of the stack operation.

Type: String

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

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

Required: Yes

**StackSetName**

The name or unique ID of the StackSet that you want to stop the operation for.

Type: String

Required: Yes

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**InvalidOperation**

The specified operation isn't valid.

HTTP Status Code: 400

**OperationNotFound**

The specified ID refers to an operation that doesn't exist.

HTTP Status Code: 404

**StackSetNotFound**

The specified StackSet doesn't exist.

HTTP Status Code: 404

## Examples

### StopStackSetOperation

This example illustrates one usage of StopStackSetOperation.

**Sample Request**

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

```
 &StackSetName=stack-set-example
 &OperationId=61806005-bde9-46f1-949d-6791example
 &X-Amz-Algorithm=AWS4-HMAC-SHA256
 &X-Amz-Credential=[Access key ID and scope]
 &X-Amz-Date=20170810T233349Z
 &X-Amz-SignedHeaders=content-type;host
 &X-Amz-Signature=[Signature]
```

### Sample Response

```
<StopStackSetOperationResponse xmlns="http://internal.amazon.com/coral/
com.amazonaws.maestro.service.v20160713/">
  <StopStackSetOperationResult/>
  <ResponseMetadata>
    <RequestId>dded5cd7-8140-11e7-bc66-f9191example</RequestId>
  </ResponseMetadata>
</StopStackSetOperationResponse>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# TestType

Tests a registered extension to make sure it meets all necessary requirements for being published in the CloudFormation registry.

- For resource types, this includes passing all contracts tests defined for the type.
- For modules, this includes determining if the module's model meets all necessary requirements.

For more information, see Testing your public extension before publishing in the *AWS CloudFormation Command Line Interface (CLI) User Guide*.

If you don't specify a version, CloudFormation uses the default version of the extension in your account and Region for testing.

To perform testing, CloudFormation assumes the execution role specified when the type was registered. For more information, see RegisterType.

Once you've initiated testing on an extension using `TestType`, you can pass the returned `TypeVersionArn` into DescribeType to monitor the current test status and test status description for the extension.

An extension must have a test status of PASSED before it can be published. For more information, see Publishing extensions to make them available for public use in the *AWS CloudFormation Command Line Interface (CLI) User Guide*.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**Arn**

The Amazon Resource Name (ARN) of the extension.

Conditional: You must specify `Arn`, or `TypeName` and `Type`.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `arn:aws[A-Za-z0-9-]{0,64}:cloudformation:[A-Za-z0-9-]{1,64}:([0-9]{12})?:type/.+`

Required: No

**LogDeliveryBucket**

The S3 bucket to which CloudFormation delivers the contract test execution logs.

CloudFormation delivers the logs by the time contract testing has completed and the extension has been assigned a test type status of `PASSED` or `FAILED`.

The user calling `TestType` must be able to access items in the specified S3 bucket. Specifically, the user needs the following permissions:

- `GetObject`
- `PutObject`

For more information, see Actions, Resources, and Condition Keys for Amazon S3 in the *AWS Identity and Access Management User Guide*.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 63.

Pattern: `[\s\S]+`

Required: No

**Type**

The type of the extension to test.

Conditional: You must specify `Arn`, or `TypeName` and `Type`.

Type: String

Valid Values: `RESOURCE | MODULE | HOOK`

Required: No

**TypeName**

The name of the extension to test.

Conditional: You must specify `Arn`, or `TypeName` and `Type`.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 204.

Pattern: `[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}(::MODULE){0,1}`

Required: No

**VersionId**

The version of the extension to test.

You can specify the version id with either `Arn`, or with `TypeName` and `Type`.

If you don't specify a version, CloudFormation uses the default version of the extension in this account and Region for testing.

Type: String

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

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

Required: No

## Response Elements

The following element is returned by the service.

**TypeVersionArn**

The Amazon Resource Name (ARN) of the extension.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `arn:aws[A-Za-z0-9-]{0,64}:cloudformation:[A-Za-z0-9-]{1,64}:([0-9]{12})?:type/.+`

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**CFNRegistry**

An error occurred during a CloudFormation registry operation.

**Message**

A message with details about the error that occurred.

HTTP Status Code: 400

**TypeNotFound**

The specified extension doesn't exist in the CloudFormation registry.

HTTP Status Code: 404

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# UpdateGeneratedTemplate

Updates a generated template. This can be used to change the name, add and remove resources, refresh resources, and change the `DeletionPolicy` and `UpdateReplacePolicy` settings. You can check the status of the update to the generated template using the `DescribeGeneratedTemplate` API action.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**AddResources.member.N**

An optional list of resources to be added to the generated template.

Type: Array of ResourceDefinition objects

Array Members: Minimum number of 1 item. Maximum number of 500 items.

Required: No

**GeneratedTemplateName**

The name or Amazon Resource Name (ARN) of a generated template.

Type: String

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

Required: Yes

**NewGeneratedTemplateName**

An optional new name to assign to the generated template.

Type: String

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

Required: No

**RefreshAllResources**

If `true`, update the resource properties in the generated template with their current live state. This feature is useful when the resource properties in your generated a template does not

reflect the live state of the resource properties. This happens when a user update the resource properties after generating a template.

Type: Boolean

Required: No

**RemoveResources.member.N**

A list of logical ids for resources to remove from the generated template.

Type: Array of strings

Array Members: Minimum number of 1 item. Maximum number of 500 items.

Required: No

**TemplateConfiguration**

The configuration details of the generated template, including the `DeletionPolicy` and `UpdateReplacePolicy`.

Type: TemplateConfiguration object

Required: No

## Response Elements

The following element is returned by the service.

**GeneratedTemplateId**

The Amazon Resource Name (ARN) of the generated template. The format is `arn:${Partition}:cloudformation:${Region}:${Account}:generatedtemplate/${Id}`. For example, `arn:aws:cloudformation:`*`us-east-1`*`:`*`123456789012`*`:generatedtemplate/`*`2e8465c1-9a80-43ea-a3a3-4f2d692fe6dc`* .

Type: String

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

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**AlreadyExists**

The resource with the name requested already exists.

HTTP Status Code: 400

**GeneratedTemplateNotFound**

The generated template was not found.

HTTP Status Code: 404

**LimitExceeded**

The quota for the resource has already been reached.

For information about resource and stack limitations, see CloudFormation quotas in the *AWS CloudFormation User Guide*.

HTTP Status Code: 400

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)

- AWS SDK for Ruby V3

# 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 through the DescribeStacks action.

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

For more information about updating a stack and monitoring the progress of the update, see Managing AWS resources as a single unit with CloudFormation stacks in the *AWS CloudFormation User Guide*.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**Capabilities.member.N**

In some cases, you must explicitly acknowledge that your stack template contains certain capabilities in order for CloudFormation to update the stack.

- `CAPABILITY_IAM` and `CAPABILITY_NAMED_IAM`

  Some stack templates might include resources that can affect permissions in your AWS account, for example, by creating new IAM users. For those stacks, you must explicitly acknowledge this by specifying one of these capabilities.

  The following IAM resources require you to specify either the `CAPABILITY_IAM` or `CAPABILITY_NAMED_IAM` capability.

  - 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 either of these capabilities, CloudFormation returns an `InsufficientCapabilities` error.

  If your stack template contains these resources, we suggest that you review all permissions associated with them and edit their permissions if necessary.

  - AWS::IAM::AccessKey
  - AWS::IAM::Group
  - AWS::IAM::InstanceProfile
  - AWS::IAM::ManagedPolicy

- AWS::IAM::Policy
- AWS::IAM::Role
- AWS::IAM::User
- AWS::IAM::UserToGroupAddition

For more information, see Acknowledging IAM resources in CloudFormation templates.

- `CAPABILITY_AUTO_EXPAND`

  Some template contain macros. Macros perform custom processing on templates; this can include simple actions like find-and-replace operations, all the way to extensive transformations of entire templates. Because of this, users typically create a change set from the processed template, so that they can review the changes resulting from the macros before actually updating the stack. If your stack template contains one or more macros, and you choose to update a stack directly from the processed template, without first reviewing the resulting changes in a change set, you must acknowledge this capability. This includes the AWS::Include and AWS::Serverless transforms, which are macros hosted by CloudFormation.

  If you want to update a stack from a stack template that contains macros *and* nested stacks, you must update the stack directly from the template using this capability.

  > **Important**
  >
  > You should only update stacks directly from a stack template that contains macros if you know what processing the macro performs.
  > Each macro relies on an underlying Lambda service function for processing stack templates. Be aware that the Lambda function owner can update the function operation without CloudFormation being notified.

  For more information, see Perform custom processing on CloudFormation templates with template macros.

> **Note**
>
> Only one of the `Capabilities` and `ResourceType` parameters can be specified.

Type: Array of strings

Valid Values: `CAPABILITY_IAM | CAPABILITY_NAMED_IAM | CAPABILITY_AUTO_EXPAND`

Required: No

**ClientRequestToken**

A unique identifier for this `UpdateStack` request. Specify this token if you plan to retry requests so that CloudFormation knows that you're not attempting to update a stack with the same name. You might retry `UpdateStack` requests to ensure that CloudFormation successfully received them.

All events triggered by a given stack operation are assigned the same client request token, which you can use to track operations. For example, if you execute a `CreateStack` operation with the token `token1`, then all the `StackEvents` generated by that operation will have `ClientRequestToken` set as `token1`.

In the console, stack operations display the client request token on the Events tab. Stack operations that are initiated from the console use the token format *Console-StackOperation-ID*, which helps you easily identify the stack operation . For example, if you create a stack using the console, each stack event would be assigned the same token in the following format: `Console-CreateStack-7f59c3cf-00d2-40c7-b2ff-e75db0987002`.

Type: String

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

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

Required: No

**DeploymentConfig**

The deployment configuration for this stack operation, including the deployment mode.

Type: DeploymentConfig object

Required: No

**DisableRollback**

Preserve the state of previously provisioned resources when an operation fails.

Default: `False`

Type: Boolean

Required: No

**NotificationARNs.member.N**

Amazon Simple Notification Service topic Amazon Resource Names (ARNs) that 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 objects

Required: No

**ResourceTypes.member.N**

Specifies which resource types you can work with, such as `AWS::EC2::Instance` or `Custom::MyCustomInstance`.

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

> **Note**
>
> Only one of the `Capabilities` and `ResourceType` parameters can be specified.

Type: Array of strings

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

Required: No

**RetainExceptOnCreate**

When set to `true`, newly created resources are deleted when the operation rolls back. This includes newly created resources marked with a deletion policy of `Retain`.

Default: `false`

Type: Boolean

Required: No

**RoleARN**

The Amazon Resource Name (ARN) of an IAM role that CloudFormation assumes to update the stack. CloudFormation uses the role's credentials to make calls on your behalf. CloudFormation always uses this role for all future operations on the stack. Provided that users have permission to operate on the stack, CloudFormation uses this role even if the users don't have permission to pass it. Ensure that the role grants least privilege.

If you don't specify a value, CloudFormation uses the role that was previously associated with the stack. If no role is available, CloudFormation uses a temporary session that is generated from your user credentials.

Type: String

Length Constraints: Minimum length of 20. Maximum length of 2048.

Required: No

**RollbackConfiguration**

The rollback triggers for CloudFormation to monitor during stack creation and updating operations, and for the specified monitoring period afterwards.

Type: RollbackConfiguration object

Required: No

**StackName**

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

Type: String

Required: Yes

**StackPolicyBody**

Structure that contains 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 don't 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 that contains 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 don't 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 that contains 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. The location for an Amazon S3 bucket must start with `https://`. URLs from S3 static websites are not supported.

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 don't 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 5120.

Required: No

**StackPolicyURL**

Location of a file that contains 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. The location for an Amazon S3 bucket must start with `https://`. URLs from S3 static websites are not supported.

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 don't 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 5120.

Required: No

**Tags.member.N**

Key-value pairs to associate with this stack. CloudFormation also propagates these tags to supported resources in the stack. You can specify a maximum number of 50 tags.

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

Type: Array of Tag objects

Array Members: Maximum number of 50 items.

Required: No

**TemplateBody**

Structure that contains the template body with a minimum length of 1 byte and a maximum length of 51,200 bytes.

Conditional: You must specify only one of the following parameters: `TemplateBody`, `TemplateURL`, or set the `UsePreviousTemplate` to `true`.

Type: String

Length Constraints: Minimum length of 1.

Required: No

**TemplateURL**

The URL of a file that contains the template body. The URL must point to a template that's located in an Amazon S3 bucket or a Systems Manager document. The location for an Amazon S3 bucket must start with `https://`.

Conditional: You must specify only one of the following parameters: `TemplateBody`, `TemplateURL`, or set the `UsePreviousTemplate` to `true`.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 5120.

Required: No

**UsePreviousTemplate**

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

When using templates with the `AWS::LanguageExtensions` transform, provide the template instead of using `UsePreviousTemplate` to ensure new parameter values and Systems Manager parameter updates are applied correctly. For more information, see AWS::LanguageExtensions transform.

Conditional: You must specify only one of the following parameters: `TemplateBody`, `TemplateURL`, or set the `UsePreviousTemplate` to `true`.

Type: Boolean

Required: No

## Response Elements

The following elements are returned by the service.

**OperationId**

A unique identifier for this update operation that can be used to track the operation's progress and events.

Type: String

**StackId**

Unique identifier of the stack.

Type: String

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**InsufficientCapabilities**

The template contains resources with capabilities that weren't specified in the Capabilities parameter.

HTTP Status Code: 400

**TokenAlreadyExists**

A client request token already exists.

HTTP Status Code: 400

## Examples

### UpdateStack

This example illustrates one usage of 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>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3

- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# UpdateStackInstances

Updates the parameter values for stack instances for the specified accounts, within the specified AWS Regions. A stack instance refers to a stack in a specific account and Region.

You can only update stack instances in AWS Regions and accounts where they already exist; to create additional stack instances, use CreateStackInstances.

During StackSet updates, any parameters overridden for a stack instance aren't updated, but retain their overridden value.

You can only update the parameter *values* that are specified in the StackSet. To add or delete a parameter itself, use UpdateStackSet to update the StackSet template. If you add a parameter to a template, before you can override the parameter value specified in the StackSet you must first use UpdateStackSet to update all stack instances with the updated template and parameter value specified in the StackSet. Once a stack instance has been updated with the new parameter, you can then override the parameter value using `UpdateStackInstances`.

**Note**

The maximum number of organizational unit (OUs) supported by a `UpdateStackInstances` operation is 50.
If you need more than 50, consider the following options:

- *Batch processing:* If you don't want to expose your OU hierarchy, split up the operations into multiple calls with less than 50 OUs each.
- *Parent OU strategy:* If you don't mind exposing the OU hierarchy, target a parent OU that contains all desired child OUs.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**Accounts.member.N**

[Self-managed permissions] The account IDs of one or more AWS accounts in which you want to update parameter values for stack instances. The overridden parameter values will be applied to all stack instances in the specified accounts and AWS Regions.

You can specify `Accounts` or `DeploymentTargets`, but not both.

Type: Array of strings

Pattern: `^[0-9]{12}$`

Required: No

**CallAs**

[Service-managed permissions] Specifies whether you are acting as an account administrator in the organization's management account or as a delegated administrator in a member account.

By default, `SELF` is specified. Use `SELF` for StackSets with self-managed permissions.

- If you are signed in to the management account, specify `SELF`.
- If you are signed in to a delegated administrator account, specify `DELEGATED_ADMIN`.

  Your AWS account must be registered as a delegated administrator in the management account. For more information, see Register a delegated administrator in the *AWS CloudFormation User Guide*.

Type: String

Valid Values: `SELF | DELEGATED_ADMIN`

Required: No

**DeploymentTargets**

[Service-managed permissions] The AWS Organizations accounts in which you want to update parameter values for stack instances. If your update targets OUs, the overridden parameter values only apply to the accounts that are currently in the target OUs and their child OUs. Accounts added to the target OUs and their child OUs in the future won't use the overridden values.

You can specify `Accounts` or `DeploymentTargets`, but not both.

Type: DeploymentTargets object

Required: No

**OperationId**

The unique identifier for this StackSet operation.

The operation ID also functions as an idempotency token, to ensure that CloudFormation performs the StackSet operation only once, even if you retry the request multiple times. You might retry StackSet operation requests to ensure that CloudFormation successfully received them.

Type: String

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

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

Required: No

**OperationPreferences**

Preferences for how CloudFormation performs this StackSet operation.

Type: StackSetOperationPreferences object

Required: No

**ParameterOverrides.member.N**

A list of input parameters whose values you want to update for the specified stack instances.

Any overridden parameter values will be applied to all stack instances in the specified accounts and AWS Regions. When specifying parameters and their values, be aware of how CloudFormation sets parameter values during stack instance update operations:

- To override the current value for a parameter, include the parameter and specify its value.
- To leave an overridden parameter set to its present value, include the parameter and specify `UsePreviousValue` as `true`. (You can't specify both a value and set `UsePreviousValue` to `true`.)
- To set an overridden parameter back to the value specified in the StackSet, specify a parameter list but don't include the parameter in the list.
- To leave all parameters set to their present values, don't specify this property at all.

During StackSet updates, any parameter values overridden for a stack instance aren't updated, but retain their overridden value.

You can only override the parameter *values* that are specified in the StackSet. To add or delete a parameter itself, use `UpdateStackSet` to update the StackSet template. If you add a parameter to a template, before you can override the parameter value specified in the StackSet

you must first use UpdateStackSet to update all stack instances with the updated template and parameter value specified in the StackSet. Once a stack instance has been updated with the new parameter, you can then override the parameter value using `UpdateStackInstances`.

Type: Array of Parameter objects

Required: No

**Regions.member.N**

The names of one or more AWS Regions in which you want to update parameter values for stack instances. The overridden parameter values will be applied to all stack instances in the specified accounts and AWS Regions.

Type: Array of strings

Pattern: `^[a-zA-Z0-9-]{1,128}$`

Required: Yes

**StackSetName**

The name or unique ID of the StackSet associated with the stack instances.

Type: String

Pattern: `[a-zA-Z][-a-zA-Z0-9]*(?::[a-zA-Z0-9]{8}-[a-zA-Z0-9]{4}-[a-zA-Z0-9]{4}-[a-zA-Z0-9]{4}-[a-zA-Z0-9]{12})?`

Required: Yes

## Response Elements

The following element is returned by the service.

**OperationId**

The unique identifier for this StackSet operation.

Type: String

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

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

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**InvalidOperation**

The specified operation isn't valid.

HTTP Status Code: 400

**OperationIdAlreadyExists**

The specified operation ID already exists.

HTTP Status Code: 409

**OperationInProgress**

Another operation is currently in progress for this StackSet. Only one operation can be performed for a stack set at a given time.

HTTP Status Code: 409

**StackInstanceNotFound**

The specified stack instance doesn't exist.

HTTP Status Code: 404

**StackSetNotFound**

The specified StackSet doesn't exist.

HTTP Status Code: 404

**StaleRequest**

Another operation has been performed on this StackSet since the specified operation was performed.

HTTP Status Code: 409

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# UpdateStackSet

Updates the StackSet and associated stack instances in the specified accounts and AWS Regions.

Even if the StackSet operation created by updating the StackSet fails (completely or partially, below or above a specified failure tolerance), the StackSet is updated with your changes. Subsequent CreateStackInstances calls on the specified StackSet use the updated StackSet.

> **Note**
>
> The maximum number of organizational unit (OUs) supported by a `UpdateStackSet` operation is 50.
> If you need more than 50, consider the following options:
>
> - *Batch processing:* If you don't want to expose your OU hierarchy, split up the operations into multiple calls with less than 50 OUs each.
> - *Parent OU strategy:* If you don't mind exposing the OU hierarchy, target a parent OU that contains all desired child OUs.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**Accounts.member.N**

[Self-managed permissions] The accounts in which to update associated stack instances. If you specify accounts, you must also specify the AWS Regions in which to update StackSet instances.

To update *all* the stack instances associated with this StackSet, don't specify the `Accounts` or `Regions` properties.

If the StackSet update includes changes to the template (that is, if the `TemplateBody` or `TemplateURL` properties are specified), or the `Parameters` property, CloudFormation marks all stack instances with a status of `OUTDATED` prior to updating the stack instances in the specified accounts and AWS Regions. If the StackSet update does not include changes to the template or parameters, CloudFormation updates the stack instances in the specified accounts and AWS Regions, while leaving all other stack instances with their existing stack instance status.

Type: Array of strings

Pattern: `^[0-9]{12}$`

Required: No

**AdministrationRoleARN**

[Self-managed permissions] The Amazon Resource Name (ARN) of the IAM role to use to update this StackSet.

Specify an IAM role only if you are using customized administrator roles to control which users or groups can manage specific StackSets within the same administrator account. For more information, see Grant self-managed permissions in the *AWS CloudFormation User Guide*.

If you specified a customized administrator role when you created the StackSet, you must specify a customized administrator role, even if it is the same customized administrator role used with this StackSet previously.

Type: String

Length Constraints: Minimum length of 20. Maximum length of 2048.

Required: No

**AutoDeployment**

[Service-managed permissions] Describes whether StackSets automatically deploys to AWS Organizations accounts that are added to a target organization or organizational unit (OU). For more information, see Enable or disable automatic deployments for StackSets in AWS Organizations in the *AWS CloudFormation User Guide*.

If you specify `AutoDeployment`, don't specify `DeploymentTargets` or `Regions`.

Type: AutoDeployment object

Required: No

**CallAs**

[Service-managed permissions] Specifies whether you are acting as an account administrator in the organization's management account or as a delegated administrator in a member account.

By default, `SELF` is specified. Use `SELF` for StackSets with self-managed permissions.

- If you are signed in to the management account, specify `SELF`.

- If you are signed in to a delegated administrator account, specify `DELEGATED_ADMIN`.

  Your AWS account must be registered as a delegated administrator in the management account. For more information, see Register a delegated administrator in the *AWS CloudFormation User Guide*.

Type: String

Valid Values: `SELF | DELEGATED_ADMIN`

Required: No

**Capabilities.member.N**

In some cases, you must explicitly acknowledge that your stack template contains certain capabilities in order for CloudFormation to update the StackSet and its associated stack instances.

- `CAPABILITY_IAM` and `CAPABILITY_NAMED_IAM`

  Some stack templates might include resources that can affect permissions in your AWS account, for example, by creating new IAM users. For those stacks sets, you must explicitly acknowledge this by specifying one of these capabilities.

  The following IAM resources require you to specify either the `CAPABILITY_IAM` or `CAPABILITY_NAMED_IAM` capability.

  - 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 either of these capabilities, CloudFormation returns an `InsufficientCapabilities` error.

  If your stack template contains these resources, we recommend that you review all permissions associated with them and edit their permissions if necessary.

  - AWS::IAM::AccessKey
  - AWS::IAM::Group
  - AWS::IAM::InstanceProfile
  - AWS::IAM::Policy
  - AWS::IAM::Role
  - AWS::IAM::User

- AWS::IAM::UserToGroupAddition

For more information, see Acknowledging IAM resources in CloudFormation templates.

- `CAPABILITY_AUTO_EXPAND`

Some templates reference macros. If your StackSet template references one or more macros, you must update the StackSet directly from the processed template, without first reviewing the resulting changes in a change set. To update the StackSet directly, you must acknowledge this capability. For more information, see Perform custom processing on CloudFormation templates with template macros.

> **Important**
>
> StackSets with service-managed permissions do not currently support the use of macros in templates. (This includes the AWS::Include and AWS::Serverless transforms, which are macros hosted by CloudFormation.) Even if you specify this capability for a StackSet with service-managed permissions, if you reference a macro in your template the StackSet operation will fail.

Type: Array of strings

Valid Values: `CAPABILITY_IAM | CAPABILITY_NAMED_IAM | CAPABILITY_AUTO_EXPAND`

Required: No

**DeploymentTargets**

[Service-managed permissions] The AWS Organizations accounts in which to update associated stack instances.

To update all the stack instances associated with this StackSet, do not specify `DeploymentTargets` or `Regions`.

If the StackSet update includes changes to the template (that is, if `TemplateBody` or `TemplateURL` is specified), or the `Parameters`, CloudFormation marks all stack instances with a status of `OUTDATED` prior to updating the stack instances in the specified accounts and AWS Regions. If the StackSet update doesn't include changes to the template or parameters, CloudFormation updates the stack instances in the specified accounts and Regions, while leaving all other stack instances with their existing stack instance status.

Type: DeploymentTargets object

Required: No

**Description**

A brief description of updates that you are making.

Type: String

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

Required: No

**ExecutionRoleName**

[Self-managed permissions] The name of the IAM execution role to use to update the stack set. If you do not specify an execution role, CloudFormation uses the `AWSCloudFormationStackSetExecutionRole` role for the StackSet operation.

Specify an IAM role only if you are using customized execution roles to control which stack resources users and groups can include in their StackSets.

If you specify a customized execution role, CloudFormation uses that role to update the stack. If you do not specify a customized execution role, CloudFormation performs the update using the role previously associated with the StackSet, so long as you have permissions to perform operations on the StackSet.

Type: String

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

Pattern: `[a-zA-Z_0-9+=,.@-]+`

Required: No

**ManagedExecution**

Describes whether CloudFormation performs non-conflicting operations concurrently and queues conflicting operations.

Type: ManagedExecution object

Required: No

**OperationId**

The unique ID for this StackSet operation.

The operation ID also functions as an idempotency token, to ensure that CloudFormation performs the StackSet operation only once, even if you retry the request multiple times. You might retry StackSet operation requests to ensure that CloudFormation successfully received them.

Repeating this StackSet operation with a new operation ID retries all stack instances whose status is `OUTDATED`.

Type: String

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

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

Required: No

**OperationPreferences**

Preferences for how CloudFormation performs this StackSet operation.

Type: StackSetOperationPreferences object

Required: No

**Parameters.member.N**

A list of input parameters for the StackSet template.

Type: Array of Parameter objects

Required: No

**PermissionModel**

Describes how the IAM roles required for StackSet operations are created. You cannot modify `PermissionModel` if there are stack instances associated with your stack set.

- With `self-managed` permissions, you must create the administrator and execution roles required to deploy to target accounts. For more information, see Grant self-managed permissions.

- With `service-managed` permissions, StackSets automatically creates the IAM roles required to deploy to accounts managed by AWS Organizations. For more information, see Activate trusted access for StackSets with AWS Organizations.

Type: String

Valid Values: `SERVICE_MANAGED | SELF_MANAGED`

Required: No

**Regions.member.N**

The AWS Regions in which to update associated stack instances. If you specify Regions, you must also specify accounts in which to update StackSet instances.

To update *all* the stack instances associated with this StackSet, do not specify the `Accounts` or `Regions` properties.

If the StackSet update includes changes to the template (that is, if the `TemplateBody` or `TemplateURL` properties are specified), or the `Parameters` property, CloudFormation marks all stack instances with a status of `OUTDATED` prior to updating the stack instances in the specified accounts and Regions. If the StackSet update does not include changes to the template or parameters, CloudFormation updates the stack instances in the specified accounts and Regions, while leaving all other stack instances with their existing stack instance status.

Type: Array of strings

Pattern: `^[a-zA-Z0-9-]{1,128}$`

Required: No

**StackSetName**

The name or unique ID of the StackSet that you want to update.

Type: String

Required: Yes

**Tags.member.N**

The key-value pairs to associate with this StackSet and the stacks created from it. CloudFormation also propagates these tags to supported resources that are created in the stacks. You can specify a maximum number of 50 tags.

If you specify tags for this parameter, those tags replace any list of tags that are currently associated with this StackSet. This means:

- If you don't specify this parameter, CloudFormation doesn't modify the stack's tags.
- If you specify *any* tags using this parameter, you must specify *all* the tags that you want associated with this StackSet, even tags you've specified before (for example, when creating the StackSet or during a previous update of the StackSet.). Any tags that you don't include in the updated list of tags are removed from the StackSet, and therefore from the stacks and resources as well.
- If you specify an empty value, CloudFormation removes all currently associated tags.

If you specify new tags as part of an `UpdateStackSet` action, CloudFormation checks to see if you have the required IAM permission to tag resources. If you omit tags that are currently associated with the StackSet from the list of tags you specify, CloudFormation assumes that you want to remove those tags from the StackSet, and checks to see if you have permission to untag resources. If you don't have the necessary permission(s), the entire `UpdateStackSet` action fails with an `access denied` error, and the StackSet is not updated.

Type: Array of Tag objects

Array Members: Maximum number of 50 items.

Required: No

**TemplateBody**

The structure that contains the template body, with a minimum length of 1 byte and a maximum length of 51,200 bytes.

Conditional: You must specify only one of the following parameters: `TemplateBody` or `TemplateURL`—or set `UsePreviousTemplate` to true.

Type: String

Length Constraints: Minimum length of 1.

Required: No

**TemplateURL**

The URL of a file that contains the template body. The URL must point to a template (maximum size: 1 MB) that is located in an Amazon S3 bucket or a Systems Manager document. The

location for an Amazon S3 bucket must start with `https://`. S3 static website URLs are not supported.

Conditional: You must specify only one of the following parameters: `TemplateBody` or `TemplateURL`—or set `UsePreviousTemplate` to true.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 5120.

Required: No

**UsePreviousTemplate**

Use the existing template that's associated with the StackSet that you're updating.

Conditional: You must specify only one of the following parameters: `TemplateBody` or `TemplateURL`—or set `UsePreviousTemplate` to true.

Type: Boolean

Required: No

## Response Elements

The following element is returned by the service.

**OperationId**

The unique ID for this StackSet operation.

Type: String

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

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

## Errors

For information about the errors that are common to all actions, see Common Error Types.

**InvalidOperation**

The specified operation isn't valid.

HTTP Status Code: 400

**OperationIdAlreadyExists**

The specified operation ID already exists.

HTTP Status Code: 409

**OperationInProgress**

Another operation is currently in progress for this StackSet. Only one operation can be performed for a stack set at a given time.

HTTP Status Code: 409

**StackInstanceNotFound**

The specified stack instance doesn't exist.

HTTP Status Code: 404

**StackSetNotFound**

The specified StackSet doesn't exist.

HTTP Status Code: 404

**StaleRequest**

Another operation has been performed on this StackSet since the specified operation was performed.

HTTP Status Code: 409

# Examples

## UpdateStackSet

This example illustrates one usage of UpdateStackSet.

### Sample Request

```
https://cloudformation.us-east-1.amazonaws.com/
 ?Action=UpdateStackSet
 &Version=2010-05-15
 &StackSetName=stack-set-example
 &OperationPreferences.MaxConcurrentCount=2
 &OperationPreferences.FailureToleranceCount=1
 &UsePreviousTemplate=true
 &Tags.member.1.Key=new_key
 &Tags.member.1.Value=new_value
 &OperationId=bb1764f4-3dea-4c39-bd65-066aexample
 &X-Amz-Algorithm=AWS4-HMAC-SHA256
 &X-Amz-Credential=[Access key ID and scope]
 &X-Amz-Date=20170810T233349Z
 &X-Amz-SignedHeaders=content-type;host
 &X-Amz-Signature=[Signature]
```

### Sample Response

```
<UpdateStackSetResponse xmlns="http://internal.amazon.com/coral/
com.amazonaws.maestro.service.v20160713/">
  <UpdateStackSetResult>
    <OperationId>bb1764f4-3dea-4c39-bd65-066aexamplef</OperationId>
  </UpdateStackSetResult>
  <ResponseMetadata>
    <RequestId>32d4839e-7e24-11e7-b656-d39aexample</RequestId>
  </ResponseMetadata>
</UpdateStackSetResponse>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2

- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# UpdateTerminationProtection

Updates termination protection for the specified stack. If a user attempts to delete a stack with termination protection enabled, the operation fails and the stack remains unchanged. For more information, see Protect a CloudFormation stack from being deleted in the *AWS CloudFormation User Guide*.

For nested stacks, termination protection is set on the root stack and can't be changed directly on the nested stack.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**EnableTerminationProtection**

Whether to enable termination protection on the specified stack.

Type: Boolean

Required: Yes

**StackName**

The name or unique ID of the stack for which you want to set termination protection.

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 element is returned by the service.

**StackId**

The unique ID of the stack.

Type: String

## Errors

For information about the errors that are common to all actions, see Common Error Types.

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# ValidateTemplate

Validates a specified template. CloudFormation first checks if the template is valid JSON. If it isn't, CloudFormation checks if the template is valid YAML. If both these checks fail, CloudFormation returns a template validation error.

## Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

**TemplateBody**

Structure that contains the template body with a minimum length of 1 byte and a maximum length of 51,200 bytes.

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**

The URL of a file that contains the template body. The URL must point to a template (max size: 1 MB) that is located in an Amazon S3 bucket or a Systems Manager document. The location for an Amazon S3 bucket must start with `https://`.

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 5120.

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 or UpdateStack actions with your template; otherwise, those actions return an InsufficientCapabilities error.

For more information, see Acknowledging IAM resources in CloudFormation templates.

Type: Array of strings

Valid Values: `CAPABILITY_IAM | CAPABILITY_NAMED_IAM | CAPABILITY_AUTO_EXPAND`

**CapabilitiesReason**

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

Type: String

**DeclaredTransforms.member.N**

A list of the transforms that are declared in the template.

Type: Array of strings

**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 objects

## Errors

For information about the errors that are common to all actions, see Common Error Types.

# Examples

## ValidateTemplate

This example illustrates one usage of 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>
```

## See Also

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

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

# 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:

- AccountGateResult
- AccountLimit
- Annotation
- AutoDeployment
- BatchDescribeTypeConfigurationsError
- Change
- ChangeSetHook
- ChangeSetHookResourceTargetDetails
- ChangeSetHookTargetDetails
- ChangeSetSummary
- DeploymentConfig
- DeploymentTargets
- EventFilter
- Export
- HookResultSummary
- HookTarget
- LiveResourceDrift
- LoggingConfig
- ManagedExecution
- ModuleInfo

- OperationEntry
- OperationEvent
- OperationResultFilter
- Output
- Parameter
- ParameterConstraints
- ParameterDeclaration
- PhysicalResourceIdContextKeyValuePair
- PropertyDifference
- RequiredActivatedType
- ResourceChange
- ResourceChangeDetail
- ResourceDefinition
- ResourceDetail
- ResourceDriftIgnoredAttribute
- ResourceIdentifierSummary
- ResourceLocation
- ResourceMapping
- ResourceScanSummary
- ResourceTargetDefinition
- ResourceToImport
- RollbackConfiguration
- RollbackTrigger
- ScanFilter
- ScannedResource
- ScannedResourceIdentifier
- Stack
- StackDefinition
- StackDriftInformation
- StackDriftInformationSummary

- StackEvent
- StackInstance
- StackInstanceComprehensiveStatus
- StackInstanceFilter
- StackInstanceResourceDriftsSummary
- StackInstanceSummary
- StackRefactorAction
- StackRefactorSummary
- StackResource
- StackResourceDetail
- StackResourceDrift
- StackResourceDriftInformation
- StackResourceDriftInformationSummary
- StackResourceSummary
- StackSet
- StackSetAutoDeploymentTargetSummary
- StackSetDriftDetectionDetails
- StackSetOperation
- StackSetOperationPreferences
- StackSetOperationResultSummary
- StackSetOperationStatusDetails
- StackSetOperationSummary
- StackSetSummary
- StackSummary
- Tag
- TemplateConfiguration
- TemplateParameter
- TemplateProgress
- TemplateSummary
- TemplateSummaryConfig

- TypeConfigurationDetails
- TypeConfigurationIdentifier
- TypeFilters
- TypeSummary
- TypeVersionSummary
- WarningDetail
- WarningProperty
- Warnings

# AccountGateResult

Structure that contains the results of the account gate function which CloudFormation invokes, if present, before proceeding with a StackSet operation in an account and Region.

For each account and Region, CloudFormation lets you specify a Lambda function that encapsulates any requirements that must be met before CloudFormation can proceed with a StackSet operation in that account and Region. CloudFormation invokes the function each time a StackSet operation is requested for that account and Region; if the function returns `FAILED`, CloudFormation cancels the operation in that account and Region, and sets the StackSet operation result status for that account and Region to `FAILED`.

For more information, see Prevent failed StackSets deployments using target account gates in the *AWS CloudFormation User Guide*.

## Contents

**Status**

The status of the account gate function.

- `SUCCEEDED`: The account gate function has determined that the account and Region passes any requirements for a StackSet operation to occur. CloudFormation proceeds with the stack operation in that account and Region.
- `FAILED`: The account gate function has determined that the account and Region doesn't meet the requirements for a StackSet operation to occur. CloudFormation cancels the StackSet operation in that account and Region, and sets the StackSet operation result status for that account and Region to `FAILED`.
- `SKIPPED`: CloudFormation has skipped calling the account gate function for this account and Region, for one of the following reasons:
  - An account gate function hasn't been specified for the account and Region. CloudFormation proceeds with the StackSet operation in this account and Region.
  - The `AWSCloudFormationStackSetExecutionRole` of the administration account lacks permissions to invoke the function. CloudFormation proceeds with the StackSet operation in this account and Region.
  - Either no action is necessary, or no action is possible, on the stack. CloudFormation skips the StackSet operation in this account and Region.

Type: String

Valid Values: `SUCCEEDED | FAILED | SKIPPED`

Required: No

**StatusReason**

The reason for the account gate status assigned to this account and Region for the StackSet operation.

Type: String

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# AccountLimit

Describes the current CloudFormation limits for your account.

CloudFormation has the following limits per account:

- Number of concurrent resources
- Number of stacks
- Number of stack outputs

For more information, see Understand CloudFormation quotas in the *AWS CloudFormation User Guide*.

## Contents

**Name**

The name of the account limit.

Values: `ConcurrentResourcesLimit` | `StackLimit` | `StackOutputsLimit`

Type: String

Required: No

**Value**

The value that's associated with the account limit name.

Type: Integer

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2

- AWS SDK for Ruby V3

# Annotation

The `Annotation` data type.

A `GetHookResult` call returns detailed information and remediation guidance from Control Tower, Guard, Lambda, or custom Hooks for a Hook invocation result.

## Contents

**AnnotationName**

An identifier for the evaluation logic that was used when invoking the Hook. For Control Tower, this is the control ID. For Guard, this is the rule ID. For Lambda and custom Hooks, this is a user-defined identifier.

Type: String

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

Required: No

**RemediationLink**

A URL that you can access for additional remediation guidance.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 5120.

Required: No

**RemediationMessage**

Suggests what to change if your Hook returns a `FAILED` status. For example, "Block public access to the bucket".

Type: String

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

Required: No

**SeverityLevel**

The relative risk associated with any violations of this type.

Type: String

Valid Values: `INFORMATIONAL | LOW | MEDIUM | HIGH | CRITICAL`

Required: No

**Status**

The status of the Hook invocation from the downstream service.

Type: String

Valid Values: `PASSED | FAILED | SKIPPED`

Required: No

**StatusMessage**

The explanation for the specific status assigned to this Hook invocation. For example, "Bucket does not block public access".

Type: String

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

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# AutoDeployment

Describes whether StackSets automatically deploys to AWS Organizations accounts that are added to a target organization or organizational unit (OU). For more information, see Enable or disable automatic deployments for StackSets in AWS Organizations in the *AWS CloudFormation User Guide*.

## Contents

**DependsOn.member.N**

A list of StackSet ARNs that this StackSet depends on for auto-deployment operations. When auto-deployment is triggered, operations will be sequenced to ensure all dependencies complete successfully before this StackSet's operation begins.

Type: Array of strings

Required: No

**Enabled**

If set to `true`, StackSets automatically deploys additional stack instances to AWS Organizations accounts that are added to a target organization or organizational unit (OU) in the specified Regions. If an account is removed from a target organization or OU, StackSets deletes stack instances from the account in the specified Regions.

Type: Boolean

Required: No

**RetainStacksOnAccountRemoval**

If set to `true`, stack resources are retained when an account is removed from a target organization or OU. If set to `false`, stack resources are deleted. Specify only if `Enabled` is set to `True`.

Type: Boolean

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# BatchDescribeTypeConfigurationsError

Detailed information concerning an error generated during the setting of configuration data for a CloudFormation extension.

## Contents

**ErrorCode**

The error code.

Type: String

Length Constraints: Fixed length of 3.

Required: No

**ErrorMessage**

The error message.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 255.

Required: No

**TypeConfigurationIdentifier**

Identifying information for the configuration of a CloudFormation extension.

Type: TypeConfigurationIdentifier object

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2

- AWS SDK for Ruby V3

# Change

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

## Contents

**HookInvocationCount**

Is either `null`, if no Hooks invoke for the resource, or contains the number of Hooks that will invoke for the resource.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 100.

Required: No

**ResourceChange**

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

Type: ResourceChange object

Required: No

**Type**

The type of entity that CloudFormation changes.

- `Resource` This change is for a resource.

Type: String

Valid Values: `Resource`

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# ChangeSetHook

Specifies the resource, the Hook, and the Hook version to be invoked.

## Contents

**FailureMode**

Specify the Hook failure mode for non-compliant resources in the followings ways.

- `FAIL` Stops provisioning resources.
- `WARN` Allows provisioning to continue with a warning message.

Type: String

Valid Values: `FAIL | WARN`

Required: No

**InvocationPoint**

The specific point in the provisioning process where the Hook is invoked.

Type: String

Valid Values: `PRE_PROVISION`

Required: No

**TargetDetails**

Specifies details about the target that the Hook will run against.

Type: ChangeSetHookTargetDetails object

Required: No

**TypeConfigurationVersionId**

The version ID of the type configuration.

Type: String

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

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

Required: No

**TypeName**

The unique name for your Hook. Specifies a three-part namespace for your Hook, with a recommended pattern of `Organization::Service::Hook`.

> **Note**
>
> The following organization namespaces are reserved and can't be used in your Hook type names:
>
> - `Alexa`
> - `AMZN`
> - `Amazon`
> - `ASK`
> - `AWS`
> - `Custom`
> - `Dev`

Type: String

Length Constraints: Minimum length of 10. Maximum length of 196.

Required: No

**TypeVersionId**

The version ID of the type specified.

Type: String

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

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

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# ChangeSetHookResourceTargetDetails

Specifies RESOURCE type target details for activated Hooks.

## Contents

**LogicalResourceId**

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

Type: String

Required: No

**ResourceAction**

Specifies the action of the resource.

Type: String

Valid Values: `Add | Modify | Remove | Import | Dynamic | SyncWithActual`

Required: No

**ResourceType**

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

Type: String

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

Pattern: `^[a-zA-Z0-9]{2,64}::[a-zA-Z0-9]{2,64}::[a-zA-Z0-9]{2,64}$`

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2

- AWS SDK for Ruby V3

# ChangeSetHookTargetDetails

Specifies target details for an activated Hook.

## Contents

**ResourceTargetDetails**

Required if `TargetType` is RESOURCE.

Type: ChangeSetHookResourceTargetDetails object

Required: No

**TargetType**

The Hook target type.

Type: String

Valid Values: RESOURCE

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# 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 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

**ImportExistingResources**

Indicates if the change set imports resources that already exist.

Type: Boolean

Required: No

**IncludeNestedStacks**

Specifies the current setting of `IncludeNestedStacks` for the change set.

Type: Boolean

Required: No

**ParentChangeSetId**

The parent change set ID.

Type: String

Length Constraints: Minimum length of 1.

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

Required: No

**RootChangeSetId**

The root change set ID.

Type: String

Length Constraints: Minimum length of 1.

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

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_PENDING`, `CREATE_COMPLETE`, or `FAILED`.

Type: String

Valid Values: `CREATE_PENDING | CREATE_IN_PROGRESS | CREATE_COMPLETE | DELETE_PENDING | DELETE_IN_PROGRESS | DELETE_COMPLETE | DELETE_FAILED | FAILED`

Required: No

**StatusReason**

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

Type: String

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# DeploymentConfig

The deployment configuration for a stack operation, including the deployment mode.

## Contents

**DisableRollback**

Specifies whether to disable rollback of the stack if the stack operation fails.

Default: `false`

Type: Boolean

Required: No

**Mode**

Specifies the deployment mode for the stack operation. Possible values are:

- `STANDARD` - Use the standard deployment behavior, ensuring resources are ready to serve traffic before completing the operation. This is the default. You do not need to specify this value explicitly.
- `EXPRESS` - Complete the stack operation when resource configuration is applied, without waiting for resources to become ready to serve traffic. Resources continue becoming ready in the background.

Type: String

Valid Values: `STANDARD | EXPRESS`

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# DeploymentTargets

Specifies the AWS Organizations accounts where you want to create, update, or delete stack instances. You can target either your entire organization or specific accounts using organizational units (OUs) and account filter options.

CloudFormation doesn't deploy stack instances to the organization management account, even if the organization management account is in your organization or in an OU in your organization.

When performing create operations, if you specify both `OrganizationalUnitIds` and `Accounts`, you must also specify the `AccountFilterType` property.

## Contents

**AccountFilterType**

Refines which accounts will have stack operations performed on them by specifying how to use the `Accounts` and `OrganizationalUnitIds` properties together.

The following values determine how CloudFormation selects target accounts:

- `INTERSECTION`: Performs stack operations only on specific individual accounts within the selected OUs. Only accounts that are both specified in the `Accounts` property and belong to the specified OUs will be targeted.
- `DIFFERENCE`: Performs stack operations on all accounts in the selected OUs except for specific accounts listed in the `Accounts` property. This enables you to exclude certain accounts within an OU, such as suspended accounts.
- `UNION`: Performs stack operations on the specified OUs plus additional individual accounts listed in the `Accounts` property. This is the default value if `AccountFilterType` is not provided. This lets you target an entire OU and individual accounts from a different OU in one request. Note that `UNION` is not supported for `CreateStackInstances` operations.
- `NONE`: Performs stack operations on all accounts in the specified organizational units (OUs).

Type: String

Valid Values: `NONE | INTERSECTION | DIFFERENCE | UNION`

Required: No

**Accounts.member.N**

The AWS account IDs where you want to perform stack operations. How these accounts are used depends on the `AccountFilterType` property.

If you have many account numbers, you can provide those accounts using the `AccountsUrl` property instead.

Type: Array of strings

Pattern: `^[0-9]{12}$`

Required: No

**AccountsUrl**

The Amazon S3 URL path to a file that contains a list of AWS account IDs. The file format must be either `.csv` or `.txt`, and the data can be comma-separated or new-line-separated. There is currently a 10MB limit for the data (approximately 800,000 accounts).

This property serves the same purpose as `Accounts` but allows you to specify a large number of accounts.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 5120.

Pattern: `(s3://|http(s?)://).+`

Required: No

**OrganizationalUnitIds.member.N**

The organization root ID or organizational unit (OU) IDs where you want to perform stack operations. CloudFormation will perform operations on accounts within these OUs and their child OUs.

Type: Array of strings

Pattern: `^(ou-[a-z0-9]{4,32}-[a-z0-9]{8,32}|r-[a-z0-9]{4,32})$`

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# EventFilter

Event filter allows you to focus on specific events in an operation.

## Contents

**FailedEvents**

When set to true, only returns failed events within the operation. This helps quickly identify root causes for a failed operation.

Type: Boolean

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# Export

The `Export` structure describes the exported output values for a stack.

For more information, see Get exported outputs from a deployed CloudFormation stack.

## Contents

**ExportingStackId**

The stack that contains the exported output name and value.

Type: String

Required: No

**Name**

The name of exported output value. Use this name and the `Fn::ImportValue` function to import the associated value into other stacks. The name is defined in the `Export` field in the associated stack's `Outputs` section.

Type: String

Required: No

**Value**

The value of the exported output, such as a resource physical ID. This value is defined in the `Export` field in the associated stack's `Outputs` section.

Type: String

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2

- AWS SDK for Ruby V3

# HookResultSummary

A `ListHookResults` call returns a summary of a Hook invocation.

## Contents

**FailureMode**

The failure mode of the invocation.

Type: String

Valid Values: `FAIL | WARN`

Required: No

**HookExecutionTarget**

The Amazon Resource Name (ARN) of the target stack or request token of the Cloud Control API operation.

Only shown in responses when the request does not specify `TargetType` and `TargetId` filters.

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:/]*|^[a-f0-9]{8}-[a-f0-9]{4}-[a-f0-9]{4}-[a-f0-9]{4}-[a-f0-9]{12}$`

Required: No

**HookResultId**

The unique identifier for this Hook invocation result.

Type: String

Length Constraints: Fixed length of 36.

Pattern: `^[a-f0-9]{8}-[a-f0-9]{4}-[a-f0-9]{4}-[a-f0-9]{4}-[a-f0-9]{12}$`

Required: No

**HookStatusReason**

A description of the Hook results status. For example, if the Hook result is in a failed state, this may contain additional information for the failed state.

Type: String

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

Required: No

**InvocationPoint**

The specific point in the provisioning process where the Hook is invoked.

Type: String

Valid Values: `PRE_PROVISION`

Required: No

**InvokedAt**

The timestamp when the Hook was invoked.

Only shown in responses when the request does not specify `TargetType` and `TargetId` filters.

Type: Timestamp

Required: No

**Status**

The status of the Hook invocation. The following statuses are possible:

- `HOOK_IN_PROGRESS`: The Hook is currently running.
- `HOOK_COMPLETE_SUCCEEDED`: The Hook completed successfully.
- `HOOK_COMPLETE_FAILED`: The Hook completed but failed validation.
- `HOOK_FAILED`: The Hook encountered an error during execution.

Type: String

Valid Values: `HOOK_IN_PROGRESS | HOOK_COMPLETE_SUCCEEDED | HOOK_COMPLETE_FAILED | HOOK_FAILED`

Required: No

**TargetId**

The unique identifier of the Hook invocation target.

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:/]*|^[a-f0-9]{8}-[a-f0-9]{4}-[a-f0-9]{4}-[a-f0-9]{4}-[a-f0-9]{12}$`

Required: No

**TargetType**

The target type that the Hook was invoked against.

Type: String

Valid Values: `CHANGE_SET | STACK | RESOURCE | CLOUD_CONTROL`

Required: No

**TypeArn**

The ARN of the Hook that was invoked.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `arn:aws[A-Za-z0-9-]{0,64}:cloudformation:[A-Za-z0-9-]{1,64}:([0-9]{12})?:type/hook/[A-Za-z0-9-]+/?`

Required: No

**TypeConfigurationVersionId**

The version of the Hook configuration.

Type: String

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

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

Required: No

**TypeName**

The name of the Hook that was invoked.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 196.

Required: No

**TypeVersionId**

The version of the Hook that was invoked.

Type: String

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

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

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# HookTarget

The `HookTarget` data type.

## Contents

**Action**

The action that invoked the Hook.

Type: String

Valid Values: `CREATE | UPDATE | DELETE | IMPORT`

Required: Yes

**TargetId**

The unique identifier of the Hook invocation target.

Type: String

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

Pattern: `[^_]*`

Required: Yes

**TargetType**

The target type.

Type: String

Valid Values: `RESOURCE`

Required: Yes

**TargetTypeName**

The target name, for example, `AWS::S3::Bucket`.

Type: String

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

Pattern: `^[a-zA-Z0-9]{2,64}::[a-zA-Z0-9]{2,64}::[a-zA-Z0-9]{2,64}$`

Required: Yes

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# LiveResourceDrift

Contains drift information for a resource property, including actual value, previous deployment value, and drift detection timestamp.

## Contents

**ActualValue**

The current live configuration value of the resource property.

Type: String

Required: No

**DriftDetectionTimestamp**

The timestamp when drift was detected for this resource property.

Type: Timestamp

Required: No

**PreviousValue**

The configuration value from the previous CloudFormation deployment.

Type: String

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# LoggingConfig

Contains logging configuration information for an extension.

## Contents

**LogGroupName**

The Amazon CloudWatch Logs group to which CloudFormation sends error logging information when invoking the extension's handlers.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 512.

Pattern: `[\.\-_/#A-Za-z0-9]+`

Required: Yes

**LogRoleArn**

The Amazon Resource Name (ARN) of the role that CloudFormation should assume when sending log entries to CloudWatch Logs.

Type: String

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

Pattern: `arn:.+:iam::[0-9]{12}:role/.+`

Required: Yes

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# ManagedExecution

Describes whether StackSets performs non-conflicting operations concurrently and queues conflicting operations.

## Contents

**Active**

When `true`, CloudFormation performs non-conflicting operations concurrently and queues conflicting operations. After conflicting operations finish, CloudFormation starts queued operations in request order.

> **Note**
>
> If there are already running or queued operations, CloudFormation queues all incoming operations even if they are non-conflicting.
> You can't modify your StackSet's execution configuration while there are running or queued operations for that StackSet.

When `false` (default), StackSets performs one operation at a time in request order.

Type: Boolean

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# ModuleInfo

Contains information about the module from which the resource was created, if the resource was created from a module included in the stack template.

For more information about modules, see Create reusable resource configurations that can be included across templates with CloudFormation modules in the *AWS CloudFormation User Guide*.

## Contents

**LogicalIdHierarchy**

A concatenated list of the logical IDs of the module or modules that contains the resource. Modules are listed starting with the inner-most nested module, and separated by `/`.

In the following example, the resource was created from a module, `moduleA`, that's nested inside a parent module, `moduleB`.

`moduleA/moduleB`

For more information, see Reference module resources in CloudFormation templates in the *AWS CloudFormation User Guide*.

Type: String

Required: No

**TypeHierarchy**

A concatenated list of the module type or types that contains the resource. Module types are listed starting with the inner-most nested module, and separated by `/`.

In the following example, the resource was created from a module of type `AWS::First::Example::MODULE`, that's nested inside a parent module of type `AWS::Second::Example::MODULE`.

`AWS::First::Example::MODULE/AWS::Second::Example::MODULE`

Type: String

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# OperationEntry

Contains information about a CloudFormation operation.

## Contents

**OperationId**

The unique identifier for the operation.

Type: String

Required: No

**OperationType**

The type of operation.

Type: String

Valid Values: `CREATE_STACK | UPDATE_STACK | DELETE_STACK | CONTINUE_ROLLBACK | ROLLBACK | CREATE_CHANGESET`

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# OperationEvent

Contains detailed information about an event that occurred during a CloudFormation operation.

## Contents

**ClientRequestToken**

A unique identifier for the request that initiated this operation.

Type: String

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

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

Required: No

**DetailedStatus**

Additional status information about the operation.

Type: String

Valid Values: `CONFIGURATION_COMPLETE | VALIDATION_FAILED`

Required: No

**EndTime**

The time when the event ended.

Type: Timestamp

Required: No

**EventId**

A unique identifier for this event.

Type: String

Required: No

**EventType**

The type of event.

Type: String

Valid Values: `STACK_EVENT | PROGRESS_EVENT | VALIDATION_ERROR | PROVISIONING_ERROR | HOOK_INVOCATION_ERROR`

Required: No

**HookFailureMode**

Specifies how Hook failures are handled.

Type: String

Valid Values: `FAIL | WARN`

Required: No

**HookInvocationPoint**

The point in the operation lifecycle when the Hook was invoked.

Type: String

Valid Values: `PRE_PROVISION`

Required: No

**HookStatus**

The status of the Hook invocation.

Type: String

Valid Values: `HOOK_IN_PROGRESS | HOOK_COMPLETE_SUCCEEDED | HOOK_COMPLETE_FAILED | HOOK_FAILED`

Required: No

**HookStatusReason**

Additional information about the Hook status.

Type: String

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

Required: No

**HookType**

The type name of the Hook that was invoked.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 255.

Required: No

**LogicalResourceId**

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

Type: String

Required: No

**OperationId**

The unique identifier of the operation this event belongs to.

Type: String

Required: No

**OperationStatus**

The current status of the operation.

Type: String

Valid Values: `IN_PROGRESS | SUCCEEDED | FAILED`

Required: No

**OperationType**

The type of operation.

Type: String

Valid Values: `CREATE_STACK | UPDATE_STACK | DELETE_STACK | CONTINUE_ROLLBACK | ROLLBACK | CREATE_CHANGESET`

Required: No

**PhysicalResourceId**

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

Type: String

Required: No

**ResourceProperties**

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 | IMPORT_FAILED | IMPORT_COMPLETE | IMPORT_IN_PROGRESS | IMPORT_ROLLBACK_IN_PROGRESS | IMPORT_ROLLBACK_FAILED | IMPORT_ROLLBACK_COMPLETE | EXPORT_FAILED | EXPORT_COMPLETE | EXPORT_IN_PROGRESS | EXPORT_ROLLBACK_IN_PROGRESS | EXPORT_ROLLBACK_FAILED | EXPORT_ROLLBACK_COMPLETE | UPDATE_ROLLBACK_IN_PROGRESS | UPDATE_ROLLBACK_COMPLETE | UPDATE_ROLLBACK_FAILED | ROLLBACK_IN_PROGRESS | ROLLBACK_COMPLETE | ROLLBACK_FAILED`

Required: No

**ResourceStatusReason**

Success or failure message associated with the resource.

Type: String

Required: No

**ResourceType**

Type of resource.

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: No

**StartTime**

The time when the event started.

Type: Timestamp

Required: No

**Timestamp**

Time the status was updated.

Type: Timestamp

Required: No

**ValidationFailureMode**

Specifies how validation failures are handled.

Type: String

Valid Values: `FAIL | WARN`

Required: No

**ValidationName**

The name of the validation that was performed.

Type: String

Required: No

**ValidationPath**

The path within the resource where the validation was applied.

Type: String

Required: No

**ValidationStatus**

The status of the validation.

Type: String

Valid Values: `FAILED | SKIPPED`

Required: No

**ValidationStatusReason**

Additional information about the validation status.

Type: String

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# OperationResultFilter

The status that operation results are filtered by.

## Contents

**Name**

The type of filter to apply.

Type: String

Valid Values: `OPERATION_RESULT_STATUS`

Required: No

**Values**

The value to filter by.

Type: String

Length Constraints: Minimum length of 6. Maximum length of 9.

Pattern: `^\S{6,9}$`

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# 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

**ExportName**

The name of the export associated with the output.

Type: String

Required: No

**OutputKey**

The key associated with the output.

Type: String

Required: No

**OutputValue**

The value associated with the output.

Type: String

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# 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, CloudFormation uses the default value that's specified in your template.

Type: String

Required: No

**ParameterValue**

The input value associated with the parameter.

Type: String

Required: No

**ResolvedValue**

Read-only. The value that corresponds to a Systems Manager parameter key. This field is returned only for Systems Manager parameter types in the template. For more information, see Specify existing resources at runtime with CloudFormation-supplied parameter types in the *AWS CloudFormation User Guide*.

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

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# ParameterConstraints

A set of criteria that CloudFormation uses to validate parameter values. Although other constraints might be defined in the stack template, 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

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# ParameterDeclaration

The `ParameterDeclaration` data type.

## Contents

**DefaultValue**

The default value of the parameter.

Type: String

Required: No

**Description**

The description that's 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 CloudFormation uses to validate parameter values.

Type: ParameterConstraints object

Required: No

**ParameterKey**

The name that's associated with the parameter.

Type: String

Required: No

**ParameterType**

The type of parameter.

Type: String

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# PhysicalResourceIdContextKeyValuePair

Context information that enables CloudFormation to uniquely identify a resource. CloudFormation uses context key-value pairs in cases where a resource's logical and physical IDs aren't enough to uniquely identify that resource. Each context key-value pair specifies a resource that contains the targeted resource.

## Contents

**Key**

The resource context key.

Type: String

Required: Yes

**Value**

The resource context value.

Type: String

Required: Yes

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# PropertyDifference

Information about a resource property whose actual value differs from its expected value, as defined in the stack template and any values specified as template parameters. These will be present only for resources whose `StackResourceDriftStatus` is `MODIFIED`. For more information, see Detect unmanaged configuration changes to stacks and resources with drift detection.

## Contents

**ActualValue**

The actual property value of the resource property.

Type: String

Required: Yes

**DifferenceType**

The type of property difference.

- `ADD`: A value has been added to a resource property that's an array or list data type.
- `REMOVE`: The property has been removed from the current resource configuration.
- `NOT_EQUAL`: The current property value differs from its expected value (as defined in the stack template and any values specified as template parameters).

Type: String

Valid Values: `ADD | REMOVE | NOT_EQUAL`

Required: Yes

**ExpectedValue**

The expected property value of the resource property, as defined in the stack template and any values specified as template parameters.

Type: String

Required: Yes

**PropertyPath**

The fully-qualified path to the resource property.

Type: String

Required: Yes

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# RequiredActivatedType

For extensions that are modules, a public third-party extension that must be activated in your account in order for the module itself to be activated.

For more information, see Requirements for activating third-party public modules in the *AWS CloudFormation User Guide*.

## Contents

**OriginalTypeName**

The type name of the public extension.

If you specified a `TypeNameAlias` when enabling the extension in this account and Region, CloudFormation treats that alias as the extension's type name within the account and Region, not the type name of the public extension. For more information, see Use aliases to refer to extensions in the *AWS CloudFormation User Guide*.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 204.

Pattern: `[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}(::MODULE){0,1}`

Required: No

**PublisherId**

The publisher ID of the extension publisher.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 40.

Pattern: `[0-9a-zA-Z]{12,40}`

Required: No

**SupportedMajorVersions.member.N**

A list of the major versions of the extension type that the macro supports.

Type: Array of integers

Valid Range: Minimum value of 1. Maximum value of 65535.

Required: No

**TypeNameAlias**

An alias assigned to the public extension, in this account and Region. If you specify an alias for the extension, CloudFormation treats the alias as the extension type name within this account and Region. You must use the alias to refer to the extension in your templates, API calls, and CloudFormation console.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 204.

Pattern: `[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}(::MODULE){0,1}`

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# ResourceChange

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

## Contents

**Action**

The action that CloudFormation takes on the resource, such as `Add` (adds a new resource), `Modify` (changes a resource), `Remove` (deletes a resource), `Import` (imports a resource), `Dynamic` (exact action for the resource can't be determined), or `SyncWithActual` (resource will not be changed, only CloudFormation metadata will change).

Type: String

Valid Values: `Add | Modify | Remove | Import | Dynamic | SyncWithActual`

Required: No

**AfterContext**

An encoded JSON string that contains the context of the resource after the change is executed.

Type: String

Required: No

**BeforeContext**

An encoded JSON string that contains the context of the resource before the change is executed.

Type: String

Required: No

**ChangeSetId**

The change set ID of the nested change set.

Type: String

Length Constraints: Minimum length of 1.

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

Required: No

**Details.member.N**

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

Type: Array of ResourceChangeDetail objects

Required: No

**LogicalResourceId**

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

Type: String

Required: No

**ModuleInfo**

Contains information about the module from which the resource was created, if the resource was created from a module included in the stack template.

Type: ModuleInfo object

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

**PolicyAction**

The action that will be taken on the physical resource when the change set is executed.

- `Delete` The resource will be deleted.
- `Retain` The resource will be retained.
- `Snapshot` The resource will have a snapshot taken.

- `ReplaceAndDelete` The resource will be replaced and then deleted.
- `ReplaceAndRetain` The resource will be replaced and then retained.
- `ReplaceAndSnapshot` The resource will be replaced and then have a snapshot taken.

Type: String

Valid Values: `Delete | Retain | Snapshot | ReplaceAndDelete | ReplaceAndRetain | ReplaceAndSnapshot`

Required: No

**PreviousDeploymentContext**

Information about the resource's state from the previous CloudFormation deployment.

Type: String

Required: No

**Replacement**

For the `Modify` action, indicates whether 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 `Conditional`.

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 `Conditional`, and then `Never`.

Type: String

Valid Values: `True | False | Conditional`

Required: No

**ResourceDriftIgnoredAttributes.member.N**

List of resource attributes for which drift was ignored.

Type: Array of ResourceDriftIgnoredAttribute objects

Required: No

**ResourceDriftStatus**

The drift status of the resource. Valid values:

- `IN_SYNC` – The resource matches its template definition.
- `MODIFIED` – Resource properties were modified outside CloudFormation.
- `DELETED` – The resource was deleted outside CloudFormation.
- `NOT_CHECKED` – CloudFormation doesn't currently return this value.
- `UNKNOWN` – Drift status could not be determined.
- `UNSUPPORTED` – Resource type does not support actual state comparison.

Only present for drift-aware change sets.

Type: String

Valid Values: `IN_SYNC | MODIFIED | DELETED | NOT_CHECKED | UNKNOWN | UNSUPPORTED`

Required: No

**ResourceType**

The type of 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 | UpdateReplacePolicy | Tags`

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# ResourceChangeDetail

For a resource with `Modify` as the action, the `ResourceChange` structure describes the changes 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's 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, 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 CloudFormation until you run an update on the parent stack.
- `NoModification` entities are changes made to the template that matches the actual state of the resource.

Type: String

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

Required: No

**Evaluation**

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

For `Static` evaluations, 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, CloudFormation knows that this property value will change, and its value, so this is a `Static` evaluation.

For `Dynamic` evaluations, can't 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's 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 CloudFormation will change and whether the resource will be recreated.

Type: ResourceTargetDefinition object

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# ResourceDefinition

A resource included in a generated template. This data type is used with the `CreateGeneratedTemplate` and `UpdateGeneratedTemplate` API actions.

## Contents

**ResourceIdentifier** , ResourceIdentifier.entry.N.key (key) , ResourceIdentifier.entry.N.value (value)

A list of up to 256 key-value pairs that identifies the scanned resource. The key is the name of one of the primary identifiers for the resource. (Primary identifiers are specified in the `primaryIdentifier` list in the resource schema.) The value is the value of that primary identifier. For example, for a `AWS::DynamoDB::Table` resource, the primary identifiers is `TableName` so the key-value pair could be `"TableName": "MyDDBTable"`. For more information, see primaryIdentifier in the *AWS CloudFormation Command Line Interface (CLI) User Guide*.

Type: String to string map

Map Entries: Maximum number of 256 items.

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

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

Required: Yes

**ResourceType**

The type of the resource, such as `AWS::DynamoDB::Table`. For the list of supported resources, see Resource type support for imports and drift detection in the *AWS CloudFormation User Guide*

Type: String

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

Required: Yes

**LogicalResourceId**

The logical resource id for this resource in the generated template.

Type: String

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# ResourceDetail

Details about a resource in a generated template

## Contents

**LogicalResourceId**

The logical id for this resource in the final generated template.

Type: String

Required: No

**ResourceIdentifier** , ResourceIdentifier.entry.N.key (key) , ResourceIdentifier.entry.N.value (value)

A list of up to 256 key-value pairs that identifies the resource in the generated template. The key is the name of one of the primary identifiers for the resource. (Primary identifiers are specified in the `primaryIdentifier` list in the resource schema.) The value is the value of that primary identifier. For example, for a `AWS::DynamoDB::Table` resource, the primary identifiers is `TableName` so the key-value pair could be `"TableName": "MyDDBTable"`. For more information, see primaryIdentifier in the *AWS CloudFormation Command Line Interface (CLI) User Guide*.

Type: String to string map

Map Entries: Maximum number of 256 items.

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

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

Required: No

**ResourceStatus**

Status of the processing of a resource in a generated template.

`InProgress`

The resource processing is still in progress.

`Complete`

The resource processing is complete.

`Pending`

The resource processing is pending.

`Failed`

The resource processing has failed.

Type: String

Valid Values: `PENDING | IN_PROGRESS | FAILED | COMPLETE`

Required: No

**ResourceStatusReason**

The reason for the resource detail, providing more information if a failure happened.

Type: String

Required: No

**ResourceType**

The type of the resource, such as `AWS::DynamoDB::Table`. For the list of supported resources, see Resource type support for imports and drift detection In the *AWS CloudFormation User Guide*

Type: String

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

Required: No

**Warnings.member.N**

The warnings generated for this resource.

Type: Array of WarningDetail objects

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# ResourceDriftIgnoredAttribute

The `ResourceDriftIgnoredAttribute` data type.

## Contents

**Path**

Path of the resource attribute for which drift was ignored.

Type: String

Required: No

**Reason**

Reason why drift was ignored for the attribute, can have 3 possible values:

- `WRITE_ONLY_PROPERTY` – Property is not included in read response for the resource's live state.
- `MANAGED_BY_AWS` – Property is managed by an AWS service and is expected to be dynamically modified.
- `SENSITIVE_PROPERTY` – Property has a sensitive value, such as an AWS Secrets Manager value.

Type: String

Valid Values: `MANAGED_BY_AWS | WRITE_ONLY_PROPERTY`

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# ResourceIdentifierSummary

Describes the target resources of a specific type in your import template (for example, all `AWS::S3::Bucket` resources) and the properties you can provide during the import to identify resources of that type.

## Contents

**LogicalResourceIds.member.N**

The logical IDs of the target resources of the specified `ResourceType`, as defined in the import template.

Type: Array of strings

Array Members: Minimum number of 1 item. Maximum number of 200 items.

Required: No

**ResourceIdentifiers.member.N**

The resource properties you can provide during the import to identify your target resources. For example, `BucketName` is a possible identifier property for `AWS::S3::Bucket` resources.

Type: Array of strings

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

Required: No

**ResourceType**

The template resource type of the target resources, such as `AWS::S3::Bucket`.

Type: String

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

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# ResourceLocation

The location of the resource in a stack template.

## Contents

**LogicalResourceId**

The logical name of the resource specified in the template.

Type: String

Required: Yes

**StackName**

The name associated with the stack.

Type: String

Required: Yes

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# ResourceMapping

Specifies the current source of the resource and the destination of where it will be moved to.

## Contents

**Destination**

The destination stack `StackName` and `LogicalResourceId` for the resource being refactored.

Type: ResourceLocation object

Required: Yes

**Source**

The source stack `StackName` and `LogicalResourceId` for the resource being refactored.

Type: ResourceLocation object

Required: Yes

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# ResourceScanSummary

A summary of the resource scan. This is returned by the `ListResourceScan` API action.

## Contents

**EndTime**

The time that the resource scan was finished.

Type: Timestamp

Required: No

**PercentageCompleted**

The percentage of the resource scan that has been completed.

Type: Double

Required: No

**ResourceScanId**

The Amazon Resource Name (ARN) of the resource scan.

Type: String

Required: No

**ScanType**

The scan type that has been completed.

Type: String

Valid Values: `FULL | PARTIAL`

Required: No

**StartTime**

The time that the resource scan was started.

Type: Timestamp

Required: No

**Status**

Status of the resource scan.

**IN_PROGRESS**

The resource scan is still in progress.

**COMPLETE**

The resource scan is complete.

**EXPIRED**

The resource scan has expired.

**FAILED**

The resource scan has failed.

Type: String

Valid Values: `IN_PROGRESS | FAILED | COMPLETE | EXPIRED`

Required: No

**StatusReason**

The reason for the resource scan status, providing more information if a failure happened.

Type: String

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# ResourceTargetDefinition

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

## Contents

**AfterValue**

The value of the property after the change is executed. Large values can be truncated.

Type: String

Required: No

**AfterValueFrom**

Indicates the source of the after value. Valid value:

- `TEMPLATE` – The after value comes from the new template.

Only present for drift-aware change sets.

Type: String

Valid Values: `TEMPLATE`

Required: No

**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 | UpdateReplacePolicy | Tags`

Required: No

**AttributeChangeType**

The type of change to be made to the property if the change is executed.

- `Add` The item will be added.
- `Remove` The item will be removed.
- `Modify` The item will be modified.
- `SyncWithActual` The drift status of this item will be reset but the item will not be modified.

Type: String

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

Required: No

**BeforeValue**

The value of the property before the change is executed. Large values can be truncated.

Type: String

Required: No

**BeforeValueFrom**

Indicates the source of the before value. Valid values:

- `ACTUAL_STATE` – The before value represents current actual state.
- `PREVIOUS_DEPLOYMENT_STATE` – The before value represents the previous CloudFormation deployment state.

Only present for drift-aware change sets.

Type: String

Valid Values: `PREVIOUS_DEPLOYMENT_STATE | ACTUAL_STATE`

Required: No

**Drift**

Detailed drift information for the resource property, including actual values, previous deployment values, and drift detection timestamps.

Type: LiveResourceDrift object

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

**Path**

The property path of the property.

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 resource and property types reference in the *AWS CloudFormation User Guide*.

Type: String

Valid Values: `Never | Conditionally | Always`

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# ResourceToImport

Describes the target resource of an import operation.

## Contents

**LogicalResourceId**

The logical ID of the target resource as specified in the template.

Type: String

Required: Yes

**ResourceIdentifier** , ResourceIdentifier.entry.N.key (key) , ResourceIdentifier.entry.N.value (value)

A key-value pair that identifies the target resource. The key is an identifier property (for example, `BucketName` for `AWS::S3::Bucket` resources) and the value is the actual property value (for example, `MyS3Bucket`).

Type: String to string map

Map Entries: Maximum number of 256 items.

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

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

Required: Yes

**ResourceType**

The type of resource to import into your stack, such as `AWS::S3::Bucket`. For a list of supported resource types, see Resource type support for imports and drift detection in the *AWS CloudFormation User Guide*.

Type: String

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

Required: Yes

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# RollbackConfiguration

Structure that contains the rollback triggers for CloudFormation to monitor during stack creation and updating operations, and for the specified monitoring period afterwards.

Rollback triggers enable you to have CloudFormation monitor the state of your application during stack creation and updating, and to roll back that operation if the application breaches the threshold of any of the alarms you've specified. For more information, see Roll back your CloudFormation stack on alarm breach with rollback triggers.

## Contents

**MonitoringTimeInMinutes**

The amount of time, in minutes, during which CloudFormation should monitor all the rollback triggers after the stack creation or update operation deploys all necessary resources.

The default is 0 minutes.

If you specify a monitoring period but don't specify any rollback triggers, CloudFormation still waits the specified period of time before cleaning up old resources after update operations. You can use this monitoring period to perform any manual stack validation desired, and manually cancel the stack creation or update (using CancelUpdateStack, for example) as necessary.

If you specify 0 for this parameter, CloudFormation still monitors the specified rollback triggers during stack creation and update operations. Then, for update operations, it begins disposing of old resources immediately once the operation completes.

Type: Integer

Valid Range: Minimum value of 0. Maximum value of 180.

Required: No

**RollbackTriggers.member.N**

The triggers to monitor during stack creation or update actions.

By default, CloudFormation saves the rollback triggers specified for a stack and applies them to any subsequent update operations for the stack, unless you specify otherwise. If you do specify rollback triggers for this parameter, those triggers replace any list of triggers previously specified for the stack. This means:

- To use the rollback triggers previously specified for this stack, if any, don't specify this parameter.
- To specify new or updated rollback triggers, you must specify *all* the triggers that you want used for this stack, even triggers you've specified before (for example, when creating the stack or during a previous stack update). Any triggers that you don't include in the updated list of triggers are no longer applied to the stack.
- To remove all currently specified triggers, specify an empty list for this parameter.

If a specified trigger is missing, the entire stack operation fails and is rolled back.

Type: Array of RollbackTrigger objects

Array Members: Maximum number of 5 items.

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# RollbackTrigger

A rollback trigger CloudFormation monitors during creation and updating of stacks. If any of the alarms you specify goes to ALARM state during the stack operation or within the specified monitoring period afterwards, CloudFormation rolls back the entire stack operation.

## Contents

**Arn**

The Amazon Resource Name (ARN) of the rollback trigger.

If a specified trigger is missing, the entire stack operation fails and is rolled back.

Type: String

Required: Yes

**Type**

The resource type of the rollback trigger. Specify either AWS::CloudWatch::Alarm or AWS::CloudWatch::CompositeAlarm resource types.

Type: String

Required: Yes

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# ScanFilter

A filter that is used to specify which resource types to scan.

## Contents

**Types.member.N**

An array of strings where each string represents an AWS resource type you want to scan. Each string defines the resource type using the format `AWS::ServiceName::ResourceType`, for example, `AWS::DynamoDB::Table`. For the full list of supported resource types, see the Resource type support table in the *AWS CloudFormation User Guide*.

To scan all resource types within a service, you can use a wildcard, represented by an asterisk (*). You can place an asterisk at only the end of the string, for example, `AWS::S3::*`.

Type: Array of strings

Array Members: Maximum number of 100 items.

Length Constraints: Minimum length of 1. Maximum length of 100.

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# ScannedResource

A scanned resource returned by `ListResourceScanResources` or `ListResourceScanRelatedResources`.

## Contents

**ManagedByStack**

If `true`, the resource is managed by a CloudFormation stack.

Type: Boolean

Required: No

**ResourceIdentifier** , ResourceIdentifier.entry.N.key (key) , ResourceIdentifier.entry.N.value (value)

A list of up to 256 key-value pairs that identifies for the scanned resource. The key is the name of one of the primary identifiers for the resource. (Primary identifiers are specified in the `primaryIdentifier` list in the resource schema.) The value is the value of that primary identifier. For example, for a `AWS::DynamoDB::Table` resource, the primary identifiers is `TableName` so the key-value pair could be `"TableName": "MyDDBTable"`. For more information, see primaryIdentifier in the *AWS CloudFormation Command Line Interface (CLI) User Guide*.

Type: String to string map

Required: No

**ResourceType**

The type of the resource, such as `AWS::DynamoDB::Table`. For the list of supported resources, see Resource type support for imports and drift detection In the *AWS CloudFormation User Guide*

Type: String

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

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# ScannedResourceIdentifier

Identifies a scanned resource. This is used with the `ListResourceScanRelatedResources` API action.

## Contents

**ResourceIdentifier** , ResourceIdentifier.entry.N.key (key) , ResourceIdentifier.entry.N.value (value)

A list of up to 256 key-value pairs that identifies the scanned resource. The key is the name of one of the primary identifiers for the resource. (Primary identifiers are specified in the `primaryIdentifier` list in the resource schema.) The value is the value of that primary identifier. For example, for a `AWS::DynamoDB::Table` resource, the primary identifiers is `TableName` so the key-value pair could be `"TableName": "MyDDBTable"`. For more information, see primaryIdentifier in the *AWS CloudFormation Command Line Interface (CLI) User Guide*.

Type: String to string map

Required: Yes

**ResourceType**

The type of the resource, such as `AWS::DynamoDB::Table`. For the list of supported resources, see Resource type support for imports and drift detection In the *AWS CloudFormation User Guide*.

Type: String

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

Required: Yes

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2

- AWS SDK for Ruby V3

# Stack

The `Stack` data type.

## Contents

**CreationTime**

The time at which the stack was created.

Type: Timestamp

Required: Yes

**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_FAILED | UPDATE_ROLLBACK_IN_PROGRESS | UPDATE_ROLLBACK_FAILED | UPDATE_ROLLBACK_COMPLETE_CLEANUP_IN_PROGRESS | UPDATE_ROLLBACK_COMPLETE | REVIEW_IN_PROGRESS | IMPORT_IN_PROGRESS | IMPORT_COMPLETE | IMPORT_ROLLBACK_IN_PROGRESS | IMPORT_ROLLBACK_FAILED | IMPORT_ROLLBACK_COMPLETE`

Required: Yes

**Capabilities.member.N**

The capabilities allowed in the stack.

Type: Array of strings

Valid Values: `CAPABILITY_IAM | CAPABILITY_NAMED_IAM | CAPABILITY_AUTO_EXPAND`

Required: No

**ChangeSetId**

The unique ID of the change set.

Type: String

Length Constraints: Minimum length of 1.

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

Required: No

**DeletionMode**

Specifies the deletion mode for the stack. Possible values are:

- `STANDARD` - Use the standard behavior. Specifying this value is the same as not specifying this parameter.
- `FORCE_DELETE_STACK` - Delete the stack if it's stuck in a `DELETE_FAILED` state due to resource deletion failure.

Type: String

Valid Values: `STANDARD | FORCE_DELETE_STACK`

Required: No

**DeletionTime**

The time the stack was deleted.

Type: Timestamp

Required: No

**DeploymentConfig**

The deployment configuration for the stack, including the deployment mode used for stack operations.

Type: DeploymentConfig object

Required: No

**Description**

A user-defined description associated with the stack.

Type: String

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

Required: No

**DetailedStatus**

The detailed status of the resource or stack. If `CONFIGURATION_COMPLETE` is present, the resource or resource configuration phase has completed and the stabilization of the resources is in progress. The StackSets `CONFIGURATION_COMPLETE` when all of the resources in the stack have reached that event. For more information, see Understand CloudFormation stack creation events in the *AWS CloudFormation User Guide*.

Type: String

Valid Values: `CONFIGURATION_COMPLETE | VALIDATION_FAILED`

Required: No

**DisableRollback**

Boolean to enable or disable rollback on stack creation failures:

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

Type: Boolean

Required: No

**DriftInformation**

Information about whether a stack's actual configuration differs, or has *drifted*, from its expected configuration, as defined in the stack template and any values specified as template parameters. For more information, see Detect unmanaged configuration changes to stacks and resources with drift detection.

Type: StackDriftInformation object

Required: No

**EnableTerminationProtection**

Whether termination protection is enabled for the stack.

For nested stacks, termination protection is set on the root stack and can't be changed directly on the nested stack. For more information, see Protect a CloudFormation stack from being deleted in the *AWS CloudFormation User Guide*.

Type: Boolean

Required: No

**LastOperations.member.N**

Information about the most recent operations performed on this stack.

Type: Array of OperationEntry objects

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**

Amazon SNS topic Amazon Resource Names (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 objects

Required: No

**Parameters.member.N**

A list of `Parameter` structures.

Type: Array of Parameter objects

Required: No

**ParentId**

For nested stacks, the stack ID of the direct parent of this stack. For the first level of nested stacks, the root stack is also the parent stack.

For more information, see Nested stacks in the *AWS CloudFormation User Guide*.

Type: String

Required: No

**RetainExceptOnCreate**

When set to `true`, newly created resources are deleted when the operation rolls back. This includes newly created resources marked with a deletion policy of `Retain`.

Default: `false`

Type: Boolean

Required: No

**RoleARN**

The Amazon Resource Name (ARN) of an IAM role that's associated with the stack. During a stack operation, CloudFormation uses this role's credentials to make calls on your behalf.

Type: String

Length Constraints: Minimum length of 20. Maximum length of 2048.

Required: No

**RollbackConfiguration**

The rollback triggers for CloudFormation to monitor during stack creation and updating operations, and for the specified monitoring period afterwards.

Type: RollbackConfiguration object

Required: No

**RootId**

For nested stacks, the stack ID of the top-level stack to which the nested stack ultimately belongs.

For more information, see Nested stacks in the *AWS CloudFormation User Guide*.

Type: String

Required: No

**StackId**

Unique identifier of the stack.

Type: String

Required: No

**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 objects

Array Members: Maximum number of 50 items.

Required: No

**TimeoutInMinutes**

The amount of time within which stack creation should complete.

Type: Integer

Valid Range: Minimum value of 1.

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# StackDefinition

Describes the stack and the template used by the stack.

## Contents

**StackName**

The name associated with the stack.

Type: String

Required: No

**TemplateBody**

The file path for the stack template file.

Type: String

Length Constraints: Minimum length of 1.

Required: No

**TemplateURL**

The desired final state of the stack template.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 5120.

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# StackDriftInformation

Contains information about whether the stack's actual configuration differs, or has *drifted*, from its expected configuration, as defined in the stack template and any values specified as template parameters. A stack is considered to have drifted if one or more of its resources have drifted.

## Contents

**StackDriftStatus**

Status of the stack's actual configuration compared to its expected template configuration.

- `DRIFTED`: The stack differs from its expected template configuration. A stack is considered to have drifted if one or more of its resources have drifted.
- `NOT_CHECKED`: CloudFormation hasn't checked if the stack differs from its expected template configuration.
- `IN_SYNC`: The stack's actual configuration matches its expected template configuration.
- `UNKNOWN`: CloudFormation could not run drift detection for a resource in the stack.

Type: String

Valid Values: `DRIFTED | IN_SYNC | UNKNOWN | NOT_CHECKED`

Required: Yes

**LastCheckTimestamp**

Most recent time when a drift detection operation was initiated on the stack, or any of its individual resources that support drift detection.

Type: Timestamp

Required: No

## See Also

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

- AWS SDK for C++

- AWS SDK for Java V2
- AWS SDK for Ruby V3

# StackDriftInformationSummary

Contains information about whether the stack's actual configuration differs, or has *drifted*, from its expected configuration, as defined in the stack template and any values specified as template parameters. A stack is considered to have drifted if one or more of its resources have drifted.

## Contents

**StackDriftStatus**

Status of the stack's actual configuration compared to its expected template configuration.

- `DRIFTED`: The stack differs from its expected template configuration. A stack is considered to have drifted if one or more of its resources have drifted.
- `NOT_CHECKED`: CloudFormation hasn't checked if the stack differs from its expected template configuration.
- `IN_SYNC`: The stack's actual configuration matches its expected template configuration.
- `UNKNOWN`: CloudFormation could not run drift detection for a resource in the stack.

Type: String

Valid Values: `DRIFTED | IN_SYNC | UNKNOWN | NOT_CHECKED`

Required: Yes

**LastCheckTimestamp**

Most recent time when a drift detection operation was initiated on the stack, or any of its individual resources that support drift detection.

Type: Timestamp

Required: No

## See Also

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

- AWS SDK for C++

- AWS SDK for Java V2
- AWS SDK for Ruby V3

# StackEvent

The `StackEvent` data type.

## Contents

**EventId**

The unique identifier of this event.

Type: String

Required: Yes

**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

**ClientRequestToken**

The token passed to the operation that generated this event.

All events triggered by a given stack operation are assigned the same client request token, which you can use to track operations. For example, if you execute a `CreateStack` operation

with the token `token1`, then all the `StackEvents` generated by that operation will have `ClientRequestToken` set as `token1`.

In the console, stack operations display the client request token on the Events tab. Stack operations that are initiated from the console use the token format *Console-StackOperation-ID*, which helps you easily identify the stack operation . For example, if you create a stack using the console, each stack event would be assigned the same token in the following format: `Console-CreateStack-7f59c3cf-00d2-40c7-b2ff-e75db0987002`.

Type: String

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

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

Required: No

**DetailedStatus**

An optional field that contains information about the detailed status of the stack event.

- `CONFIGURATION_COMPLETE` - all of the resources in the stack have reached that event. For more information, see Understand CloudFormation stack creation events in the *AWS CloudFormation User Guide*.
- `VALIDATION_FAILED` - template validation failed because of invalid properties in the template. The `ResourceStatusReason` field shows what properties are defined incorrectly.

Type: String

Valid Values: `CONFIGURATION_COMPLETE | VALIDATION_FAILED`

Required: No

**HookFailureMode**

Specify the Hook failure mode for non-compliant resources in the followings ways.

- `FAIL` Stops provisioning resources.
- `WARN` Allows provisioning to continue with a warning message.

Type: String

Valid Values: `FAIL | WARN`

Required: No

**HookInvocationId**

The unique identifier of the Hook invocation.

Type: String

Length Constraints: Fixed length of 36.

Pattern: `^[a-f0-9]{8}-[a-f0-9]{4}-[a-f0-9]{4}-[a-f0-9]{4}-[a-f0-9]{12}$`

Required: No

**HookInvocationPoint**

The specific point in the provisioning process where the Hook is invoked.

Type: String

Valid Values: `PRE_PROVISION`

Required: No

**HookStatus**

Provides the status of the change set Hook.

Type: String

Valid Values: `HOOK_IN_PROGRESS | HOOK_COMPLETE_SUCCEEDED | HOOK_COMPLETE_FAILED | HOOK_FAILED`

Required: No

**HookStatusReason**

Provides the reason for the Hook status.

Type: String

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

Required: No

**HookType**

The name of the Hook.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 255.

Required: No

**LogicalResourceId**

The logical name of the resource specified in the template.

Type: String

Required: No

**OperationId**

The unique identifier of the operation that generated this stack event.

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 | IMPORT_FAILED`

```
| IMPORT_COMPLETE | IMPORT_IN_PROGRESS | IMPORT_ROLLBACK_IN_PROGRESS
| IMPORT_ROLLBACK_FAILED | IMPORT_ROLLBACK_COMPLETE | EXPORT_FAILED
| EXPORT_COMPLETE | EXPORT_IN_PROGRESS | EXPORT_ROLLBACK_IN_PROGRESS
| EXPORT_ROLLBACK_FAILED | EXPORT_ROLLBACK_COMPLETE |
UPDATE_ROLLBACK_IN_PROGRESS | UPDATE_ROLLBACK_COMPLETE |
UPDATE_ROLLBACK_FAILED | ROLLBACK_IN_PROGRESS | ROLLBACK_COMPLETE |
ROLLBACK_FAILED
```

Required: No

**ResourceStatusReason**

Success/failure message associated with the resource.

Type: String

Required: No

**ResourceType**

Type of resource. For more information, see AWS resource and property types reference in the *AWS CloudFormation User Guide*.

Type: String

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

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# StackInstance

A CloudFormation stack, in a specific account and Region, that's part of a StackSet operation. A stack instance is a reference to an attempted or actual stack in a given account within a given Region. A stack instance can exist without a stack—for example, if the stack couldn't be created for some reason. A stack instance is associated with only one StackSet. Each stack instance contains the ID of its associated StackSet, in addition to the ID of the actual stack and the stack status.

## Contents

**Account**

[Self-managed permissions] The name of the AWS account that the stack instance is associated with.

Type: String

Pattern: `^[0-9]{12}$`

Required: No

**DriftStatus**

Status of the stack instance's actual configuration compared to the expected template and parameter configuration of the StackSet it belongs to.

- `DRIFTED`: The stack differs from the expected template and parameter configuration of the StackSet it belongs to. A stack instance is considered to have drifted if one or more of the resources in the associated stack have drifted.
- `NOT_CHECKED`: CloudFormation hasn't checked if the stack instance differs from its expected StackSet configuration.
- `IN_SYNC`: The stack instance's actual configuration matches its expected StackSset configuration.
- `UNKNOWN`: This value is reserved for future use.

Type: String

Valid Values: `DRIFTED | IN_SYNC | UNKNOWN | NOT_CHECKED`

Required: No

**LastDriftCheckTimestamp**

Most recent time when CloudFormation performed a drift detection operation on the stack instance. This value will be `NULL` for any stack instance that drift detection hasn't yet been performed on.

Type: Timestamp

Required: No

**LastOperationId**

The last unique ID of a StackSet operation performed on a stack instance.

Type: String

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

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

Required: No

**OrganizationalUnitId**

[Service-managed permissions] The organization root ID or organizational unit (OU) IDs that you specified for DeploymentTargets.

Type: String

Pattern: `^(ou-[a-z0-9]{4,32}-[a-z0-9]{8,32}|r-[a-z0-9]{4,32})$`

Required: No

**ParameterOverrides.member.N**

A list of parameters from the StackSet template whose values have been overridden in this stack instance.

Type: Array of Parameter objects

Required: No

**Region**

The name of the AWS Region that the stack instance is associated with.

Type: String

Pattern: `^[a-zA-Z0-9-]{1,128}$`

Required: No

**StackId**

The ID of the stack instance.

Type: String

Required: No

**StackInstanceStatus**

The detailed status of the stack instance.

Type: StackInstanceComprehensiveStatus object

Required: No

**StackSetId**

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

Type: String

Required: No

**Status**

The status of the stack instance, in terms of its synchronization with its associated stack set.

- `INOPERABLE`: A `DeleteStackInstances` operation has failed and left the stack in an unstable state. Stacks in this state are excluded from further `UpdateStackSet` operations. You might need to perform a `DeleteStackInstances` operation, with `RetainStacks` set to `true`, to delete the stack instance, and then delete the stack manually. `INOPERABLE` can be returned here when the cause is a failed import. If it's due to a failed import, the operation can be retried once the failures are fixed. To see if this is due to a failed import, look at the `DetailedStatus` member in the `StackInstanceSummary` member that is a peer to this `Status` member.
- `OUTDATED`: The stack isn't currently up to date with the StackSet because:
  - The associated stack failed during a `CreateStackSet` or `UpdateStackSet` operation.

- The stack was part of a `CreateStackSet` or `UpdateStackSet` operation that failed or was stopped before the stack was created or updated.
- `CURRENT`: The stack is currently up to date with the StackSet.

Type: String

Valid Values: `CURRENT | OUTDATED | INOPERABLE`

Required: No

**StatusReason**

The explanation for the specific status code that's assigned to this stack instance.

Type: String

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# StackInstanceComprehensiveStatus

The detailed status of the stack instance.

## Contents

**DetailedStatus**

- `CANCELLED`: The operation in the specified account and Region has been canceled. This is either because a user has stopped the StackSet operation, or because the failure tolerance of the StackSet operation has been exceeded.
- `FAILED`: The operation in the specified account and Region failed. If the StackSet operation fails in enough accounts within a Region, the failure tolerance for the StackSet operation as a whole might be exceeded.
- `FAILED_IMPORT`: The import of the stack instance in the specified account and Region failed and left the stack in an unstable state. Once the issues causing the failure are fixed, the import operation can be retried. If enough StackSet operations fail in enough accounts within a Region, the failure tolerance for the StackSet operation as a whole might be exceeded.
- `INOPERABLE`: A `DeleteStackInstances` operation has failed and left the stack in an unstable state. Stacks in this state are excluded from further `UpdateStackSet` operations. You might need to perform a `DeleteStackInstances` operation, with `RetainStacks` set to `true`, to delete the stack instance, and then delete the stack manually.
- `PENDING`: The operation in the specified account and Region has yet to start.
- `RUNNING`: The operation in the specified account and Region is currently in progress.
- `SKIPPED_SUSPENDED_ACCOUNT`: The operation in the specified account and Region has been skipped because the account was suspended at the time of the operation.
- `SUCCEEDED`: The operation in the specified account and Region completed successfully.

Type: String

Valid Values: `PENDING | RUNNING | SUCCEEDED | FAILED | CANCELLED | INOPERABLE | SKIPPED_SUSPENDED_ACCOUNT | FAILED_IMPORT`

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# StackInstanceFilter

The filter to apply to stack instances

## Contents

**Name**

The type of filter to apply.

Type: String

Valid Values: `DETAILED_STATUS | LAST_OPERATION_ID | DRIFT_STATUS`

Required: No

**Values**

The status to filter by.

Type: String

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

Pattern: `^\S{1,128}$`

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# StackInstanceResourceDriftsSummary

The structure containing summary information about resource drifts for a stack instance.

## Contents

**LogicalResourceId**

The logical name of the resource specified in the template.

Type: String

Required: Yes

**ResourceType**

Type of resource. For more information, see AWS resource and property types reference in the *AWS CloudFormation User Guide*.

Type: String

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

Required: Yes

**StackId**

The ID of the stack instance.

Type: String

Required: Yes

**StackResourceDriftStatus**

The drift status of the resource in a stack instance.

- `DELETED`: The resource differs from its expected template configuration in that the resource has been deleted.
- `MODIFIED`: One or more resource properties differ from their expected template values.
- `IN_SYNC`: The resource's actual configuration matches its expected template configuration.
- `NOT_CHECKED`: CloudFormation doesn't currently return this value.

Type: String

Valid Values: `IN_SYNC | MODIFIED | DELETED | NOT_CHECKED | UNKNOWN | UNSUPPORTED`

Required: Yes

**Timestamp**

Time at which the stack instance drift detection operation was initiated.

Type: Timestamp

Required: Yes

**PhysicalResourceId**

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

Type: String

Required: No

**PhysicalResourceIdContext.member.N**

Context information that enables CloudFormation to uniquely identify a resource. CloudFormation uses context key-value pairs in cases where a resource's logical and physical IDs aren't enough to uniquely identify that resource. Each context key-value pair specifies a unique resource that contains the targeted resource.

Type: Array of PhysicalResourceIdContextKeyValuePair objects

Array Members: Maximum number of 5 items.

Required: No

**PropertyDifferences.member.N**

Status of the actual configuration of the resource compared to its expected configuration. These will be present only for resources whose `StackInstanceResourceDriftStatus` is `MODIFIED`.

Type: Array of PropertyDifference objects

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# StackInstanceSummary

The structure that contains summary information about a stack instance.

## Contents

**Account**

[Self-managed permissions] The name of the AWS account that the stack instance is associated with.

Type: String

Pattern: `^[0-9]{12}$`

Required: No

**DriftStatus**

Status of the stack instance's actual configuration compared to the expected template and parameter configuration of the StackSet it belongs to.

- `DRIFTED`: The stack differs from the expected template and parameter configuration of the StackSet it belongs to. A stack instance is considered to have drifted if one or more of the resources in the associated stack have drifted.
- `NOT_CHECKED`: CloudFormation hasn't checked if the stack instance differs from its expected StackSet configuration.
- `IN_SYNC`: The stack instance's actual configuration matches its expected StackSet configuration.
- `UNKNOWN`: This value is reserved for future use.

Type: String

Valid Values: `DRIFTED | IN_SYNC | UNKNOWN | NOT_CHECKED`

Required: No

**LastDriftCheckTimestamp**

Most recent time when CloudFormation performed a drift detection operation on the stack instance. This value will be `NULL` for any stack instance that drift detection hasn't yet been performed on.

Type: Timestamp

Required: No

**LastOperationId**

The last unique ID of a StackSet operation performed on a stack instance.

Type: String

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

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

Required: No

**OrganizationalUnitId**

[Service-managed permissions] The organization root ID or organizational unit (OU) IDs that you specified for DeploymentTargets.

Type: String

Pattern: `^(ou-[a-z0-9]{4,32}-[a-z0-9]{8,32}|r-[a-z0-9]{4,32})$`

Required: No

**Region**

The name of the AWS Region that the stack instance is associated with.

Type: String

Pattern: `^[a-zA-Z0-9-]{1,128}$`

Required: No

**StackId**

The ID of the stack instance.

Type: String

Required: No

**StackInstanceStatus**

The detailed status of the stack instance.

Type: StackInstanceComprehensiveStatus object

Required: No

**StackSetId**

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

Type: String

Required: No

**Status**

The status of the stack instance, in terms of its synchronization with its associated stack set.

- `INOPERABLE`: A `DeleteStackInstances` operation has failed and left the stack in an unstable state. Stacks in this state are excluded from further `UpdateStackSet` operations. You might need to perform a `DeleteStackInstances` operation, with `RetainStacks` set to `true`, to delete the stack instance, and then delete the stack manually. `INOPERABLE` can be returned here when the cause is a failed import. If it's due to a failed import, the operation can be retried once the failures are fixed. To see if this is due to a failed import, call the DescribeStackInstance API operation, look at the `DetailedStatus` member returned in the `StackInstanceSummary` member.
- `OUTDATED`: The stack isn't currently up to date with the StackSet because:
  - The associated stack failed during a `CreateStackSet` or `UpdateStackSet` operation.
  - The stack was part of a `CreateStackSet` or `UpdateStackSet` operation that failed or was stopped before the stack was created or updated.
- `CURRENT`: The stack is currently up to date with the StackSet.

Type: String

Valid Values: `CURRENT | OUTDATED | INOPERABLE`

Required: No

**StatusReason**

The explanation for the specific status code assigned to this stack instance.

Type: String

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# StackRefactorAction

Describes the stack and the action that CloudFormation will perform on it if you execute the stack refactor.

## Contents

**Action**

The action that CloudFormation takes on the stack.

Type: String

Valid Values: `MOVE | CREATE`

Required: No

**Description**

A description to help you identify the refactor.

Type: String

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

Required: No

**Detection**

The detection type is one of the following:

- Auto: CloudFormation figured out the mapping on its own.
- Manual: The customer provided the mapping in the `ResourceMapping` parameter.

Type: String

Valid Values: `AUTO | MANUAL`

Required: No

**DetectionReason**

The description of the detection type.

Type: String

Required: No

**Entity**

The type that will be evaluated in the `StackRefactorAction`. The following are potential `Entity` types:

- `Stack`
- `Resource`

Type: String

Valid Values: `RESOURCE | STACK`

Required: No

**PhysicalResourceId**

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

Type: String

Required: No

**ResourceIdentifier**

A key-value pair that identifies the target resource. The key is an identifier property (for example, `BucketName` for `AWS::S3::Bucket` resources) and the value is the actual property value (for example, `MyS3Bucket`).

Type: String

Required: No

**ResourceMapping**

The mapping for the stack resource `Source` and stack resource `Destination`.

Type: ResourceMapping object

Required: No

**TagResources.member.N**

Assigns one or more tags to specified resources.

Type: Array of Tag objects

Required: No

**UntagResources.member.N**

Removes one or more tags to specified resources.

Type: Array of strings

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

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# StackRefactorSummary

The summary of a stack refactor operation.

## Contents

**Description**

A description to help you identify the refactor.

Type: String

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

Required: No

**ExecutionStatus**

The operation status that's provided after calling the ExecuteStackRefactor action.

Type: String

Valid Values: `UNAVAILABLE | AVAILABLE | OBSOLETE | EXECUTE_IN_PROGRESS | EXECUTE_COMPLETE | EXECUTE_FAILED | ROLLBACK_IN_PROGRESS | ROLLBACK_COMPLETE | ROLLBACK_FAILED`

Required: No

**ExecutionStatusReason**

A detailed explanation for the stack refactor `ExecutionStatus`.

Type: String

Required: No

**StackRefactorId**

The ID associated with the stack refactor created from the CreateStackRefactor action.

Type: String

Required: No

**Status**

The stack refactor operation status that's provided after calling the CreateStackRefactor action.

Type: String

Valid Values: `CREATE_IN_PROGRESS | CREATE_COMPLETE | CREATE_FAILED | DELETE_IN_PROGRESS | DELETE_COMPLETE | DELETE_FAILED`

Required: No

**StatusReason**

A detailed explanation for the stack refactor `Status`.

Type: String

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# StackResource

The `StackResource` data type.

## Contents

**LogicalResourceId**

The logical name of the resource specified in the template.

Type: String

Required: Yes

**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 | IMPORT_FAILED | IMPORT_COMPLETE | IMPORT_IN_PROGRESS | IMPORT_ROLLBACK_IN_PROGRESS | IMPORT_ROLLBACK_FAILED | IMPORT_ROLLBACK_COMPLETE | EXPORT_FAILED | EXPORT_COMPLETE | EXPORT_IN_PROGRESS | EXPORT_ROLLBACK_IN_PROGRESS | EXPORT_ROLLBACK_FAILED | EXPORT_ROLLBACK_COMPLETE | UPDATE_ROLLBACK_IN_PROGRESS | UPDATE_ROLLBACK_COMPLETE | UPDATE_ROLLBACK_FAILED | ROLLBACK_IN_PROGRESS | ROLLBACK_COMPLETE | ROLLBACK_FAILED`

Required: Yes

**ResourceType**

Type of resource. For more information, see AWS resource and property types reference in the *AWS CloudFormation User Guide*.

Type: String

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

Required: Yes

**Timestamp**

Time the status was updated.

Type: Timestamp

Required: Yes

**Description**

User defined description associated with the resource.

Type: String

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

Required: No

**DriftInformation**

Information about whether the resource's actual configuration differs, or has *drifted*, from its expected configuration, as defined in the stack template and any values specified as template parameters. For more information, see Detect unmanaged configuration changes to stacks and resources with drift detection.

Type: StackResourceDriftInformation object

Required: No

**ModuleInfo**

Contains information about the module from which the resource was created, if the resource was created from a module included in the stack template.

Type: ModuleInfo object

Required: No

**PhysicalResourceId**

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

Type: String

Required: No

**ResourceStatusReason**

Success/failure message associated with the resource.

Type: String

Required: No

**StackId**

Unique identifier of the stack.

Type: String

Required: No

**StackName**

The name associated with the stack.

Type: String

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# StackResourceDetail

Contains detailed 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

**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 | IMPORT_FAILED | IMPORT_COMPLETE | IMPORT_IN_PROGRESS | IMPORT_ROLLBACK_IN_PROGRESS | IMPORT_ROLLBACK_FAILED | IMPORT_ROLLBACK_COMPLETE | EXPORT_FAILED | EXPORT_COMPLETE | EXPORT_IN_PROGRESS | EXPORT_ROLLBACK_IN_PROGRESS | EXPORT_ROLLBACK_FAILED | EXPORT_ROLLBACK_COMPLETE | UPDATE_ROLLBACK_IN_PROGRESS | UPDATE_ROLLBACK_COMPLETE | UPDATE_ROLLBACK_FAILED | ROLLBACK_IN_PROGRESS | ROLLBACK_COMPLETE | ROLLBACK_FAILED`

Required: Yes

**ResourceType**

Type of resource. For more information, see AWS resource and property types reference in the *AWS CloudFormation User Guide*.

Type: String

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

Required: Yes

**Description**

User defined description associated with the resource.

Type: String

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

Required: No

**DriftInformation**

Information about whether the resource's actual configuration differs, or has *drifted*, from its expected configuration, as defined in the stack template and any values specified as template parameters. For more information, see Detect unmanaged configuration changes to stacks and resources with drift detection.

Type: StackResourceDriftInformation object

Required: No

**Metadata**

The 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

**ModuleInfo**

Contains information about the module from which the resource was created, if the resource was created from a module included in the stack template.

Type: ModuleInfo object

Required: No

**PhysicalResourceId**

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

Type: String

Required: No

**ResourceStatusReason**

Success/failure message associated with the resource.

Type: String

Required: No

**StackId**

Unique identifier of the stack.

Type: String

Required: No

**StackName**

The name associated with the stack.

Type: String

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2

- AWS SDK for Ruby V3

# StackResourceDrift

Contains the drift information for a resource that has been checked for drift. This includes actual and expected property values for resources in which CloudFormation has detected drift. Only resource properties explicitly defined in the stack template are checked for drift. For more information, see Detect unmanaged configuration changes to stacks and resources with drift detection.

Resources that don't currently support drift detection can't be checked. For a list of resources that support drift detection, see Resource type support for imports and drift detection.

Use DetectStackResourceDrift to detect drift on individual resources, or DetectStackDrift to detect drift on all resources in a given stack that support drift detection.

## Contents

**LogicalResourceId**

The logical name of the resource specified in the template.

Type: String

Required: Yes

**ResourceType**

The type of the resource.

Type: String

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

Required: Yes

**StackId**

The ID of the stack.

Type: String

Required: Yes

**StackResourceDriftStatus**

Status of the resource's actual configuration compared to its expected configuration.

- `DELETED`: The resource differs from its expected template configuration because the resource has been deleted.
- `MODIFIED`: One or more resource properties differ from their expected values (as defined in the stack template and any values specified as template parameters).
- `IN_SYNC`: The resource's actual configuration matches its expected template configuration.
- `NOT_CHECKED`: CloudFormation does not currently return this value.
- `UNKNOWN`: CloudFormation could not run drift detection for the resource. See the `DriftStatusReason` for details.

Type: String

Valid Values: `IN_SYNC | MODIFIED | DELETED | NOT_CHECKED | UNKNOWN | UNSUPPORTED`

Required: Yes

**Timestamp**

Time at which CloudFormation performed drift detection on the stack resource.

Type: Timestamp

Required: Yes

**ActualProperties**

A JSON structure that contains the actual property values of the stack resource.

For resources whose `StackResourceDriftStatus` is `DELETED`, this structure will not be present.

Type: String

Required: No

**DriftStatusReason**

The reason for the drift status.

Type: String

Required: No

**ExpectedProperties**

A JSON structure that contains the expected property values of the stack resource, as defined in the stack template and any values specified as template parameters.

For resources whose `StackResourceDriftStatus` is `DELETED`, this structure will not be present.

Type: String

Required: No

**ModuleInfo**

Contains information about the module from which the resource was created, if the resource was created from a module included in the stack template.

Type: ModuleInfo object

Required: No

**PhysicalResourceId**

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

Type: String

Required: No

**PhysicalResourceIdContext.member.N**

Context information that enables CloudFormation to uniquely identify a resource. CloudFormation uses context key-value pairs in cases where a resource's logical and physical IDs aren't enough to uniquely identify that resource. Each context key-value pair specifies a unique resource that contains the targeted resource.

Type: Array of PhysicalResourceIdContextKeyValuePair objects

Array Members: Maximum number of 5 items.

Required: No

**PropertyDifferences.member.N**

A collection of the resource properties whose actual values differ from their expected values. These will be present only for resources whose `StackResourceDriftStatus` is `MODIFIED`.

Type: Array of PropertyDifference objects

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# StackResourceDriftInformation

Contains information about whether the resource's actual configuration differs, or has *drifted*, from its expected configuration.

## Contents

**StackResourceDriftStatus**

Status of the resource's actual configuration compared to its expected configuration

- `DELETED`: The resource differs from its expected configuration in that it has been deleted.
- `MODIFIED`: The resource differs from its expected configuration.
- `NOT_CHECKED`: CloudFormation has not checked if the resource differs from its expected configuration.

  Any resources that do not currently support drift detection have a status of `NOT_CHECKED`. For more information, see Resource type support for imports and drift detection.
- `IN_SYNC`: The resource's actual configuration matches its expected configuration.

Type: String

Valid Values: `IN_SYNC | MODIFIED | DELETED | NOT_CHECKED | UNKNOWN | UNSUPPORTED`

Required: Yes

**LastCheckTimestamp**

When CloudFormation last checked if the resource had drifted from its expected configuration.

Type: Timestamp

Required: No

## See Also

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

- AWS SDK for C++

- AWS SDK for Java V2
- AWS SDK for Ruby V3

# StackResourceDriftInformationSummary

Summarizes information about whether the resource's actual configuration differs, or has *drifted*, from its expected configuration.

## Contents

**StackResourceDriftStatus**

Status of the resource's actual configuration compared to its expected configuration.

- `DELETED`: The resource differs from its expected configuration in that it has been deleted.
- `MODIFIED`: The resource differs from its expected configuration.
- `NOT_CHECKED`: CloudFormation hasn't checked if the resource differs from its expected configuration.

  Any resources that don't currently support drift detection have a status of `NOT_CHECKED`. For more information, see Resource type support for imports and drift detection. If you performed an ContinueUpdateRollback operation on a stack, any resources included in `ResourcesToSkip` will also have a status of `NOT_CHECKED`. For more information about skipping resources during rollback operations, see Continue rolling back an update in the *AWS CloudFormation User Guide*.
- `IN_SYNC`: The resource's actual configuration matches its expected configuration.

Type: String

Valid Values: `IN_SYNC | MODIFIED | DELETED | NOT_CHECKED | UNKNOWN | UNSUPPORTED`

Required: Yes

**LastCheckTimestamp**

When CloudFormation last checked if the resource had drifted from its expected configuration.

Type: Timestamp

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# 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

**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 | IMPORT_FAILED | IMPORT_COMPLETE | IMPORT_IN_PROGRESS | IMPORT_ROLLBACK_IN_PROGRESS | IMPORT_ROLLBACK_FAILED | IMPORT_ROLLBACK_COMPLETE | EXPORT_FAILED | EXPORT_COMPLETE | EXPORT_IN_PROGRESS | EXPORT_ROLLBACK_IN_PROGRESS | EXPORT_ROLLBACK_FAILED | EXPORT_ROLLBACK_COMPLETE | UPDATE_ROLLBACK_IN_PROGRESS | UPDATE_ROLLBACK_COMPLETE | UPDATE_ROLLBACK_FAILED | ROLLBACK_IN_PROGRESS | ROLLBACK_COMPLETE | ROLLBACK_FAILED`

Required: Yes

**ResourceType**

Type of resource. (For more information, see AWS resource and property types reference in the *AWS CloudFormation User Guide*.)

Type: String

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

Required: Yes

**DriftInformation**

Information about whether the resource's actual configuration differs, or has *drifted*, from its expected configuration, as defined in the stack template and any values specified as template parameters. For more information, see Detect unmanaged configuration changes to stacks and resources with drift detection.

Type: StackResourceDriftInformationSummary object

Required: No

**ModuleInfo**

Contains information about the module from which the resource was created, if the resource was created from a module included in the stack template.

Type: ModuleInfo object

Required: No

**PhysicalResourceId**

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

Type: String

Required: No

**ResourceStatusReason**

Success/failure message associated with the resource.

Type: String

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# StackSet

A structure that contains information about a StackSet. With StackSets, you can provision stacks across AWS accounts and Regions from a single CloudFormation template. Each stack is based on the same CloudFormation template, but you can customize individual stacks using parameters.

## Contents

**AdministrationRoleARN**

The Amazon Resource Name (ARN) of the IAM role used to create or update the stack set.

Use customized administrator roles to control which users or groups can manage specific StackSets within the same administrator account. For more information, see Prerequisites for using CloudFormation StackSets in the *AWS CloudFormation User Guide*.

Type: String

Length Constraints: Minimum length of 20. Maximum length of 2048.

Required: No

**AutoDeployment**

Describes whether StackSets automatically deploys to AWS Organizations accounts that are added to a target organization or organizational unit (OU). Valid only if the StackSet uses service-managed permissions.

Type: AutoDeployment object

Required: No

**Capabilities.member.N**

The capabilities that are allowed in the StackSet. Some StackSet 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 more information, see Acknowledging IAM resources in CloudFormation templates.

Type: Array of strings

Valid Values: `CAPABILITY_IAM | CAPABILITY_NAMED_IAM | CAPABILITY_AUTO_EXPAND`

Required: No

**Description**

A description of the StackSet that you specify when the StackSet is created or updated.

Type: String

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

Required: No

**ExecutionRoleName**

The name of the IAM execution role used to create or update the StackSet.

Use customized execution roles to control which stack resources users and groups can include in their StackSets.

Type: String

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

Pattern: `[a-zA-Z_0-9+=,.@-]+`

Required: No

**ManagedExecution**

Describes whether StackSets performs non-conflicting operations concurrently and queues conflicting operations.

Type: ManagedExecution object

Required: No

**OrganizationalUnitIds.member.N**

[Service-managed permissions] The organization root ID or organizational unit (OU) IDs that you specified for DeploymentTargets.

Type: Array of strings

Pattern: `^(ou-[a-z0-9]{4,32}-[a-z0-9]{8,32}|r-[a-z0-9]{4,32})$`

Required: No

**Parameters.member.N**

A list of input parameters for a StackSet.

Type: Array of Parameter objects

Required: No

**PermissionModel**

Describes how the IAM roles required for StackSet operations are created.

- With `self-managed` permissions, you must create the administrator and execution roles required to deploy to target accounts. For more information, see Grant self-managed permissions.
- With `service-managed` permissions, StackSets automatically creates the IAM roles required to deploy to accounts managed by AWS Organizations. For more information, see Activate trusted access for StackSets with AWS Organizations.

Type: String

Valid Values: `SERVICE_MANAGED | SELF_MANAGED`

Required: No

**Regions.member.N**

Returns a list of all AWS Regions the given StackSet has stack instances deployed in. The AWS Regions list output is in no particular order.

Type: Array of strings

Pattern: `^[a-zA-Z0-9-]{1,128}$`

Required: No

**StackSetARN**

The Amazon Resource Name (ARN) of the StackSet.

Type: String

Required: No

**StackSetDriftDetectionDetails**

Detailed information about the drift status of the StackSet.

For StackSets, contains information about the last *completed* drift operation performed on the StackSet. Information about drift operations currently in progress isn't included.

Type: StackSetDriftDetectionDetails object

Required: No

**StackSetId**

The ID of the StackSet.

Type: String

Required: No

**StackSetName**

The name that's associated with the StackSet.

Type: String

Required: No

**Status**

The status of the StackSet.

Type: String

Valid Values: `ACTIVE | DELETED`

Required: No

**Tags.member.N**

A list of tags that specify information about the StackSet. A maximum number of 50 tags can be specified.

Type: Array of Tag objects

Array Members: Maximum number of 50 items.

Required: No

**TemplateBody**

The structure that contains the body of the template that was used to create or update the StackSet.

Type: String

Length Constraints: Minimum length of 1.

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# StackSetAutoDeploymentTargetSummary

One of the targets for the StackSet. Returned by the ListStackSetAutoDeploymentTargets API operation.

## Contents

**OrganizationalUnitId**

The organization root ID or organizational unit (OU) IDs where the StackSet is targeted.

Type: String

Pattern: `^(ou-[a-z0-9]{4,32}-[a-z0-9]{8,32}|r-[a-z0-9]{4,32})$`

Required: No

**Regions.member.N**

The list of Regions targeted for this organization or OU.

Type: Array of strings

Pattern: `^[a-zA-Z0-9-]{1,128}$`

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# StackSetDriftDetectionDetails

Detailed information about the drift status of the StackSet.

For StackSets, contains information about the last *completed* drift operation performed on the StackSet. Information about drift operations in-progress isn't included.

For StackSet operations, includes information about drift operations currently being performed on the StackSet.

For more information, see Performing drift detection on CloudFormation StackSets in the *AWS CloudFormation User Guide*.

## Contents

**DriftDetectionStatus**

The status of the StackSet drift detection operation.

- `COMPLETED`: The drift detection operation completed without failing on any stack instances.
- `FAILED`: The drift detection operation exceeded the specified failure tolerance.
- `PARTIAL_SUCCESS`: The drift detection operation completed without exceeding the failure tolerance for the operation.
- `IN_PROGRESS`: The drift detection operation is currently being performed.
- `STOPPED`: The user has canceled the drift detection operation.

Type: String

Valid Values: `COMPLETED | FAILED | PARTIAL_SUCCESS | IN_PROGRESS | STOPPED`

Required: No

**DriftedStackInstancesCount**

The number of stack instances that have drifted from the expected template and parameter configuration of the StackSet. A stack instance is considered to have drifted if one or more of the resources in the associated stack don't match their expected configuration.

Type: Integer

Valid Range: Minimum value of 0.

Required: No

**DriftStatus**

Status of the StackSet's actual configuration compared to its expected template and parameter configuration.

- `DRIFTED`: One or more of the stack instances belonging to the StackSet differs from the expected template and parameter configuration. A stack instance is considered to have drifted if one or more of the resources in the associated stack have drifted.
- `NOT_CHECKED`: CloudFormation hasn't checked the StackSet for drift.
- `IN_SYNC`: All of the stack instances belonging to the StackSet stack match the expected template and parameter configuration.

Type: String

Valid Values: `DRIFTED | IN_SYNC | NOT_CHECKED`

Required: No

**FailedStackInstancesCount**

The number of stack instances for which the drift detection operation failed.

Type: Integer

Valid Range: Minimum value of 0.

Required: No

**InProgressStackInstancesCount**

The number of stack instances that are currently being checked for drift.

Type: Integer

Valid Range: Minimum value of 0.

Required: No

**InSyncStackInstancesCount**

The number of stack instances which match the expected template and parameter configuration of the StackSet.

Type: Integer

Valid Range: Minimum value of 0.

Required: No

**LastDriftCheckTimestamp**

Most recent time when CloudFormation performed a drift detection operation on the StackSet. This value will be `NULL` for any StackSet that drift detection hasn't yet been performed on.

Type: Timestamp

Required: No

**TotalStackInstancesCount**

The total number of stack instances belonging to this StackSet.

The total number of stack instances is equal to the total of:

- Stack instances that match the StackSet configuration.
- Stack instances that have drifted from the StackSet configuration.
- Stack instances where the drift detection operation has failed.
- Stack instances currently being checked for drift.

Type: Integer

Valid Range: Minimum value of 0.

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# StackSetOperation

The structure that contains information about a StackSet operation.

## Contents

**Action**

The type of StackSet operation: `CREATE`, `UPDATE`, or `DELETE`. Create and delete operations affect only the specified stack instances that are associated with the specified StackSet. Update operations affect both the StackSet itself, in addition to *all* associated stack instances.

Type: String

Valid Values: `CREATE | UPDATE | DELETE | DETECT_DRIFT`

Required: No

**AdministrationRoleARN**

The Amazon Resource Name (ARN) of the IAM role used to perform this StackSet operation.

Use customized administrator roles to control which users or groups can manage specific StackSets within the same administrator account. For more information, see Grant self-managed permissions in the *AWS CloudFormation User Guide*.

Type: String

Length Constraints: Minimum length of 20. Maximum length of 2048.

Required: No

**CreationTimestamp**

The time at which the operation was initiated. Note that the creation times for the stack set operation might differ from the creation time of the individual stacks themselves. This is because CloudFormation needs to perform preparatory work for the operation, such as dispatching the work to the requested Regions, before actually creating the first stacks.

Type: Timestamp

Required: No

**DeploymentTargets**

The AWS Organizations accounts affected by the stack operation. Valid only if the StackSet uses service-managed permissions.

Type: DeploymentTargets object

Required: No

**EndTimestamp**

The time at which the StackSet operation ended, across all accounts and Regions specified. Note that this doesn't necessarily mean that the StackSet operation was successful, or even attempted, in each account or Region.

Type: Timestamp

Required: No

**ExecutionRoleName**

The name of the IAM execution role used to create or update the StackSet.

Use customized execution roles to control which stack resources users and groups can include in their StackSets.

Type: String

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

Pattern: `[a-zA-Z_0-9+=,.@-]+`

Required: No

**OperationId**

The unique ID of a StackSet operation.

Type: String

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

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

Required: No

**OperationPreferences**

The preferences for how CloudFormation performs this StackSet operation.

Type: StackSetOperationPreferences object

Required: No

**RetainStacks**

For StackSet operations of action type `DELETE`, specifies whether to remove the stack instances from the specified StackSet, but doesn't delete the stacks. You can't re-associate a retained stack, or add an existing, saved stack to a new StackSet.

Type: Boolean

Required: No

**StackSetDriftDetectionDetails**

Detailed information about the drift status of the StackSet. This includes information about drift operations currently being performed on the StackSet.

This information will only be present for StackSet operations whose `Action` type is `DETECT_DRIFT`.

For more information, see Performing drift detection on CloudFormation StackSets in the *AWS CloudFormation User Guide*.

Type: StackSetDriftDetectionDetails object

Required: No

**StackSetId**

The ID of the StackSet.

Type: String

Required: No

**Status**

The status of the operation.

- `FAILED`: The operation exceeded the specified failure tolerance. The failure tolerance value that you've set for an operation is applied for each Region during stack create and update

operations. If the number of failed stacks within a Region exceeds the failure tolerance, the status of the operation in the Region is set to `FAILED`. This in turn sets the status of the operation as a whole to `FAILED`, and CloudFormation cancels the operation in any remaining Regions.

- `QUEUED`: [Service-managed permissions] For automatic deployments that require a sequence of operations, the operation is queued to be performed. For more information, see the StackSets status codes in the *AWS CloudFormation User Guide*.
- `RUNNING`: The operation is currently being performed.
- `STOPPED`: The user has canceled the operation.
- `STOPPING`: The operation is in the process of stopping, at user request.
- `SUCCEEDED`: The operation completed creating or updating all the specified stacks without exceeding the failure tolerance for the operation.

Type: String

Valid Values: `RUNNING | SUCCEEDED | FAILED | STOPPING | STOPPED | QUEUED`

Required: No

**StatusDetails**

Detailed information about the StackSet operation.

Type: StackSetOperationStatusDetails object

Required: No

**StatusReason**

The status of the operation in details.

Type: String

Required: No

## See Also

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

- AWS SDK for C++

- AWS SDK for Java V2
- AWS SDK for Ruby V3

# StackSetOperationPreferences

The user-specified preferences for how CloudFormation performs a StackSet operation.

For more information about maximum concurrent accounts and failure tolerance, see StackSet operation options.

> **Note**
>
> `StackSetOperationPreferences` don't apply to `AutoDeployment`, even if it's enabled.

## Contents

### ConcurrencyMode

Specifies how the concurrency level behaves during the operation execution.

- `STRICT_FAILURE_TOLERANCE`: This option dynamically lowers the concurrency level to ensure the number of failed accounts never exceeds the value of `FailureToleranceCount` +1. The initial actual concurrency is set to the lower of either the value of the `MaxConcurrentCount`, or the value of `FailureToleranceCount` +1. The actual concurrency is then reduced proportionally by the number of failures. This is the default behavior.

  If failure tolerance or Maximum concurrent accounts are set to percentages, the behavior is similar.
- `SOFT_FAILURE_TOLERANCE`: This option decouples `FailureToleranceCount` from the actual concurrency. This allows StackSet operations to run at the concurrency level set by the `MaxConcurrentCount` value, or `MaxConcurrentPercentage`, regardless of the number of failures.

Type: String

Valid Values: `STRICT_FAILURE_TOLERANCE | SOFT_FAILURE_TOLERANCE`

Required: No

**FailureToleranceCount**

The number of accounts per Region this operation can fail in before CloudFormation stops the operation in that Region. If the operation is stopped in a Region, CloudFormation doesn't attempt the operation in any subsequent Regions.

You can specify either `FailureToleranceCount` or `FailureTolerancePercentage`, but not both.

By default, `0` is specified.

Type: Integer

Valid Range: Minimum value of 0.

Required: No

**FailureTolerancePercentage**

The percentage of accounts per Region this stack operation can fail in before CloudFormation stops the operation in that Region. If the operation is stopped in a Region, CloudFormation doesn't attempt the operation in any subsequent Regions.

When calculating the number of accounts based on the specified percentage, CloudFormation rounds *down* to the next whole number.

You can specify either `FailureToleranceCount` or `FailureTolerancePercentage`, but not both.

By default, `0` is specified.

Type: Integer

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

Required: No

**MaxConcurrentCount**

The maximum number of accounts in which to perform this operation at one time. This can depend on the value of `FailureToleranceCount` depending on your `ConcurrencyMode`. `MaxConcurrentCount` is at most one more than the `FailureToleranceCount` if you're using `STRICT_FAILURE_TOLERANCE`.

Note that this setting lets you specify the *maximum* for operations. For large deployments, under certain circumstances the actual number of accounts acted upon concurrently may be lower due to service throttling.

You can specify either `MaxConcurrentCount` or `MaxConcurrentPercentage`, but not both.

By default, 1 is specified.

Type: Integer

Valid Range: Minimum value of 1.

Required: No

**MaxConcurrentPercentage**

The maximum percentage of accounts in which to perform this operation at one time.

When calculating the number of accounts based on the specified percentage, CloudFormation rounds down to the next whole number. This is true except in cases where rounding down would result is zero. In this case, CloudFormation sets the number as one instead.

Note that this setting lets you specify the *maximum* for operations. For large deployments, under certain circumstances the actual number of accounts acted upon concurrently may be lower due to service throttling.

You can specify either `MaxConcurrentCount` or `MaxConcurrentPercentage`, but not both.

By default, 1 is specified.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 100.

Required: No

**RegionConcurrencyType**

The concurrency type of deploying StackSets operations in Regions, could be in parallel or one Region at a time.

Type: String

Valid Values: `SEQUENTIAL | PARALLEL`

Required: No

**RegionOrder.member.N**

The order of the Regions where you want to perform the stack operation.

Type: Array of strings

Pattern: `^[a-zA-Z0-9-]{1,128}$`

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# StackSetOperationResultSummary

The structure that contains information about a specified operation's results for a given account in a given Region.

## Contents

**Account**

[Self-managed permissions] The name of the AWS account for this operation result.

Type: String

Pattern: `^[0-9]{12}$`

Required: No

**AccountGateResult**

The results of the account gate function CloudFormation invokes, if present, before proceeding with StackSet operations in an account.

Type: AccountGateResult object

Required: No

**OrganizationalUnitId**

[Service-managed permissions] The organization root ID or organizational unit (OU) IDs that you specified for DeploymentTargets.

Type: String

Pattern: `^(ou-[a-z0-9]{4,32}-[a-z0-9]{8,32}|r-[a-z0-9]{4,32})$`

Required: No

**Region**

The name of the AWS Region for this operation result.

Type: String

Pattern: `^[a-zA-Z0-9-]{1,128}$`

Required: No

**Status**

The result status of the StackSet operation for the given account in the given Region.

- `CANCELLED`: The operation in the specified account and Region has been canceled. This is either because a user has stopped the StackSet operation, or because the failure tolerance of the StackSet operation has been exceeded.
- `FAILED`: The operation in the specified account and Region failed.

  If the StackSet operation fails in enough accounts within a Region, the failure tolerance for the StackSet operation as a whole might be exceeded.
- `RUNNING`: The operation in the specified account and Region is currently in progress.
- `PENDING`: The operation in the specified account and Region has yet to start.
- `SUCCEEDED`: The operation in the specified account and Region completed successfully.

Type: String

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

Required: No

**StatusReason**

The reason for the assigned result status.

Type: String

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# StackSetOperationStatusDetails

Detailed information about the StackSet operation.

## Contents

**FailedStackInstancesCount**

The number of stack instances for which the StackSet operation failed.

Type: Integer

Valid Range: Minimum value of 0.

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# StackSetOperationSummary

The structures that contain summary information about the specified operation.

## Contents

**Action**

The type of operation: CREATE, UPDATE, or DELETE. Create and delete operations affect only the specified stack instances that are associated with the specified StackSet. Update operations affect both the StackSet itself and *all* associated StackSet instances.

Type: String

Valid Values: CREATE | UPDATE | DELETE | DETECT_DRIFT

Required: No

**CreationTimestamp**

The time at which the operation was initiated. Note that the creation times for the StackSet operation might differ from the creation time of the individual stacks themselves. This is because CloudFormation needs to perform preparatory work for the operation, such as dispatching the work to the requested Regions, before actually creating the first stacks.

Type: Timestamp

Required: No

**EndTimestamp**

The time at which the StackSet operation ended, across all accounts and Regions specified. Note that this doesn't necessarily mean that the StackSet operation was successful, or even attempted, in each account or Region.

Type: Timestamp

Required: No

**OperationId**

The unique ID of the StackSet operation.

Type: String

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

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

Required: No

**OperationPreferences**

The user-specified preferences for how CloudFormation performs a StackSet operation.

For more information about maximum concurrent accounts and failure tolerance, see StackSet operation options.

Type: StackSetOperationPreferences object

Required: No

**Status**

The overall status of the operation.

- `FAILED`: The operation exceeded the specified failure tolerance. The failure tolerance value that you've set for an operation is applied for each Region during stack create and update operations. If the number of failed stacks within a Region exceeds the failure tolerance, the status of the operation in the Region is set to `FAILED`. This in turn sets the status of the operation as a whole to `FAILED`, and CloudFormation cancels the operation in any remaining Regions.
- `QUEUED`: [Service-managed permissions] For automatic deployments that require a sequence of operations, the operation is queued to be performed. For more information, see the StackSet status codes in the *AWS CloudFormation User Guide*.
- `RUNNING`: The operation is currently being performed.
- `STOPPED`: The user has canceled the operation.
- `STOPPING`: The operation is in the process of stopping, at user request.
- `SUCCEEDED`: The operation completed creating or updating all the specified stacks without exceeding the failure tolerance for the operation.

Type: String

Valid Values: `RUNNING | SUCCEEDED | FAILED | STOPPING | STOPPED | QUEUED`

Required: No

**StatusDetails**

Detailed information about the StackSet operation.

Type: StackSetOperationStatusDetails object

Required: No

**StatusReason**

The status of the operation in details.

Type: String

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# StackSetSummary

The structures that contain summary information about the specified StackSet.

## Contents

**AutoDeployment**

[Service-managed permissions] Describes whether StackSets automatically deploys to AWS Organizations accounts that are added to a target organizational unit (OU).

Type: AutoDeployment object

Required: No

**Description**

A description of the StackSet that you specify when the StackSet is created or updated.

Type: String

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

Required: No

**DriftStatus**

Status of the StackSet's actual configuration compared to its expected template and parameter configuration.

- `DRIFTED`: One or more of the stack instances belonging to the StackSet differs from the expected template and parameter configuration. A stack instance is considered to have drifted if one or more of the resources in the associated stack have drifted.
- `NOT_CHECKED`: CloudFormation hasn't checked the StackSet for drift.
- `IN_SYNC`: All the stack instances belonging to the StackSet match the expected template and parameter configuration.
- `UNKNOWN`: This value is reserved for future use.

Type: String

Valid Values: `DRIFTED | IN_SYNC | UNKNOWN | NOT_CHECKED`

Required: No

**LastDriftCheckTimestamp**

Most recent time when CloudFormation performed a drift detection operation on the StackSet. This value will be `NULL` for any StackSet that drift detection hasn't yet been performed on.

Type: Timestamp

Required: No

**ManagedExecution**

Describes whether StackSets performs non-conflicting operations concurrently and queues conflicting operations.

Type: ManagedExecution object

Required: No

**PermissionModel**

Describes how the IAM roles required for StackSet operations are created.

- With `self-managed` permissions, you must create the administrator and execution roles required to deploy to target accounts. For more information, see Grant self-managed permissions.
- With `service-managed` permissions, StackSets automatically creates the IAM roles required to deploy to accounts managed by AWS Organizations. For more information, see Activate trusted access for StackSets with AWS Organizations.

Type: String

Valid Values: `SERVICE_MANAGED | SELF_MANAGED`

Required: No

**StackSetId**

The ID of the StackSet.

Type: String

Required: No

**StackSetName**

The name of the StackSet.

Type: String

Required: No

**Status**

The status of the StackSet.

Type: String

Valid Values: `ACTIVE | DELETED`

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# StackSummary

The `StackSummary` Data Type

## Contents

**CreationTime**

The time the stack was created.

Type: Timestamp

Required: Yes

**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_FAILED | UPDATE_ROLLBACK_IN_PROGRESS | UPDATE_ROLLBACK_FAILED | UPDATE_ROLLBACK_COMPLETE_CLEANUP_IN_PROGRESS | UPDATE_ROLLBACK_COMPLETE | REVIEW_IN_PROGRESS | IMPORT_IN_PROGRESS | IMPORT_COMPLETE | IMPORT_ROLLBACK_IN_PROGRESS | IMPORT_ROLLBACK_FAILED | IMPORT_ROLLBACK_COMPLETE`

Required: Yes

**DeletionTime**

The time the stack was deleted.

Type: Timestamp

Required: No

**DriftInformation**

Summarizes information about whether a stack's actual configuration differs, or has *drifted*, from its expected configuration, as defined in the stack template and any values specified as template parameters. For more information, see Detect unmanaged configuration changes to stacks and resources with drift detection.

Type: StackDriftInformationSummary object

Required: No

**LastOperations.member.N**

Information about the most recent operations performed on this stack.

Type: Array of OperationEntry objects

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

**ParentId**

For nested stacks, the stack ID of the direct parent of this stack. For the first level of nested stacks, the root stack is also the parent stack.

For more information, see Nested stacks in the *AWS CloudFormation User Guide*.

Type: String

Required: No

**RootId**

For nested stacks, the stack ID of the top-level stack to which the nested stack ultimately belongs.

For more information, see Nested stacks in the *AWS CloudFormation User Guide*.

Type: String

Required: No

**StackId**

Unique stack identifier.

Type: String

Required: No

**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

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# Tag

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

## Contents

**Key**

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

Type: String

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

Required: Yes

**Value**

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

Type: String

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

Required: Yes

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# TemplateConfiguration

The configuration details of a generated template.

## Contents

**DeletionPolicy**

The `DeletionPolicy` assigned to resources in the generated template. Supported values are:

- `DELETE` - delete all resources when the stack is deleted.
- `RETAIN` - retain all resources when the stack is deleted.

For more information, see DeletionPolicy attribute in the *AWS CloudFormation User Guide*.

Type: String

Valid Values: `DELETE | RETAIN`

Required: No

**UpdateReplacePolicy**

The `UpdateReplacePolicy` assigned to resources in the generated template. Supported values are:

- `DELETE` - delete all resources when the resource is replaced during an update operation.
- `RETAIN` - retain all resources when the resource is replaced during an update operation.

For more information, see UpdateReplacePolicy attribute in the *AWS CloudFormation User Guide*.

Type: String

Valid Values: `DELETE | RETAIN`

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# 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

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# TemplateProgress

A summary of the progress of the template generation.

## Contents

**ResourcesFailed**

The number of resources that failed the template generation.

Type: Integer

Valid Range: Minimum value of 0.

Required: No

**ResourcesPending**

The number of resources that are still pending the template generation.

Type: Integer

Valid Range: Minimum value of 0.

Required: No

**ResourcesProcessing**

The number of resources that are in-process for the template generation.

Type: Integer

Valid Range: Minimum value of 0.

Required: No

**ResourcesSucceeded**

The number of resources that succeeded the template generation.

Type: Integer

Valid Range: Minimum value of 0.

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# TemplateSummary

The summary of a generated template.

## Contents

**CreationTime**

The time the generated template was created.

Type: Timestamp

Required: No

**GeneratedTemplateId**

The Amazon Resource Name (ARN) of the generated template. The format is `arn:${Partition}:cloudformation:${Region}:${Account}:generatedtemplate/${Id}`. For example, `arn:aws:cloudformation:us-east-1:123456789012:generatedtemplate/2e8465c1-9a80-43ea-a3a3-4f2d692fe6dc` .

Type: String

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

Required: No

**GeneratedTemplateName**

The name of the generated template.

Type: String

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

Required: No

**LastUpdatedTime**

The time the generated template was last updated.

Type: Timestamp

Required: No

**NumberOfResources**

The number of resources in the generated template. This is a total of resources in pending, in-progress, completed, and failed states.

Type: Integer

Valid Range: Minimum value of 0.

Required: No

**Status**

The status of the template generation. Supported values are:

- `CreatePending` - the creation of the template is pending.
- `CreateInProgress` - the creation of the template is in progress.
- `DeletePending` - the deletion of the template is pending.
- `DeleteInProgress` - the deletion of the template is in progress.
- `UpdatePending` - the update of the template is pending.
- `UpdateInProgress` - the update of the template is in progress.
- `Failed` - the template operation failed.
- `Complete` - the template operation is complete.

Type: String

Valid Values: `CREATE_PENDING | UPDATE_PENDING | DELETE_PENDING | CREATE_IN_PROGRESS | UPDATE_IN_PROGRESS | DELETE_IN_PROGRESS | FAILED | COMPLETE`

Required: No

**StatusReason**

The reason for the current template generation status. This will provide more details if a failure happened.

Type: String

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

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# TemplateSummaryConfig

Options for the `GetTemplateSummary` API action.

## Contents

**TreatUnrecognizedResourceTypesAsWarnings**

If set to `True`, any unrecognized resource types generate warnings and not an error. Any unrecognized resource types are returned in the `Warnings` output parameter.

Type: Boolean

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# TypeConfigurationDetails

Detailed information concerning the specification of a CloudFormation extension in a given account and Region.

For more information, see Edit configuration data for extensions in your account in the *AWS CloudFormation User Guide*.

## Contents

**Alias**

The alias specified for this configuration, if one was specified when the configuration was set.

Type: String

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

Pattern: `^[a-zA-Z0-9]{1,256}$`

Required: No

**Arn**

The ARN for the configuration data, in this account and Region.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `arn:aws[A-Za-z0-9-]{0,64}:cloudformation:[A-Za-z0-9-]{1,64}:([0-9]{12})?:type-configuration/.+`

Required: No

**Configuration**

A JSON string specifying the configuration data for the extension, in this account and Region.

If a configuration hasn't been set for a specified extension, CloudFormation returns `{}`.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 204800.

Pattern: `[\s\S]+`

Required: No

**IsDefaultConfiguration**

Whether this configuration data is the default configuration for the extension.

Type: Boolean

Required: No

**LastUpdated**

When the configuration data was last updated for this extension.

If a configuration hasn't been set for a specified extension, CloudFormation returns `null`.

Type: Timestamp

Required: No

**TypeArn**

The ARN for the extension, in this account and Region.

For public extensions, this will be the ARN assigned when you call the ActivateType API operation in this account and Region. For private extensions, this will be the ARN assigned when you call the RegisterType API operation in this account and Region.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `arn:aws[A-Za-z0-9-]{0,64}:cloudformation:[A-Za-z0-9-]{1,64}:([0-9]{12})?:type/.+`

Required: No

**TypeName**

The name of the extension.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 204.

Pattern: `[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}(::MODULE){0,1}`

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# TypeConfigurationIdentifier

Identifying information for the configuration of a CloudFormation extension.

## Contents

**Type**

The type of extension.

Type: String

Valid Values: `RESOURCE | MODULE | HOOK`

Required: No

**TypeArn**

The ARN for the extension, in this account and Region.

For public extensions, this will be the ARN assigned when you call the ActivateType API operation in this account and Region. For private extensions, this will be the ARN assigned when you call the RegisterType API operation in this account and Region.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `arn:aws[A-Za-z0-9-]{0,64}:cloudformation:[A-Za-z0-9-]{1,64}:([0-9]{12})?:type/.+`

Required: No

**TypeConfigurationAlias**

The alias specified for this configuration, if one was specified when the configuration was set.

Type: String

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

Pattern: `^[a-zA-Z0-9]{1,256}$`

Required: No

**TypeConfigurationArn**

The ARN for the configuration, in this account and Region.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `arn:aws[A-Za-z0-9-]{0,64}:cloudformation:[A-Za-z0-9-]{1,64}:([0-9]{12})?:type-configuration/.+`

Required: No

**TypeName**

The name of the extension type to which this configuration applies.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 204.

Pattern: `[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}(::MODULE){0,1}`

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# TypeFilters

Filter criteria to use in determining which extensions to return.

## Contents

**Category**

The category of extensions to return.

- `REGISTERED`: Private extensions that have been registered for this account and Region.
- `ACTIVATED`: Public extensions that have been activated for this account and Region.
- `THIRD_PARTY`: Extensions available for use from publishers other than Amazon. This includes:
  - Private extensions registered in the account.
  - Public extensions from publishers other than Amazon, whether activated or not.
- `AWS_TYPES`: Extensions available for use from Amazon.

Type: String

Valid Values: `REGISTERED | ACTIVATED | THIRD_PARTY | AWS_TYPES`

Required: No

**PublisherId**

The id of the publisher of the extension.

Extensions published by Amazon aren't assigned a publisher ID. Use the `AWS_TYPES` category to specify a list of types published by Amazon.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 40.

Pattern: `[0-9a-zA-Z]{12,40}`

Required: No

**TypeNamePrefix**

A prefix to use as a filter for results.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 204.

Pattern: `([A-Za-z0-9]{2,64}::){0,2}([A-Za-z0-9]{2,64}:?){0,1}`

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# TypeSummary

Contains summary information about the specified CloudFormation extension.

## Contents

**DefaultVersionId**

The ID of the default version of the extension. The default version is used when the extension version isn't specified.

This applies only to private extensions you have registered in your account. For public extensions, both those provided by Amazon and published by third parties, CloudFormation returns `null`. For more information, see RegisterType.

To set the default version of an extension, use SetTypeDefaultVersion.

Type: String

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

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

Required: No

**Description**

The description of the extension.

Type: String

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

Required: No

**IsActivated**

Whether the extension is activated for this account and Region.

This applies only to third-party public extensions. Extensions published by Amazon are activated by default.

Type: Boolean

Required: No

**LastUpdated**

When the specified extension version was registered. This applies only to:

- Private extensions you have registered in your account. For more information, see RegisterType.
- Public extensions you have activated in your account with auto-update specified. For more information, see ActivateType.

For all other extension types, CloudFormation returns `null`.

Type: Timestamp

Required: No

**LatestPublicVersion**

For public extensions that have been activated for this account and Region, the latest version of the public extension *that is available*. For any extensions other than activated third-party extensions, CloudFormation returns `null`.

How you specified `AutoUpdate` when enabling the extension affects whether CloudFormation automatically updates the extension in this account and Region when a new version is released. For more information, see Automatically use new versions of extensions in the *AWS CloudFormation User Guide*.

Type: String

Length Constraints: Minimum length of 5.

Pattern: `^(0|[1-9]\d*)\.(0|[1-9]\d*)\.(.*)$`

Required: No

**OriginalTypeName**

For public extensions that have been activated for this account and Region, the type name of the public extension.

If you specified a `TypeNameAlias` when enabling the extension in this account and Region, CloudFormation treats that alias as the extension's type name within the account and Region, not the type name of the public extension. For more information, see Use aliases to refer to extensions in the *AWS CloudFormation User Guide*.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 204.

Pattern: `[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}(::MODULE){0,1}`

Required: No

**PublicVersionNumber**

For public extensions that have been activated for this account and Region, the version of the public extension to be used for CloudFormation operations in this account and Region.

How you specified `AutoUpdate` when enabling the extension affects whether CloudFormation automatically updates the extension in this account and Region when a new version is released. For more information, see Automatically use new versions of extensions in the *AWS CloudFormation User Guide*.

Type: String

Length Constraints: Minimum length of 5.

Pattern: `^(0|[1-9]\d*)\.(0|[1-9]\d*)\.(.*)$`

Required: No

**PublisherId**

The ID of the extension publisher, if the extension is published by a third party. Extensions published by Amazon don't return a publisher ID.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 40.

Pattern: `[0-9a-zA-Z]{12,40}`

Required: No

**PublisherIdentity**

The service used to verify the publisher identity.

For more information, see Publishing extensions to make them available for public use in the *AWS CloudFormation Command Line Interface (CLI) User Guide*.

Type: String

Valid Values: `AWS_Marketplace | GitHub | Bitbucket`

Required: No

**PublisherName**

The publisher name, as defined in the public profile for that publisher in the service used to verify the publisher identity.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 100.

Pattern: `[\s\S]+`

Required: No

**Type**

The kind of extension.

Type: String

Valid Values: `RESOURCE | MODULE | HOOK`

Required: No

**TypeArn**

The ARN of the extension.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `arn:aws[A-Za-z0-9-]{0,64}:cloudformation:[A-Za-z0-9-]{1,64}:([0-9]{12})?:type/.+`

Required: No

**TypeName**

The name of the extension.

If you specified a `TypeNameAlias` when you call the ActivateType API operation in your account and Region, CloudFormation considers that alias as the type name.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 204.

Pattern: `[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}(::MODULE){0,1}`

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# TypeVersionSummary

Contains summary information about a specific version of a CloudFormation extension.

## Contents

**Arn**

The ARN of the extension version.

Type: String

Length Constraints: Maximum length of 1024.

Pattern: `arn:aws[A-Za-z0-9-]{0,64}:cloudformation:[A-Za-z0-9-]{1,64}:([0-9]{12})?:type/.+`

Required: No

**Description**

The description of the extension version.

Type: String

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

Required: No

**IsDefaultVersion**

Whether the specified extension version is set as the default version.

This applies only to private extensions you have registered in your account, and extensions published by Amazon. For public third-party extensions, CloudFormation returns `null`.

Type: Boolean

Required: No

**PublicVersionNumber**

For public extensions that have been activated for this account and Region, the version of the public extension to be used for CloudFormation operations in this account and Region. For any extensions other than activated third-party extensions, CloudFormation returns `null`.

How you specified `AutoUpdate` when enabling the extension affects whether CloudFormation automatically updates the extension in this account and Region when a new version is released. For more information, see Automatically use new versions of extensions in the *AWS CloudFormation User Guide*.

Type: String

Length Constraints: Minimum length of 5.

Pattern: `^(0|[1-9]\d*)\.(0|[1-9]\d*)\.(.*)$`

Required: No

**TimeCreated**

When the version was registered.

Type: Timestamp

Required: No

**Type**

The kind of extension.

Type: String

Valid Values: `RESOURCE | MODULE | HOOK`

Required: No

**TypeName**

The name of the extension.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 204.

Pattern: `[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}::[A-Za-z0-9]{2,64}(::MODULE){0,1}`

Required: No

**VersionId**

The ID of a specific version of the extension. The version ID is the value at the end of the ARN assigned to the extension version when it's registered.

Type: String

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

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

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# WarningDetail

The warnings generated for a specific resource for this generated template.

## Contents

**Properties.member.N**

The properties of the resource that are impacted by this warning.

Type: Array of WarningProperty objects

Required: No

**Type**

The type of this warning. For more information, see Resolve write-only properties in the *AWS CloudFormation User Guide*.

- `MUTUALLY_EXCLUSIVE_PROPERTIES` - The resource requires mutually-exclusive write-only properties. The IaC generator selects one set of mutually exclusive properties and converts the included properties into parameters. The parameter names have a suffix `OneOf` and the parameter descriptions indicate that the corresponding property can be replaced with other exclusive properties.
- `UNSUPPORTED_PROPERTIES` - Unsupported properties are present in the resource. One example of unsupported properties would be a required write-only property that is an array, because a parameter cannot be an array. Another example is an optional write-only property.
- `MUTUALLY_EXCLUSIVE_TYPES` - One or more required write-only properties are found in the resource, and the type of that property can be any of several types.

> **Note**
>
> Currently the resource and property reference documentation does not indicate if a property uses a type of `oneOf` or `anyOf`. You need to look at the resource provider schema.

Type: String

Valid Values: `MUTUALLY_EXCLUSIVE_PROPERTIES | UNSUPPORTED_PROPERTIES | MUTUALLY_EXCLUSIVE_TYPES | EXCLUDED_PROPERTIES | EXCLUDED_RESOURCES`

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# WarningProperty

A specific property that is impacted by a warning.

## Contents

**Description**

The description of the property from the resource provider schema.

Type: String

Required: No

**PropertyPath**

The path of the property. For example, if this is for the `S3Bucket` member of the `Code` property, the property path would be `Code/S3Bucket`.

Type: String

Required: No

**Required**

If `true`, the specified property is required.

Type: Boolean

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# Warnings

Contains any warnings returned by the `GetTemplateSummary` API action.

## Contents

**UnrecognizedResourceTypes.member.N**

A list of all of the unrecognized resource types. This is only returned if the `TemplateSummaryConfig` parameter has the `TreatUnrecognizedResourceTypesAsWarning` configuration set to `True`.

Type: Array of strings

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

Required: No

## See Also

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

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

# Common Parameters

The following list contains the parameters that all actions use for signing Signature Version 4 requests with a query string. Any action-specific parameters are listed in the topic for that action. For more information about Signature Version 4, see Signing AWS API requests in the *IAM User Guide*.

**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 Create a signed AWS API request in the *IAM User Guide*.

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 Elements of an AWS API request signature in the *IAM User Guide*.

Type: string

Required: Conditional

**X-Amz-Security-Token**

The temporary security token that was obtained through a call to AWS Security Token Service (AWS STS). For a list of services that support temporary security credentials from AWS STS, see AWS services that work with IAM in the *IAM User Guide*.

Condition: If you're using temporary security credentials from AWS STS, 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 Create a signed AWS API request in the *IAM User Guide*.

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 Error Types

This section lists common error types that this AWS service may return. Not all services return all error types listed here. For errors specific to an API action for this service, see the topic for that API action.

**AccessDeniedException**

You don't have permission to perform this action. Verify that your IAM policy includes the required permissions.

HTTP Status Code: 403

**ExpiredTokenException**

The security token included in the request has expired. Request a new security token and try again.

HTTP Status Code: 403

**IncompleteSignature**

The request signature doesn't conform to AWS standards. Verify that you're using valid AWS credentials and that your request is properly formatted. If you're using an SDK, ensure it's up to date.

HTTP Status Code: 400

**InternalFailure**

The request can't be processed right now because of an internal server issue. Try again later. If the problem persists, contact AWS Support.

HTTP Status Code: 500

**InvalidParameterCombination**

Parameters that must not be used together were used together. Remove one of the conflicting parameters and try again.

HTTP Status Code: 400

**InvalidParameterValue**

A value that you provided for a parameter isn't valid. Check the parameter constraints and try again.

HTTP Status Code: 400

**InvalidQueryParameter**

The AWS query string is malformed or doesn't adhere to AWS standards. Verify the query string format and try again.

HTTP Status Code: 400

**MalformedQueryString**

The query string contains a syntax error. Verify the query string and try again.

HTTP Status Code: 404

**MissingAction**

The request is missing the Action parameter. Add the Action parameter and try again.

HTTP Status Code: 400

**MissingAuthenticationToken**

The request must contain a valid AWS access key ID or X.509 certificate. Verify that your credentials are included in the request.

HTTP Status Code: 403

**MissingParameter**

A required parameter for the specified action isn't included in the request. Add the missing parameter and try again.

HTTP Status Code: 400

**NotAuthorized**

You don't have permissions to perform this action. Verify that your IAM policy includes the required permissions.

HTTP Status Code: 401

**OptInRequired**

Your AWS account needs a subscription for this service. Verify that you've enabled the service in your account.

HTTP Status Code: 403

**RequestExpired**

The request has expired. This can happen if the request took more than 15 minutes to reach the service, the date stamp is more than 15 minutes in the future, or a pre-signed URL has expired. Generate a new request with a current timestamp and try again.

HTTP Status Code: 400

**ServiceUnavailable**

The service is temporarily unavailable. Try again later.

HTTP Status Code: 503

**ThrottlingException**

Your request rate is too high. The AWS SDKs automatically retry requests that receive this exception. Reduce the frequency of requests.

HTTP Status Code: 400

**UnrecognizedClientException**

The X.509 certificate or AWS access key ID you provided doesn't exist in our records. Verify that you're using valid credentials and that they haven't expired.

HTTP Status Code: 403

**ValidationError**

The input doesn't meet the required format or constraints. Check that all required parameters are included and that values are valid.

HTTP Status Code: 400