



API Reference

# AWS CloudFormation



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# AWS CloudFormation: API Reference

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# Table of Contents

Welcome .....	1
Actions .....	4
ActivateOrganizationsAccess .....	7
Errors .....	7
Examples .....	7
See Also .....	8
ActivateType .....	9
Request Parameters .....	9
Response Elements .....	12
Errors .....	12
See Also .....	13
BatchDescribeTypeConfigurations .....	14
Request Parameters .....	14
Response Elements .....	14
Errors .....	15
See Also .....	15
CancelUpdateStack .....	16
Request Parameters .....	16
Errors .....	17
Examples .....	17
See Also .....	18
ContinueUpdateRollback .....	19
Request Parameters .....	19
Errors .....	21
Examples .....	22
See Also .....	22
CreateChangeSet .....	24
Request Parameters .....	24
Response Elements .....	32
Errors .....	32
Examples .....	33
See Also .....	34
CreateGeneratedTemplate .....	35
Request Parameters .....	35

Response Elements .....	36
Errors .....	36
See Also .....	37
CreateStack .....	38
Request Parameters .....	38
Response Elements .....	45
Errors .....	45
Examples .....	46
See Also .....	47
CreateStackInstances .....	48
Request Parameters .....	48
Response Elements .....	50
Errors .....	51
Examples .....	52
See Also .....	53
CreateStackSet .....	54
Request Parameters .....	54
Response Elements .....	60
Errors .....	60
Examples .....	60
See Also .....	61
DeactivateOrganizationsAccess .....	63
Errors .....	63
Examples .....	63
See Also .....	64
DeactivateType .....	65
Request Parameters .....	65
Errors .....	66
See Also .....	66
DeleteChangeSet .....	68
Request Parameters .....	68
Errors .....	69
Examples .....	69
See Also .....	70
DeleteGeneratedTemplate .....	71
Request Parameters .....	71

Errors .....	71
See Also .....	71
DeleteStack .....	73
Request Parameters .....	73
Errors .....	74
Examples .....	75
See Also .....	75
DeleteStackInstances .....	77
Request Parameters .....	77
Response Elements .....	79
Errors .....	79
Examples .....	80
See Also .....	81
DeleteStackSet .....	82
Request Parameters .....	82
Errors .....	82
Examples .....	83
See Also .....	84
DeregisterType .....	85
Request Parameters .....	85
Errors .....	86
Examples .....	87
See Also .....	87
DescribeAccountLimits .....	89
Request Parameters .....	89
Response Elements .....	89
Errors .....	90
Examples .....	90
See Also .....	91
DescribeChangeSet .....	92
Request Parameters .....	92
Response Elements .....	93
Errors .....	97
Examples .....	97
See Also .....	99
DescribeChangeSetHooks .....	100

Request Parameters .....	100
Response Elements .....	101
Errors .....	102
See Also .....	102
DescribeGeneratedTemplate .....	104
Request Parameters .....	104
Response Elements .....	104
Errors .....	106
See Also .....	107
DescribeOrganizationsAccess .....	108
Request Parameters .....	108
Response Elements .....	108
Errors .....	109
Examples .....	109
See Also .....	110
DescribePublisher .....	111
Request Parameters .....	111
Response Elements .....	111
Errors .....	112
See Also .....	113
DescribeResourceScan .....	114
Request Parameters .....	114
Response Elements .....	114
Errors .....	116
See Also .....	116
DescribeStackDriftDetectionStatus .....	118
Request Parameters .....	118
Response Elements .....	118
Errors .....	120
Examples .....	120
See Also .....	121
DescribeStackEvents .....	122
Request Parameters .....	122
Response Elements .....	122
Errors .....	123
Examples .....	123

See Also .....	125
DescribeStackInstance .....	127
Request Parameters .....	127
Response Elements .....	128
Errors .....	128
Examples .....	129
See Also .....	130
DescribeStackResource .....	131
Request Parameters .....	131
Response Elements .....	131
Errors .....	132
Examples .....	132
See Also .....	133
DescribeStackResourceDrifts .....	134
Request Parameters .....	134
Response Elements .....	135
Errors .....	136
Examples .....	136
See Also .....	138
DescribeStackResources .....	139
Request Parameters .....	139
Response Elements .....	140
Errors .....	141
Examples .....	141
See Also .....	142
DescribeStacks .....	143
Request Parameters .....	143
Response Elements .....	144
Errors .....	144
Examples .....	144
See Also .....	146
DescribeStackSet .....	147
Request Parameters .....	147
Response Elements .....	147
Errors .....	148
Examples .....	148

See Also .....	151
DescribeStackSetOperation .....	152
Request Parameters .....	152
Response Elements .....	153
Errors .....	153
Examples .....	153
See Also .....	156
DescribeType .....	157
Request Parameters .....	157
Response Elements .....	159
Errors .....	166
Examples .....	167
See Also .....	168
DescribeTypeRegistration .....	169
Request Parameters .....	169
Response Elements .....	169
Errors .....	170
Examples .....	171
See Also .....	172
DetectStackDrift .....	174
Request Parameters .....	174
Response Elements .....	175
Errors .....	175
Examples .....	175
See Also .....	176
DetectStackResourceDrift .....	177
Request Parameters .....	177
Response Elements .....	177
Errors .....	178
Examples .....	178
See Also .....	180
DetectStackSetDrift .....	181
Request Parameters .....	181
Response Elements .....	183
Errors .....	183
Examples .....	184

See Also .....	184
<b>EstimateTemplateCost .....</b>	<b>186</b>
Request Parameters .....	186
Response Elements .....	187
Errors .....	187
Examples .....	187
See Also .....	188
<b>ExecuteChangeSet .....</b>	<b>189</b>
Request Parameters .....	189
Errors .....	191
Examples .....	191
See Also .....	192
<b>GetGeneratedTemplate .....</b>	<b>193</b>
Request Parameters .....	193
Response Elements .....	193
Errors .....	194
See Also .....	195
<b>GetStackPolicy .....</b>	<b>196</b>
Request Parameters .....	196
Response Elements .....	196
Errors .....	196
Examples .....	196
See Also .....	198
<b>GetTemplate .....</b>	<b>199</b>
Request Parameters .....	199
Response Elements .....	200
Errors .....	201
Examples .....	201
See Also .....	202
<b>GetTemplateSummary .....</b>	<b>203</b>
Request Parameters .....	203
Response Elements .....	205
Errors .....	207
Examples .....	207
See Also .....	208
<b>ImportStacksToStackSet .....</b>	<b>209</b>

Request Parameters .....	209
Response Elements .....	211
Errors .....	211
See Also .....	212
<b>ListChangeSets .....</b>	<b>213</b>
Request Parameters .....	213
Response Elements .....	213
Errors .....	214
Examples .....	214
See Also .....	215
<b>ListExports .....</b>	<b>217</b>
Request Parameters .....	217
Response Elements .....	217
Errors .....	218
Examples .....	218
See Also .....	219
<b>ListGeneratedTemplates .....</b>	<b>220</b>
Request Parameters .....	220
Response Elements .....	220
Errors .....	221
See Also .....	221
<b>ListImports .....</b>	<b>222</b>
Request Parameters .....	222
Response Elements .....	222
Errors .....	223
Examples .....	223
See Also .....	224
<b>ListResourceScanRelatedResources .....</b>	<b>225</b>
Request Parameters .....	225
Response Elements .....	226
Errors .....	226
See Also .....	227
<b>ListResourceScanResources .....</b>	<b>228</b>
Request Parameters .....	228
Response Elements .....	229
Errors .....	230

See Also .....	230
ListResourceScans .....	232
Request Parameters .....	232
Response Elements .....	232
Errors .....	233
See Also .....	233
ListStackInstanceResourceDrifts .....	234
Request Parameters .....	234
Response Elements .....	236
Errors .....	237
See Also .....	237
ListStackInstances .....	239
Request Parameters .....	239
Response Elements .....	241
Errors .....	241
Examples .....	241
See Also .....	243
ListStackResources .....	245
Request Parameters .....	245
Response Elements .....	245
Errors .....	246
Examples .....	246
See Also .....	248
ListStacks .....	249
Request Parameters .....	249
Response Elements .....	250
Errors .....	250
Examples .....	250
See Also .....	252
ListStackSetOperationResults .....	253
Request Parameters .....	253
Response Elements .....	254
Errors .....	255
Examples .....	255
See Also .....	258
ListStackSetOperations .....	259

Request Parameters .....	259
Response Elements .....	260
Errors .....	260
Examples .....	261
See Also .....	262
<b>ListStackSets .....</b>	<b>263</b>
Request Parameters .....	263
Response Elements .....	264
Errors .....	265
Examples .....	265
See Also .....	266
<b>ListTypeRegistrations .....</b>	<b>267</b>
Request Parameters .....	267
Response Elements .....	268
Errors .....	269
Examples .....	269
See Also .....	270
<b>ListTypes .....</b>	<b>272</b>
Request Parameters .....	272
Response Elements .....	274
Errors .....	275
Examples .....	275
See Also .....	276
<b>ListTypeVersions .....</b>	<b>277</b>
Request Parameters .....	277
Response Elements .....	279
Errors .....	279
Examples .....	280
See Also .....	281
<b>PublishType .....</b>	<b>282</b>
Request Parameters .....	282
Response Elements .....	283
Errors .....	284
See Also .....	284
<b>RecordHandlerProgress .....</b>	<b>285</b>
Request Parameters .....	285

Errors .....	286
See Also .....	287
RegisterPublisher .....	288
Request Parameters .....	288
Response Elements .....	289
Errors .....	289
See Also .....	289
RegisterType .....	291
Request Parameters .....	291
Response Elements .....	294
Errors .....	294
Examples .....	295
See Also .....	295
RollbackStack .....	297
Request Parameters .....	297
Response Elements .....	298
Errors .....	298
See Also .....	299
SetStackPolicy .....	300
Request Parameters .....	300
Errors .....	300
Examples .....	301
See Also .....	301
SetTypeConfiguration .....	303
Request Parameters .....	303
Response Elements .....	305
Errors .....	305
See Also .....	306
SetTypeDefaultVersion .....	307
Request Parameters .....	307
Errors .....	308
Examples .....	308
See Also .....	309
SignalResource .....	311
Request Parameters .....	311
Errors .....	312

Examples .....	312
See Also .....	313
StartResourceScan .....	314
Request Parameters .....	314
Response Elements .....	314
Errors .....	314
See Also .....	315
StopStackSetOperation .....	316
Request Parameters .....	316
Errors .....	317
Examples .....	317
See Also .....	318
TestType .....	319
Request Parameters .....	319
Response Elements .....	321
Errors .....	321
See Also .....	322
UpdateGeneratedTemplate .....	323
Request Parameters .....	323
Response Elements .....	324
Errors .....	325
See Also .....	325
UpdateStack .....	327
Request Parameters .....	327
Response Elements .....	334
Errors .....	334
Examples .....	335
See Also .....	336
UpdateStackInstances .....	337
Request Parameters .....	337
Response Elements .....	340
Errors .....	340
See Also .....	341
UpdateStackSet .....	343
Request Parameters .....	343
Response Elements .....	351

Errors .....	351
Examples .....	352
See Also .....	353
UpdateTerminationProtection .....	354
Request Parameters .....	354
Response Elements .....	354
Errors .....	355
See Also .....	355
ValidateTemplate .....	356
Request Parameters .....	356
Response Elements .....	357
Errors .....	357
Examples .....	358
See Also .....	359
<b>Data Types .....</b>	<b>360</b>
AccountGateResult .....	363
Contents .....	363
See Also .....	364
AccountLimit .....	365
Contents .....	365
See Also .....	365
AutoDeployment .....	367
Contents .....	367
See Also .....	367
BatchDescribeTypeConfigurationsError .....	368
Contents .....	368
See Also .....	368
Change .....	370
Contents .....	370
See Also .....	370
ChangeSetHook .....	372
Contents .....	372
See Also .....	374
ChangeSetHookResourceTargetDetails .....	375
Contents .....	375
See Also .....	375

ChangeSetHookTargetDetails .....	377
Contents .....	377
See Also .....	377
ChangeSetSummary .....	378
Contents .....	378
See Also .....	381
DeploymentTargets .....	382
Contents .....	382
See Also .....	383
Export .....	384
Contents .....	384
See Also .....	384
LoggingConfig .....	386
Contents .....	386
See Also .....	386
ManagedExecution .....	388
Contents .....	388
See Also .....	388
ModuleInfo .....	389
Contents .....	389
See Also .....	390
OperationResultFilter .....	391
Contents .....	391
See Also .....	391
Output .....	392
Contents .....	392
See Also .....	392
Parameter .....	394
Contents .....	394
See Also .....	394
ParameterConstraints .....	396
Contents .....	396
See Also .....	396
ParameterDeclaration .....	397
Contents .....	397
See Also .....	398

PhysicalResourceIdContextKeyValuePair .....	399
Contents .....	399
See Also .....	399
PropertyDifference .....	400
Contents .....	400
See Also .....	401
RequiredActivatedType .....	402
Contents .....	402
See Also .....	403
ResourceChange .....	404
Contents .....	404
See Also .....	406
ResourceChangeDetail .....	407
Contents .....	407
See Also .....	408
ResourceDefinition .....	410
Contents .....	410
See Also .....	411
ResourceDetail .....	412
Contents .....	412
See Also .....	413
ResourceIdentifierSummary .....	415
Contents .....	415
See Also .....	415
ResourceScanSummary .....	417
Contents .....	417
See Also .....	418
ResourceTargetDefinition .....	419
Contents .....	419
See Also .....	420
ResourceToImport .....	421
Contents .....	421
See Also .....	422
RollbackConfiguration .....	423
Contents .....	423
See Also .....	424

RollbackTrigger .....	425
Contents .....	425
See Also .....	425
ScannedResource .....	426
Contents .....	426
See Also .....	427
ScannedResourceIdentifier .....	428
Contents .....	428
See Also .....	428
Stack .....	430
Contents .....	430
See Also .....	435
StackDriftInformation .....	436
Contents .....	436
See Also .....	436
StackDriftInformationSummary .....	438
Contents .....	438
See Also .....	438
StackEvent .....	440
Contents .....	440
See Also .....	443
StackInstance .....	445
Contents .....	445
See Also .....	448
StackInstanceComprehensiveStatus .....	449
Contents .....	449
See Also .....	449
StackInstanceFilter .....	451
Contents .....	451
See Also .....	451
StackInstanceResourceDriftsSummary .....	452
Contents .....	452
See Also .....	454
StackInstanceSummary .....	455
Contents .....	455
See Also .....	458

StackResource .....	459
Contents .....	459
See Also .....	461
StackResourceDetail .....	462
Contents .....	462
See Also .....	464
StackResourceDrift .....	466
Contents .....	466
See Also .....	468
StackResourceDriftInformation .....	470
Contents .....	470
See Also .....	470
StackResourceDriftInformationSummary .....	472
Contents .....	472
See Also .....	473
StackResourceSummary .....	474
Contents .....	474
See Also .....	475
StackSet .....	477
Contents .....	477
See Also .....	481
StackSetDriftDetectionDetails .....	482
Contents .....	482
See Also .....	484
StackSetOperation .....	486
Contents .....	486
See Also .....	489
StackSetOperationPreferences .....	491
Contents .....	491
See Also .....	494
StackSetOperationResultSummary .....	495
Contents .....	495
See Also .....	496
StackSetOperationStatusDetails .....	498
Contents .....	498
See Also .....	498

StackSetOperationSummary .....	499
Contents .....	499
See Also .....	501
StackSetSummary .....	502
Contents .....	502
See Also .....	504
StackSummary .....	505
Contents .....	505
See Also .....	507
Tag .....	508
Contents .....	508
See Also .....	508
TemplateConfiguration .....	509
Contents .....	509
See Also .....	509
TemplateParameter .....	511
Contents .....	511
See Also .....	511
TemplateProgress .....	513
Contents .....	513
See Also .....	514
TemplateSummary .....	515
Contents .....	515
See Also .....	517
TemplateSummaryConfig .....	518
Contents .....	518
See Also .....	518
TypeConfigurationDetails .....	519
Contents .....	519
See Also .....	521
TypeConfigurationIdentifier .....	522
Contents .....	522
See Also .....	523
TypeFilters .....	524
Contents .....	524
See Also .....	525

TypeSummary .....	526
Contents .....	526
See Also .....	530
TypeVersionSummary .....	531
Contents .....	531
See Also .....	533
WarningDetail .....	534
Contents .....	534
See Also .....	535
WarningProperty .....	536
Contents .....	536
See Also .....	536
Warnings .....	537
Contents .....	537
See Also .....	537
<b>Common Parameters .....</b>	<b>538</b>
<b>Common Errors .....</b>	<b>541</b>

# Welcome

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

With AWS 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. AWS CloudFormation creates and deletes all member resources of the stack together and manages all dependencies between the resources for you.

For more information about AWS CloudFormation, see the [AWS CloudFormation product page](#).

AWS 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](https://docs.aws.amazon.com).

## Stack actions

When you use AWS 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](#) | [UpdateStack](#)

Stack events: [DescribeStackEvents](#)

Stack resources: [DescribeStackResource](#) | [DescribeStackResources](#) | [ListStackResources](#)

Stack drift: [DescribeStackDriftDetectionStatus](#) | [DescribeStackResourceDrifts](#) | [DetectStackDrift](#) | [DetectStackResourceDrift](#)

Stack operations: [ListExports](#) | [ListImports](#) | [UpdateTerminationProtection](#)

Stack policies: [GetStackPolicy](#) | [SetStackPolicy](#)

Templates: [EstimateTemplateCost](#) | [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](#) | [ExecuteChangeSet](#) | [ListChangeSets](#)

## Stack sets actions

AWS 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 AWS CloudFormation template. When you create a stack set, AWS CloudFormation provisions a stack in each of the specified accounts and AWS Regions by using the supplied AWS 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](#)

Stack set operations: [DescribeStackSetOperation](#) | [ListStackSetOperations](#) | [ListStackSetOperationResults](#) | [StopStackSetOperation](#)

## Extension management actions

The AWS CloudFormation registry enables you to manage the extensions, both private and public, that are available for use in your account.

[ActivateType](#) | [DeactivateType](#) | [DescribeType](#) | [ListTypes](#)

Registration: [DescribeTypeRegistration](#) | [DeregisterType](#) | [ListTypeRegistrations](#) | [RegisterType](#)

Configuration: [BatchDescribeTypeConfigurations](#) | [SetTypeConfiguration](#)

Versioning: [ListTypeVersions](#) | [SetTypeDefaultVersion](#)

## Extension publication actions

Use the AWS CloudFormation operation to develop and publish your own public third-party extensions.

For more information, see [Publishing extensions to make them available for public use](#) in the *CFN-CLI User Guide for Extension Development*.

[PublishType](#) | [TestType](#)

Publishers: [DescribePublisher](#) | [RegisterPublisher](#)

This document was last published on February 8, 2024.

# Actions

The following actions are supported:

- [ActivateOrganizationsAccess](#)
- [ActivateType](#)
- [BatchDescribeTypeConfigurations](#)
- [CancelUpdateStack](#)
- [ContinueUpdateRollback](#)
- [CreateChangeSet](#)
- [CreateGeneratedTemplate](#)
- [CreateStack](#)
- [CreateStackInstances](#)
- [CreateStackSet](#)
- [DeactivateOrganizationsAccess](#)
- [DeactivateType](#)
- [DeleteChangeSet](#)
- [DeleteGeneratedTemplate](#)
- [DeleteStack](#)
- [DeleteStackInstances](#)
- [DeleteStackSet](#)
- [DeregisterType](#)
- [DescribeAccountLimits](#)
- [DescribeChangeSet](#)
- [DescribeChangeSetHooks](#)
- [DescribeGeneratedTemplate](#)
- [DescribeOrganizationsAccess](#)
- [DescribePublisher](#)
- [DescribeResourceScan](#)
- [DescribeStackDriftDetectionStatus](#)
- [DescribeStackEvents](#)

- [DescribeStackInstance](#)
- [DescribeStackResource](#)
- [DescribeStackResourceDrifts](#)
- [DescribeStackResources](#)
- [DescribeStacks](#)
- [DescribeStackSet](#)
- [DescribeStackSetOperation](#)
- [DescribeType](#)
- [DescribeTypeRegistration](#)
- [DetectStackDrift](#)
- [DetectStackResourceDrift](#)
- [DetectStackSetDrift](#)
- [EstimateTemplateCost](#)
- [ExecuteChangeSet](#)
- [GetGeneratedTemplate](#)
- [GetStackPolicy](#)
- [GetTemplate](#)
- [GetTemplateSummary](#)
- [ImportStacksToStackSet](#)
- [ListChangeSets](#)
- [ListExports](#)
- [ListGeneratedTemplates](#)
- [ListImports](#)
- [ListResourceScanRelatedResources](#)
- [ListResourceScanResources](#)
- [ListResourceScans](#)
- [ListStackInstanceResourceDrifts](#)
- [ListStackInstances](#)
- [ListStackResources](#)
- [ListStacks](#)

- [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 Errors](#).

### InvalidOperationException

The specified operation isn't valid.

HTTP Status Code: 400

### OperationNotFoundException

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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [AWS SDK for Ruby V3](#)

# ActivateType

Activates a public third-party extension, making it available for use in stack templates. For more information, see [Using public extensions](#) in the *AWS CloudFormation User Guide*.

Once you have activated a public third-party extension in your account and Region, use [SetTypeConfiguration](#) to specify configuration properties for the extension. For more information, see [Configuring extensions at the account level](#) in the *CloudFormation 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 Errors](#).

### CFNRegistry

An error occurred during a CloudFormation registry operation.

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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [AWS SDK for Ruby V3](#)

# BatchDescribeTypeConfigurations

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

For more information, see [Configuring extensions at the account level](#) 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 Errors](#).

### CFNRegistry

An error occurred during a CloudFormation registry operation.

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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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 AWS 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 AWS 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 Errors](#).

### 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>5ccc7dcf-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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [AWS SDK for Ruby V3](#)

# ContinueUpdateRollback

For a specified stack that's in the UPDATE\_ROLLBACK\_FAILED state, continues rolling it back to the UPDATE\_ROLLBACK\_COMPLETE state. Depending on the cause of the failure, you can manually [fix the error](#) and continue the rollback. By continuing the rollback, you can return your stack to a working state (the UPDATE\_ROLLBACK\_COMPLETE state), and then try to update the stack again.

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

## Request Parameters

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

### ClientRequestToken

A unique identifier for this ContinueUpdateRollback request. Specify this token if you plan to retry requests so that AWS 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 AWS 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 AWS 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 AWS CloudFormation can't successfully roll back. We recommend that you [troubleshoot](#) resources before skipping them. AWS 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.

## ℹ 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 [Using ResourcesToSkip to recover a nested stacks hierarchy](#).

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 AWS Identity and Access Management (IAM) role that AWS CloudFormation assumes to roll back the stack. AWS CloudFormation uses the role's

credentials to make calls on your behalf. AWS CloudFormation always uses this role for all future operations on the stack. Provided that users have permission to operate on the stack, AWS 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, AWS CloudFormation uses the role that was previously associated with the stack. If no role is available, AWS 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 Errors](#).

### 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>5ccc7dcf-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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)

- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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 AWS CloudFormation will create. If you create a change set for an existing stack, AWS 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 AWS 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, AWS 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. AWS 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 AWS 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 AWS Identity and Access Management (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::Policy](#)
- [AWS::IAM::Role](#)
- [AWS::IAM::User](#)
- [AWS::IAM::UserToGroupAddition](#)

For more information, see [Acknowledging IAM resources in AWS 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 AWS 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 [Using AWS CloudFormation macros to perform custom processing on templates](#).

 **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, AWS 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, AWS 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 AWS CloudFormation knows that you're not attempting to create another change set with the same name. You might retry `CreateChangeSet` requests to ensure that AWS CloudFormation successfully received them.

Type: String

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

Required: No

### Description

A description to help you identify this change set.

Type: String

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

Required: No

### ImportExistingResources

Indicates if the change set imports resources that already exist.

#### 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 resource import feature instead. For more information, see [Bringing existing resources into CloudFormation management](#) in the *AWS CloudFormation User Guide*.

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

Type: Array of strings

Array Members: Maximum number of 5 items.

Required: No

### **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 change set 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

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

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

 **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 AWS Identity and Access Management (IAM) role that AWS CloudFormation assumes when executing the change set. AWS CloudFormation uses the role's credentials to make calls on your behalf. AWS CloudFormation uses this role for all future operations on the stack. Provided that users have permission to operate on the stack, AWS 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, AWS CloudFormation uses the role that was previously associated with the stack. If no role is available, AWS 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 AWS 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. AWS CloudFormation generates the change set by comparing this stack's information with the information that you submit, such as a modified template or different parameter input values.

Type: String

Length Constraints: Minimum length of 1.

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

Required: Yes

## Tags.member.N

Key-value pairs to associate with this stack. AWS CloudFormation also propagates these tags to resources in the stack. You can specify a maximum of 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. AWS CloudFormation generates the change set by comparing this template with the template of the stack that you specified.

Conditional: You must specify only TemplateBody or TemplateURL.

Type: String

Length Constraints: Minimum length of 1.

Required: No

## TemplateURL

The location of the file that contains the revised template. The URL must point to a template (max size: 460,800 bytes) that's located in an Amazon S3 bucket or a Systems Manager document. AWS 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://`.

Conditional: You must specify only TemplateBody or TemplateURL.

Type: String

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

Required: No

## UsePreviousTemplate

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

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 Errors](#).

### **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 [AWS 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.2ParameterValue=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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [AWS SDK for Ruby V3](#)

# CreateGeneratedTemplate

Creates a template from existing resources that are not already managed with AWS 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 Errors](#).

### 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 [AWS 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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.

## 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 AWS 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 AWS Identity and Access Management (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, AWS 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 AWS CloudFormation Templates](#).

- CAPABILITY\_AUTO\_EXPAND

Some templates 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 AWS 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 AWS CloudFormation being notified.

For more information, see [Using AWS CloudFormation macros to perform custom processing on templates](#).

**ⓘ 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 AWS CloudFormation knows that you're not attempting to create a stack with the same name. You might retry `CreateStack` requests to ensure that AWS 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

## 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 [Protecting a Stack 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 Simple Notification Service (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.

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**

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

Use the following syntax to describe template resource types: `AWS::*` (for all AWS resources), `Custom::*` (for all custom resources), `Custom::logical_ID` (for a specific custom resource), `AWS::service_name::*` (for all resources of a particular AWS service), and `AWS::service_name::resource_logical_ID` (for a specific AWS resource).

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

 **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 AWS Identity and Access Management (IAM) role that AWS CloudFormation assumes to create the stack. AWS CloudFormation uses the role's credentials to make calls on your behalf. AWS CloudFormation always uses this role for all future operations on the stack. Provided that users have permission to operate on the stack, AWS 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, AWS CloudFormation uses the role that was previously associated with the stack. If no role is available, AWS 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 AWS 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 containing the stack policy body. For more information, go to [Prevent Updates to Stack Resources](#) in the *AWS CloudFormation User Guide*. You can specify either the StackPolicyBody or the StackPolicyURL parameter, but not both.

Type: String

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

Required: No

## StackPolicyURL

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

Type: String

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

Required: No

## Tags.member.N

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

Type: Array of [Tag](#) objects

Array Members: Maximum number of 50 items.

Required: No

## TemplateBody

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

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

Type: String

Length Constraints: Minimum length of 1.

Required: No

## TemplateURL

Location of file containing the template body. The URL must point to a template (max size: 460,800 bytes) that's located in an Amazon S3 bucket or a Systems Manager document. For

more information, go to the [Template anatomy](#) in the *AWS CloudFormation User Guide*. The location for an Amazon S3 bucket must start with `https://`.

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

**Type:** String

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

**Required:** No

### TimeoutInMinutes

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

**Type:** Integer

**Valid Range:** Minimum value of 1.

**Required:** No

## Response Elements

The following element is returned by the service.

### StackId

Unique identifier of the stack.

**Type:** String

## Errors

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

### 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 [AWS 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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.

## Request Parameters

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

### Accounts.member.N

[Self-managed permissions] The names 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 stack sets 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 for 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 stack set operation.

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

Repeating this stack set 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 AWS CloudFormation performs this stack set operation.

Type: [StackSetOperationPreferences](#) object

Required: No

## ParameterOverrides.member.N

A list of stack set 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 AWS 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 stack set, 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 stack set 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 stack set; to add or delete a parameter itself, use [UpdateStackSet](#) to update the stack set 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 stack set 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 stack set 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 Errors](#).

### InvalidOperationException

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 [AWS 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 stack set. Only one operation can be performed for a stack set at a given time.

HTTP Status Code: 409

### StackSetNotFound

The specified stack set doesn't exist.

HTTP Status Code: 404

## StaleRequest

Another operation has been performed on this stack set 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [AWS SDK for Ruby V3](#)

# CreateStackSet

Creates a stack set.

## 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 stack set.

Specify an IAM role only if you are using customized administrator roles to control which users or groups can manage specific stack sets within the same administrator account. For more information, see [Prerequisites: Granting Permissions for Stack Set Operations](#) 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 the target organization or organizational unit (OU). Specify only if PermissionModel is SERVICE\_MANAGED.

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 stack sets with self-managed permissions.

- To create a stack set with service-managed permissions while signed in to the management account, specify SELF.

- To create a stack set 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*.

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

Type: String

Valid Values: SELF | DELEGATED\_ADMIN

Required: No

## Capabilities.member.N

In some cases, you must explicitly acknowledge that your stack set template contains certain capabilities in order for AWS CloudFormation to create the stack set 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 AWS Identity and Access Management (IAM) users. For those stack 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, AWS 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 AWS CloudFormation Templates](#).

- CAPABILITY\_AUTO\_EXPAND

Some templates reference macros. If your stack set template references one or more macros, you must create the stack set directly from the processed template, without first reviewing the resulting changes in a change set. To create the stack set directly, you must acknowledge this capability. For more information, see [Using AWS CloudFormation Macros to Perform Custom Processing on Templates](#).

**⚠ Important**

Stack sets 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 AWS CloudFormation.) Even if you specify this capability for a stack set with service-managed permissions, if you reference a macro in your template the stack set 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 AWS CloudFormation knows that you're not attempting to create another stack set with the same name. You might retry `CreateStackSet` requests to ensure that AWS 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 stack set. You can use the description to identify the stack set'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 stack set. If you do not specify an execution role, AWS CloudFormation uses the `AWSCloudFormationStackSetExecutionRole` role for the stack set 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 stack sets.

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

## Parameters.member.N

The input parameters for the stack set template.

Type: Array of [Parameter](#) objects

Required: No

### PermissionModel

Describes how the IAM roles required for stack set 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 Stack Set Permissions](#).
- With service-managed permissions, StackSets automatically creates the IAM roles required to deploy to accounts managed by AWS Organizations. For more information, see [Grant Service-Managed Stack Set Permissions](#).

Type: String

Valid Values: SERVICE\_MANAGED | SELF\_MANAGED

Required: No

### StackId

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

Type: String

Required: No

### StackSetName

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

#### 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 stack set and the stacks created from it. AWS 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, AWS 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 stack set 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. For more information, see [Template Anatomy](#) in the AWS CloudFormation User Guide.

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

Type: String

Length Constraints: Minimum length of 1.

Required: No

## TemplateURL

The location of the file that contains the template body. The URL must point to a template (maximum size: 460,800 bytes) that's located in an Amazon S3 bucket or a Systems Manager document. For more information, see [Template Anatomy](#) in the AWS CloudFormation User Guide.

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

Type: String

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

Required: No

## Response Elements

The following element is returned by the service.

### **StackSetId**

The ID of the stack set that you're creating.

Type: String

## Errors

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

### **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 [AWS 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)

- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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 Errors](#).

### InvalidOperationException

The specified operation isn't valid.

HTTP Status Code: 400

### OperationNotFoundException

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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [AWS SDK for Ruby V3](#)

# DeactivateType

Deactivates a public extension that was previously activated in this account and Region.

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.

## 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 Errors](#).

### CFNRegistry

An error occurred during a CloudFormation registry operation.

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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)

- [AWS SDK for Python](#)
- [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, AWS 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 Errors](#).

### 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>5ccc7dcf-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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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 Errors](#).

### 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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.

## 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 AWS CloudFormation knows that you're not attempting to delete a stack with the same name. You might retry DeleteStack requests to ensure that AWS 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

### RetainResources.member.N

For stacks in the DELETE\_FAILED state, a list of resource logical IDs that are associated with the resources you want to retain. During deletion, AWS CloudFormation deletes the stack but 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 AWS Identity and Access Management (IAM) role that AWS CloudFormation assumes to delete the stack. AWS CloudFormation uses the role's credentials to make calls on your behalf.

If you don't specify a value, AWS CloudFormation uses the role that was previously associated with the stack. If no role is available, AWS 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 Errors](#).

### 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 Key ID]
&Signature=[Signature]
```

#### Sample Response

```
<DeleteStackResponse xmlns="http://cloudformation.amazonaws.com/doc/2010-05-15/">
<ResponseMetadata>
  <RequestId>5ccc7dcf-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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)

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

# DeleteStackInstances

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

## Request Parameters

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

### Accounts.member.N

[Self-managed permissions] The names 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 stack sets 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 stack set operation.

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

Repeating this stack set 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 AWS CloudFormation performs this stack set operation.

Type: [StackSetOperationPreferences](#) object

Required: No

## Regions.member.N

The AWS Regions where you want to delete stack set instances.

Type: Array of strings

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

Required: Yes

## RetainStacks

Removes the stack instances from the specified stack set, 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 [Stack set operation options](#).

Type: Boolean

Required: Yes

## StackSetName

The name or unique ID of the stack set 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 stack set 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 Errors](#).

### 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 stack set. Only one operation can be performed for a stack set at a given time.

HTTP Status Code: 409

## StackSetNotFound

The specified stack set doesn't exist.

HTTP Status Code: 404

## StaleRequest

Another operation has been performed on this stack set 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [AWS SDK for Ruby V3](#)

# DeleteStackSet

Deletes a stack set. Before you can delete a stack set, 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 stack sets 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 stack set 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 Errors](#).

## OperationInProgress

Another operation is currently in progress for this stack set. 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 stack set, because it still contains one or more stack instances. Delete all stack instances from the stack set before deleting the stack set.

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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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](#).

## 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 Errors](#).

### CFNRegistry

An error occurred during a CloudFormation registry operation.

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

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

# DescribeAccountLimits

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

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

Type: String

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

Required: No

## Response Elements

The following elements are returned by the service.

### AccountLimits.member.N

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

Type: Array of [AccountLimit](#) objects

### NextToken

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

Type: String

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

# Errors

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

## 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [AWS SDK for Ruby V3](#)

# DescribeChangeSet

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

## Request Parameters

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

### ChangeSetName

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

Type: String

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

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

Required: Yes

### NextToken

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

Type: String

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

Required: No

### StackName

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

Type: String

Length Constraints: Minimum length of 1.

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

Required: No

## Response Elements

The following elements are returned by the service.

### **Capabilities.member.N**

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

Type: Array of strings

Valid Values: CAPABILITY\_IAM | CAPABILITY\_NAMED\_IAM | CAPABILITY\_AUTO\_EXPAND

### **Changes.member.N**

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

Type: Array of [Change](#) 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

## Description

Information about the change set.

Type: String

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

## ExecutionStatus

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

Type: String

Valid Values: UNAVAILABLE | AVAILABLE | EXECUTE\_IN\_PROGRESS | EXECUTE\_COMPLETE | EXECUTE\_FAILED | OBSOLETE

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

Type: Array of strings

Array Members: Maximum number of 5 items.

### **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 change set 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 AWS 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:/]*`

## 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\_IN\_PROGRESS, 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, AWS CloudFormation shows the error message.

Type: String

## Tags.member.N

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

Type: Array of [Tag](#) objects

Array Members: Maximum number of 50 items.

## Errors

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

### 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>
        </ResourceChange>
      </member>
    </Changes>
  </DescribeChangeSetResult>
</DescribeChangeSetResponse>
```

```
</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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [AWS SDK for Ruby V3](#)

# DescribeChangeSetHooks

Returns hook-related information for the change set and a list of changes that AWS 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

A string, provided by the `DescribeChangeSetHooks` response output, that identifies the next page of information that you want to retrieve.

Type: String

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

Required: No

### StackName

If you specified the name of a change set, specify the stack name or 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 Errors](#).

### 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)

- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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 Errors](#).

### 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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 Errors](#).

### InvalidOperationException

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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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 *CloudFormation 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 Errors](#).

## CFNRegistry

An error occurred during a CloudFormation registry operation.

HTTP Status Code: 400

## See Also

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

- [AWS Command Line Interface](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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.

**StartTime**

The time that the resource scan was started.

Type: Timestamp

**Status**

Status of the resource scan.

**INPROGRESS**

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 Errors](#).

### 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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 [Detecting Unregulated Configuration Changes to Stacks and Resources](#).

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.

AWS CloudFormation generates new results, with a new drift detection ID, each time this operation is run. However, the number of drift results AWS 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 AWS 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 AWS 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.

AWS CloudFormation generates new results, with a new drift detection ID, each time this operation is run. However, the number of reports AWS 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: AWS 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: This value is reserved for future use.

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 Errors](#).

## 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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, go to [Stacks](#) in the *AWS CloudFormation User Guide*.

## Note

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

## Request Parameters

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

### **NextToken**

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

Type: String

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

Required: No

### **StackName**

The name or the unique stack ID that'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.

Default: There is no default value.

Type: String

Required: No

## Response Elements

The following elements are returned by the service.

## NextToken

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

Type: String

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

## StackEvents.member.N

A list of StackEvents structures.

Type: Array of [StackEvent](#) objects

## Errors

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

## 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>
      <PhysicalResourceId>arn:aws:cloudformation:us-east-1:123456789012:stack/
SampleStack/12a3b456-0e10-4ce0-9052-5d484a8c4e5b</PhysicalResourceId>
      <ResourceType>AWS::CloudFormation::Stack</ResourceType>
    </member>
    <member>
      <Timestamp>2016-03-15T20:54:30.174Z</Timestamp>
      <ResourceStatus>CREATE_COMPLETE</ResourceStatus>
      <StackId>arn:aws:cloudformation:us-east-1:123456789012:stack/
SampleStack/12a3b456-0e10-4ce0-9052-5d484a8c4e5b</StackId>
      <EventId>MyEC2Instance-CREATE_COMPLETE-2016-03-15T20:54:30.174Z</EventId>
      <LogicalResourceId>MyEC2Instance</LogicalResourceId>
      <StackName>SampleStack</StackName>
      <PhysicalResourceId>i-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>
<PhysicalResourceId>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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)

- [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 stack sets 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 stack set 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 Errors](#).

### StackInstanceNotFound

The specified stack instance doesn't exist.

HTTP Status Code: 404

### StackSetNotFound

The specified stack set 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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.

Default: There is no default value.

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.

Default: There is no default value.

Type: String

Required: Yes

## Response Elements

The following element is returned by the service.

### StackResourceDetail

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

Type: [StackResourceDetail](#) object

## Errors

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

## 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 Key ID]
&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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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 AWS 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 [Resources that Support 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

A string that identifies the next page of stack resource drift results.

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: AWS 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

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 AWS 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 [Resources that Support Drift Detection](#).

Type: Array of [StackResourceDrift](#) objects

## Errors

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

## 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://sns.us-east-1.amazonaws.com/012345678910/my-stack-with-resource-drift-Queue-494PBHC076H4</PhysicalResourceId>
      <ExpectedProperties>{
        "ReceiveMessageWaitTimeSeconds":0,
        "DelaySeconds":20,
        "RedrivePolicy":{
          "deadLetterTargetArn":"arn:aws:sns: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-494PBHC076H4"
      }
    </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:sns: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-494PBHC076H4"
    }
</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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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`, go to the [AWS CloudFormation User Guide](#).

## Note

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

## Request Parameters

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

### **LogicalResourceId**

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

Default: There is no default value.

Type: String

Required: No

## PhysicalResourceId

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

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

Required: Conditional. If you don't specify `PhysicalResourceId`, you must specify `StackName`.

Default: There is no default value.

Type: String

Required: No

## StackName

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

Default: There is no default value.

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 Errors](#).

## 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>
    </StackResources>
  </DescribeStackResourcesResult>
</DescribeStackResourcesResponse>
```

```
<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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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.

 **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

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

Type: String

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

Required: No

### StackName

 **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.

Default: There is no default value.

Type: String

Required: No

## Response Elements

The following elements are returned by the service.

### NextToken

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

Type: String

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

### Stacks.member.N

A list of stack structures.

Type: Array of [Stack](#) objects

## Errors

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

## 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [AWS SDK for Ruby V3](#)

# DescribeStackSet

Returns the description of the specified StackSet.

## 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 stack sets 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 stack set whose description you want.

Type: String

Required: Yes

## Response Elements

The following element is returned by the service.

### StackSet

The specified stack set.

Type: [StackSet](#) object

## Errors

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

### StackSetNotFound

The specified stack set 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [AWS SDK for Ruby V3](#)

# DescribeStackSetOperation

Returns the description of the specified StackSet operation.

## 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 stack sets 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 stack set 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 stack set for the stack operation.

Type: String

Required: Yes

## Response Elements

The following element is returned by the service.

### StackSetOperation

The specified stack set operation.

Type: [StackSetOperation](#) object

## Errors

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

### OperationNotFound

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

HTTP Status Code: 404

### StackSetNotFound

The specified stack set doesn't exist.

HTTP Status Code: 404

## Examples

### Describing an Update Stack Set Operation

The following example returns information about a successful update of a stack set 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 Stack Set Operation

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

### 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [AWS SDK for Ruby V3](#)

# DescribeType

Returns detailed information about an extension that has been registered.

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

## 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 [Activating public extensions for use in your account](#) 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](#). For more information, see [Configuring extensions at the account level](#) in the *CloudFormation User Guide*.

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/.+

## IsActive

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 [Specifying 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. AWS 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 about extension schemas, see [Resource Provider Schema](#) in the *CloudFormation CLI 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 *CloudFormation Command Line Interface 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. AWS 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 Errors](#).

### CFNRegistry

An error occurred during a CloudFormation registry operation.

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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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 Errors](#).

### CFNRegistry

An error occurred during a CloudFormation registry operation.

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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)

- [AWS SDK for Python](#)
- [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, AWS 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 [Detecting Unregulated Configuration Changes to Stacks and Resources](#).

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 [Resources that Support 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, AWS 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.

AWS CloudFormation generates new results, with a new drift detection ID, each time this operation is run. However, the number of drift results AWS 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 Errors](#).

## 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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 AWS 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 [Detecting Unregulated Configuration Changes to Stacks and Resources](#).

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 [Resources that Support 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 Errors](#).

## 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://sns.us-east-1.amazonaws.com/012345678910/my-stack-with-resource-drift-Queue-494PBHC076H4</PhysicalResourceId>
<ExpectedProperties>{
  "ReceiveMessageWaitTimeSeconds":0,
  "DelaySeconds":20,
  "RedrivePolicy":{
    "deadLetterTargetArn":"arn:aws:sns: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-494PBHC076H4"
}
</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:sns: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-494PBHC076H4"
}
```

```
</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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [AWS SDK for Ruby V3](#)

# DetectStackSetDrift

Detect drift on a stack set. When CloudFormation performs drift detection on a stack set, it performs drift detection on the stack associated with each stack instance in the stack set. For more information, see [How CloudFormation performs drift detection on a stack set](#).

DetectStackSetDrift returns the OperationId of the stack set 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 stack set, 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 stack set. (Information about drift operations that are in progress isn't included.)
- Use [ListStackInstances](#) to return a list of stack instances belonging to the stack set, 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.

For more information about performing a drift detection operation on a stack set, see [Detecting unmanaged changes in stack sets](#).

You can only run a single drift detection operation on a given stack set at one time.

To stop a drift detection stack set 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 stack sets 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 set 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 AWS CloudFormation performs a stack set operation.

For more information about maximum concurrent accounts and failure tolerance, see [Stack set operation options](#).

Type: [StackSetOperationPreferences object](#)

Required: No

## StackSetName

The name of the stack set 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 stack set 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 Errors](#).

### InvalidOperationException

The specified operation isn't valid.

HTTP Status Code: 400

### OperationInProgress

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

HTTP Status Code: 409

### StackSetNotFound

The specified stack set 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)

- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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 containing the template body with a minimum length of 1 byte and a maximum length of 51,200 bytes. (For more information, go to [Template Anatomy](#) in the *AWS CloudFormation User Guide*.)

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

Type: String

Length Constraints: Minimum length of 1.

Required: No

### TemplateURL

Location of file containing the template body. The URL must point to a template that's located in an Amazon S3 bucket or a Systems Manager document. For more information, go to [Template Anatomy](#) in the *AWS CloudFormation User Guide*. 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 1024.

Required: No

## Response Elements

The following element is returned by the service.

### Url

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

Type: String

## Errors

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

## 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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, AWS CloudFormation starts updating the stack. Use the [DescribeStacks](#) action to view the status of the update.

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

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

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 AWS 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 AWS 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 Errors](#).

### ChangeSetNotFound

The specified change set name or ID doesn't exist. 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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 Errors](#).

### 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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 containing the stack policy body. (For more information, go to [Prevent Updates to Stack Resources](#) in the *AWS CloudFormation User Guide*.)

Type: String

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

## Errors

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

## 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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 AWS 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.

Default: There is no default value.

Type: String

Required: No

## TemplateStage

For templates that include transforms, the stage of the template that AWS CloudFormation returns. To get the user-submitted template, specify Original. To get the template after AWS CloudFormation has processed all transforms, specify Processed.

If the template doesn't include transforms, Original and Processed return the same template. By default, AWS 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 AWS CloudFormation finishes creating the change set, the Processed template becomes available.

Type: Array of strings

Valid Values: Original | Processed

### TemplateBody

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

AWS 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 Errors](#).

### ChangeSetNotFound

The specified change set name or ID doesn't exist. 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" : {
```

```
        }
    }
}

}
</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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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 stack set.

You can use the GetTemplateSummary action when you submit a template, or you can get template information for a stack set, 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 stack sets 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 stack set 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 containing the template body with a minimum length of 1 byte and a maximum length of 51,200 bytes. For more information about templates, see [Template anatomy](#) in the *AWS CloudFormation User Guide*.

**Conditional:** You must specify only one of the following parameters: StackName, 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

Location of file containing the template body. The URL must point to a template (max size: 460,800 bytes) that's located in an Amazon S3 bucket or a Systems Manager document. For more information about templates, see [Template anatomy](#) in the *AWS CloudFormation User Guide*. 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 1024.

Required: No

## Response Elements

The following elements are returned by the service.

### Capabilities.member.N

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

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

Type: Array of strings

Valid Values: CAPABILITY\_IAM | CAPABILITY\_NAMED\_IAM | 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::DynamoDB::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 containing any warnings returned.

Type: [Warnings](#) object

## Errors

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

### StackSetNotFound

The specified stack set 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [AWS SDK for Ruby V3](#)

# ImportStacksToStackSet

Import existing stacks into a new stack sets. Use the stack import operation to import up to 10 stacks into a new stack set 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 stack sets with self-managed permissions.

- If you are signed in to the management account, specify SELF.
- For service managed stack sets, specify DELEGATED\_ADMIN.

Type: String

Valid Values: SELF | DELEGATED\_ADMIN

Required: No

### OperationId

A unique, user defined, identifier for the stack set 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 AWS CloudFormation performs a stack set operation.

For more information about maximum concurrent accounts and failure tolerance, see [Stack set operation options](#).

Type: [StackSetOperationPreferences object](#)

Required: No

## **OrganizationalUnitIds.member.N**

The list of OU ID's to which the stacks being imported has to be mapped as deployment target.

Type: Array of strings

Pattern: ^(ou-[a-zA-Z0-9]{4,32}-[a-zA-Z0-9]{8,32}|r-[a-zA-Z0-9]{4,32})\$

Required: No

## **StackIds.member.N**

The IDs of the stacks you are importing into a stack set. You import up to 10 stacks per stack set 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 stack set. The name must be unique in the Region where you create your stack set.

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 stack set 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 Errors](#).

### InvalidOperationException

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 [AWS 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 stack set. 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 stack set doesn't exist.

HTTP Status Code: 404

### StaleRequest

Another operation has been performed on this stack set 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [AWS SDK for Ruby V3](#)

# ListChangeSets

Returns the ID and status of each active change set for a stack. For example, AWS CloudFormation lists change sets that are in the CREATE\_IN\_PROGRESS or CREATE\_PENDING state.

## Request Parameters

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

### NextToken

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

Type: String

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

Required: No

### StackName

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

Type: String

Length Constraints: Minimum length of 1.

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

Required: Yes

## Response Elements

The following elements are returned by the service.

### NextToken

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

Type: String

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

### Summaries.member.N

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

Type: Array of [ChangeSetSummary](#) objects

## Errors

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

## 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](#)

- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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 [AWS CloudFormation export stack output values](#).

## Request Parameters

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

### NextToken

A string (provided by the [ListExports](#) response output) that identifies the next page of exported output values that you asked to retrieve.

Type: String

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

Required: No

## Response Elements

The following elements are returned by the service.

### 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 Errors](#).

## 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>5ccc7dcf-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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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

A string that identifies the next page of resource scan results.

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 Errors](#).

## See Also

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

- [AWS Command Line Interface](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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. AWS CloudFormation returns the stack names that are importing this value.

Type: String

Required: Yes

### NextToken

A string (provided by the [ListImports](#) response output) that identifies the next page of stacks that are importing the specified exported output value.

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 Errors](#).

## 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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 AWS 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

A string that identifies the next page of resource scan results.

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 [ScannedResourceIdIdentifier](#) 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 Errors](#).

### 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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 AWS 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

A string that identifies the next page of resource scan results.

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 Errors](#).

### 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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

A string that identifies the next page of resource scan results.

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 `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 Errors](#).

## See Also

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

- [AWS Command Line Interface](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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 stack sets 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**

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.

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**: AWS 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

Required: No

### **StackSetName**

The name or unique ID of the stack set 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 StackInstanceResourceDriftSummary 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 Errors](#).

### 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 stack set 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)

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

# ListStackInstances

Returns summary information about stack instances that are associated with the specified stack set. 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 stack sets 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

If the previous request didn't return all the remaining results, the response's `NextToken` parameter value 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 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.

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 stack set 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 Errors](#).

### StackSetNotFound

The specified stack set doesn't exist.

HTTP Status Code: 404

## Examples

### ListStackInstances

The following example returns summary information about the stack instances associated with the specified stack set 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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

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

Type: String

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

Required: No

### StackName

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

Default: There is no default value.

Type: String

Required: Yes

## Response Elements

The following elements are returned by the service.

### NextToken

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

Type: String

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

### StackResourceSummaries.member.N

A list of StackResourceSummary structures.

Type: Array of [StackResourceSummary](#) objects

## Errors

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

## 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</PhysicalResourceId>
  <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</PhysicalResourceId>
</member>
  <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</PhysicalResourceId>
</member>
  <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-AlarmTopic-SW4IQLG7RPJ</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</PhysicalResourceId>
  <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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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

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

Type: String

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

Required: No

### StackStatusFilter.member.N

Stack status to use as a filter. Specify one or more stack status codes to list only stacks with the specified status codes. For a complete list of stack status codes, see the StackStatus parameter of the [Stack](#) 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 containing information about the specified stacks.

Type: Array of [StackSummary](#) objects

# Errors

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

# 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]
```

&amp;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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [AWS SDK for Ruby V3](#)

# ListStackSetOperationResults

Returns summary information about the results of a stack set operation.

## 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 stack sets 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**

If the previous request didn't return all the remaining results, the response object's NextToken parameter value is set to a token. To retrieve the next set of results, call `ListStackSetOperationResults` 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.

Required: No

### **OperationId**

The ID of the stack set 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 stack set 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 Errors](#).

### OperationNotFound

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

HTTP Status Code: 404

### StackSetNotFound

The specified stack set 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [AWS SDK for Ruby V3](#)

# ListStackSetOperations

Returns summary information about operations performed on a stack set.

## 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 stack sets 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

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

ListStackSetOperations 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.

Required: No

## StackSetName

The name or unique ID of the stack set 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 stack set.

Type: Array of [StackSetOperationSummary](#) objects

## Errors

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

## StackSetNotFound

The specified stack set 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>fadfffcdd-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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [AWS SDK for Ruby V3](#)

# ListStackSets

Returns summary information about stack sets that are associated with the user.

- [Self-managed permissions] If you set the `CallAs` parameter to `SELF` while signed in to your AWS account, `ListStackSets` returns all self-managed stack sets 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 stack sets 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 stack sets 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 stack sets 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

If the previous paginated request didn't return all the remaining results, the response object's NextToken parameter value is set to a token. To retrieve the next set of results, call ListStackSets 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.

Required: No

## Status

The status of the stack sets 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 stack sets.

Type: Array of [StackSetSummary](#) objects

## Errors

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

## 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 stack set</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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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

If the previous paginated request didn't return all 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.

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 Errors](#).

## CFNRegistry

An error occurred during a CloudFormation registry operation.

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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)

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

# ListTypes

Returns summary information about extension that have been registered with CloudFormation.

## 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

If the previous paginated request didn't return all 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.

Required: No

## ProvisioningType

For resource types, the provisioning behavior of the resource type. AWS 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, in addition to 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 Errors](#).

### CFNRegistry

An error occurred during a CloudFormation registry operation.

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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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

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.

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 Errors](#).

## CFNRegistry

An error occurred during a CloudFormation registry operation.

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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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 *CloudFormation 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. AWS 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 Errors](#).

### CFNRegistry

An error occurred during a CloudFormation registry operation.

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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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 Errors](#).

## 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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 [Registering your account to publish CloudFormation extensions](#) in the *CloudFormation 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 [Registering your account to publish CloudFormation extensions](#) in the *CloudFormation 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 Errors](#).

### CFNRegistry

An error occurred during a CloudFormation registry operation.

HTTP Status Code: 400

## See Also

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

- [AWS Command Line Interface](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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 Providers](#) in the *CloudFormation 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 [Configuring extensions at the account level](#) in the *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, AWS 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 containing 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 *CloudFormation CLI User Guide*.

**i 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*.

**i 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 Errors](#).

### CFNRegistry

An error occurred during a CloudFormation registry operation.

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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)

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

### 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 AWS Identity and Access Management role that AWS 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 element is returned by the service.

### StackId

Unique identifier of the stack.

Type: String

## Errors

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

## 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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 containing the stack policy body. For more information, go to [Prevent updates to stack resources](#) in the *AWS CloudFormation User Guide*. You can specify either the StackPolicyBody or the StackPolicyURL parameter, but not both.

Type: String

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

Required: No

### StackPolicyURL

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

Type: String

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

Required: No

## Errors

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

## 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 Key ID]
&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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)

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

# SetTypeConfiguration

Specifies the configuration data for a registered CloudFormation extension, in the given account and Region.

To view the current configuration data for an extension, refer to the ConfigurationSchema element of [DescribeType](#). For more information, see [Configuring extensions at the account level](#) in the *AWS CloudFormation User Guide*.

## Important

It's strongly recommended that you use dynamic references to restrict sensitive configuration definitions, such as third-party credentials. For more details on dynamic references, see [Using dynamic references to specify template values](#) in the *AWS CloudFormation 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 schema returned in the ConfigurationSchema response element of [DescribeType](#). For more information, see [Defining account-level configuration data for an extension](#) in the *CloudFormation CLI User Guide*.

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 [activate the type](#) in this account and Region. For private extensions, this will be the ARN assigned when you [register the type](#) 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 Errors](#).

### CFNRegistry

An error occurred during a CloudFormation registry operation.

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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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 Errors](#).

### CFNRegistry

An error occurred during a CloudFormation registry operation.

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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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. AWS CloudFormation doesn't proceed with a stack creation or update until resources receive the required number of signals or the timeout period is exceeded. The `SignalResource` 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 AWS CloudFormation to immediately fail the stack creation or update.

Type: String

Valid Values: SUCCESS | FAILURE

Required: Yes

### UniqueId

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

Type: String

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

Required: Yes

## Errors

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

## 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 Key ID]
&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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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 AWS 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

## 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 Errors](#).

## 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [AWS SDK for Ruby V3](#)

# StopStackSetOperation

Stops an in-progress operation on a stack set 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

[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 stack sets 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 stack set 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 Errors](#).

### InvalidOperationException

The specified operation isn't valid.

HTTP Status Code: 400

### OperationNotFoundException

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

HTTP Status Code: 404

### StackSetNotFoundException

The specified stack set 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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 prior to publishing](#) in the *CloudFormation 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 *CloudFormation 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 Errors](#).

## CFNRegistry

An error occurred during a CloudFormation registry operation.

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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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 Errors](#).

### 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 [AWS 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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 creating an update template, updating a stack, and monitoring the progress of the update, see [Updating a Stack](#).

## Request Parameters

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

### Capabilities.member.N

In some cases, you must explicitly acknowledge that your stack template contains certain capabilities in order for AWS 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 AWS Identity and Access Management (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, AWS 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::Policy](#)

- [AWS::IAM::Role](#)
- [AWS::IAM::User](#)
- [AWS::IAM::UserToGroupAddition](#)

For more information, see [Acknowledging IAM Resources in AWS 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 AWS 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 AWS CloudFormation being notified.

For more information, see [Using AWS CloudFormation Macros to Perform Custom Processing on Templates](#).

**ⓘ 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 AWS CloudFormation knows that you're not attempting to update a stack with the same name. You might retry `UpdateStack` requests to ensure that AWS 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

### **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 AWS CloudFormation associates with the stack. Specify an empty list to remove all notification topics.

Type: Array of strings

Array Members: Maximum number of 5 items.

Required: No

### Parameters.member.N

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

Type: Array of [Parameter](#) objects

Required: No

### ResourceTypes.member.N

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

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

 **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 AWS Identity and Access Management (IAM) role that AWS CloudFormation assumes to update the stack. AWS CloudFormation uses the role's credentials to make calls on your behalf. AWS CloudFormation always uses this role for all future operations on the stack. Provided that users have permission to operate on the stack, AWS 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, AWS CloudFormation uses the role that was previously associated with the stack. If no role is available, AWS 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 AWS 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 containing a new stack policy body. You can specify either the StackPolicyBody or the StackPolicyURL parameter, but not both.

You might update the stack policy, for example, in order to protect a new resource that you created during a stack update. If you 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 containing the temporary overriding stack policy body. You can specify either the `StackPolicyDuringUpdateBody` or the `StackPolicyDuringUpdateURL` parameter, but not both.

If you want to update protected resources, specify a temporary overriding stack policy during this update. If you 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 containing the temporary overriding stack policy. The URL must point to a policy (max size: 16KB) located in an S3 bucket in the same Region as the stack. The location for an Amazon S3 bucket must start with `https://`. 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 1350.

Required: No

## StackPolicyURL

Location of a file containing the updated stack policy. The URL must point to a policy (max size: 16KB) located in an S3 bucket in the same Region as the stack. The location for an Amazon S3 bucket must start with `https://`. 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 1350.

Required: No

## Tags.member.N

Key-value pairs to associate with this stack. AWS CloudFormation also propagates these tags to supported resources in the stack. You can specify a maximum number of 50 tags.

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

Type: Array of [Tag](#) objects

Array Members: Maximum number of 50 items.

Required: No

## TemplateBody

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

Conditional: You must specify 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

Location of file containing the template body. The URL must point to a template that's located in an Amazon S3 bucket or a Systems Manager document. For more information, go to [Template Anatomy](#) in the *AWS CloudFormation User Guide*. 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 1024.

Required: No

## UsePreviousTemplate

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

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 element is returned by the service.

### StackId

Unique identifier of the stack.

Type: String

## Errors

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

## 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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 stack set 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 stack set; to add or delete a parameter itself, use [UpdateStackSet](#) to update the stack set template. If you add a parameter to a template, before you can override the parameter value specified in the stack set you must first use [UpdateStackSet](#) to update all stack instances with the updated template and parameter value specified in the stack set. Once a stack instance has been updated with the new parameter, you can then override the parameter value using `UpdateStackInstances`.

## Request Parameters

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

### Accounts.member.N

[Self-managed permissions] The names of one or more AWS accounts for 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 stack sets 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 for 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 stack set operation.

The operation ID also functions as an idempotency token, to ensure that AWS CloudFormation performs the stack set operation only once, even if you retry the request multiple times. You might retry stack set operation requests to ensure that AWS 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 AWS CloudFormation performs this stack set 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 AWS 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 stack set, 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 stack set 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 stack set; to add or delete a parameter itself, use `UpdateStackSet` to update the stack set template. If you add a parameter to a template, before you can override the parameter value specified in the stack set you must first use [UpdateStackSet](#) to update all stack instances with the updated template and parameter value specified in the stack set. 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 stack set 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 stack set 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 Errors](#).

### InvalidOperationException

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 stack set. 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 stack set doesn't exist.

HTTP Status Code: 404

## StaleRequest

Another operation has been performed on this stack set 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)

- [AWS SDK for Ruby V3](#)

# UpdateStackSet

Updates the stack set, and associated stack instances in the specified accounts and AWS Regions.

Even if the stack set operation created by updating the stack set fails (completely or partially, below or above a specified failure tolerance), the stack set is updated with your changes.

Subsequent [CreateStackInstances](#) calls on the specified stack set use the updated stack set.

## 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 stack set instances.

To update *all* the stack instances associated with this stack set, don't specify the Accounts or Regions properties.

If the stack set update includes changes to the template (that is, if the TemplateBody or TemplateURL properties are specified), or the Parameters property, AWS 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 stack set update does not include changes to the template or parameters, AWS 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

The Amazon Resource Name (ARN) of the IAM role to use to update this stack set.

Specify an IAM role only if you are using customized administrator roles to control which users or groups can manage specific stack sets within the same administrator account. For more

information, see [Granting Permissions for Stack Set Operations](#) in the *AWS CloudFormation User Guide*.

If you specified a customized administrator role when you created the stack set, you must specify a customized administrator role, even if it is the same customized administrator role used with this stack set 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).

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 stack sets 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 AWS CloudFormation to update the stack set 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 AWS Identity and Access Management (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, AWS 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 AWS CloudFormation Templates](#).

- CAPABILITY\_AUTO\_EXPAND

Some templates reference macros. If your stack set template references one or more macros, you must update the stack set directly from the processed template, without first reviewing the resulting changes in a change set. To update the stack set directly, you must acknowledge this capability. For more information, see [Using AWS CloudFormation Macros to Perform Custom Processing on Templates](#).

**⚠ Important**

Stack sets 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 AWS CloudFormation.) Even if you specify this capability for a stack set with service-managed permissions, if you reference a macro in your template the stack set 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 stack set, do not specify DeploymentTargets or Regions.

If the stack set update includes changes to the template (that is, if TemplateBody or TemplateURL is specified), or the Parameters, AWS 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 stack set update doesn't include changes to the template or parameters, AWS 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**

The name of the IAM execution role to use to update the stack set. If you do not specify an execution role, AWS CloudFormation uses the `AWSCloudFormationStackSetExecutionRole` role for the stack set 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 stack sets.

If you specify a customized execution role, AWS CloudFormation uses that role to update the stack. If you do not specify a customized execution role, AWS CloudFormation performs the update using the role previously associated with the stack set, so long as you have permissions to perform operations on the stack set.

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

### **OperationId**

The unique ID for this stack set operation.

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

Repeating this stack set 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 AWS CloudFormation performs this stack set operation.

Type: [StackSetOperationPreferences](#) object

Required: No

## Parameters.member.N

A list of input parameters for the stack set template.

Type: Array of [Parameter](#) objects

Required: No

## PermissionModel

Describes how the IAM roles required for stack set 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 Stack Set Permissions](#).
- With service-managed permissions, StackSets automatically creates the IAM roles required to deploy to accounts managed by AWS Organizations. For more information, see [Grant Service-Managed Stack Set Permissions](#).

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 stack set instances.

To update *all* the stack instances associated with this stack set, do not specify the Accounts or Regions properties.

If the stack set update includes changes to the template (that is, if the TemplateBody or TemplateURL properties are specified), or the Parameters property, AWS CloudFormation marks all stack instances with a status of OUTDATED prior to updating the stack instances in the specified accounts and Regions. If the stack set update does not include changes to the template or parameters, AWS 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 stack set that you want to update.

Type: String

Required: Yes

### **Tags.member.N**

The key-value pairs to associate with this stack set and the stacks created from it. AWS 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 stack set. This means:

- If you don't specify this parameter, AWS 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 stack set, even tags you've specified before (for example, when creating the stack set or during a previous update of the stack set.). Any tags that you don't include in the updated list of tags are removed from the stack set, and therefore from the stacks and resources as well.
- If you specify an empty value, AWS CloudFormation removes all currently associated tags.

If you specify new tags as part of an `UpdateStackSet` action, AWS CloudFormation checks to see if you have the required IAM permission to tag resources. If you omit tags that are currently associated with the stack set from the list of tags you specify, AWS CloudFormation assumes that you want to remove those tags from the stack set, 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 stack set 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. For more information, see [Template Anatomy](#) in the AWS CloudFormation User Guide.

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 location of the file that contains the template body. The URL must point to a template (maximum size: 460,800 bytes) that is located in an Amazon S3 bucket or a Systems Manager document. For more information, see [Template Anatomy](#) in the AWS CloudFormation User Guide.

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 1024.

Required: No

## UsePreviousTemplate

Use the existing template that's associated with the stack set 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 stack set 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 Errors](#).

### InvalidOperationException

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 stack set. 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 stack set doesn't exist.

HTTP Status Code: 404

## StaleRequest

Another operation has been performed on this stack set 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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 [Protecting a 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 Errors](#).

## See Also

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

- [AWS Command Line Interface](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [AWS SDK for Ruby V3](#)

# ValidateTemplate

Validates a specified template. AWS CloudFormation first checks if the template is valid JSON. If it isn't, AWS CloudFormation checks if the template is valid YAML. If both these checks fail, AWS CloudFormation returns a template validation error.

## Request Parameters

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

### TemplateBody

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

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

Type: String

Length Constraints: Minimum length of 1.

Required: No

### TemplateURL

Location of file containing the template body. The URL must point to a template (max size: 460,800 bytes) that is located in an Amazon S3 bucket or a Systems Manager document.

For more information, go to [Template Anatomy](#) in the *AWS CloudFormation User Guide*. 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 1024.

Required: No

## Response Elements

The following elements are returned by the service.

### **Capabilities.member.N**

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

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

Type: Array of strings

Valid Values: CAPABILITY\_IAM | CAPABILITY\_NAMED\_IAM | 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 Errors](#).

# 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](#)
- [AWS SDK for .NET](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [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](#)
- [AutoDeployment](#)
- [BatchDescribeTypeConfigurationsError](#)
- [Change](#)
- [ChangeSetHook](#)
- [ChangeSetHookResourceTargetDetails](#)
- [ChangeSetHookTargetDetails](#)
- [ChangeSetSummary](#)
- [DeploymentTargets](#)
- [Export](#)
- [LoggingConfig](#)
- [ManagedExecution](#)
- [ModuleInfo](#)
- [OperationResultFilter](#)
- [Output](#)
- [Parameter](#)
- [ParameterConstraints](#)
- [ParameterDeclaration](#)
- [PhysicalResourceIdContextKeyValuePair](#)

- [PropertyDifference](#)
- [RequiredActivatedType](#)
- [ResourceChange](#)
- [ResourceChangeDetail](#)
- [ResourceDefinition](#)
- [ResourceDetail](#)
- [ResourceIdentifierSummary](#)
- [ResourceScanSummary](#)
- [ResourceTargetDefinition](#)
- [ResourceToImport](#)
- [RollbackConfiguration](#)
- [RollbackTrigger](#)
- [ScannedResource](#)
- [ScannedResourceIdentifier](#)
- [Stack](#)
- [StackDriftInformation](#)
- [StackDriftInformationSummary](#)
- [StackEvent](#)
- [StackInstance](#)
- [StackInstanceComprehensiveStatus](#)
- [StackInstanceFilter](#)
- [StackInstanceResourceDriftsSummary](#)
- [StackInstanceSummary](#)
- [StackResource](#)
- [StackResourceDetail](#)
- [StackResourceDrift](#)
- [StackResourceDriftInformation](#)
- [StackResourceDriftInformationSummary](#)
- [StackResourceSummary](#)
- [StackSet](#)

- [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 AWS CloudFormation invokes, if present, before proceeding with a stack set operation in an account and Region.

For each account and Region, AWS CloudFormation lets you specify a Lambda function that encapsulates any requirements that must be met before CloudFormation can proceed with a stack set operation in that account and Region. CloudFormation invokes the function each time a stack set 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 stack set operation result status for that account and Region to FAILED.

For more information, see [Configuring a target account gate](#).

## 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 stack set operation to occur. AWS 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 stack set operation to occur. AWS CloudFormation cancels the stack set operation in that account and Region, and sets the stack set operation result status for that account and Region to FAILED.
- SKIPPED: AWS 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. AWS CloudFormation proceeds with the stack set operation in this account and Region.
  - The `AWSCloudFormationStackSetExecutionRole` of the stack set administration account lacks permissions to invoke the function. AWS CloudFormation proceeds with the stack set operation in this account and Region.
  - Either no action is necessary, or no action is possible, on the stack. AWS CloudFormation skips the stack set 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 stack set 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 Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

# AccountLimit

The AccountLimit data type.

CloudFormation has the following limits per account:

- Number of concurrent resources
- Number of stacks
- Number of stack outputs

For more information about these account limits, and other CloudFormation limits, see [AWS 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 Go](#)

- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

# AutoDeployment

[Service-managed permissions] Describes whether StackSets automatically deploys to AWS Organizations accounts that are added to a target organization or organizational unit (OU).

## Contents

### 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 Go](#)
- [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 Go](#)

- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

# Change

The Change structure describes the changes AWS 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 AWS CloudFormation will perform.

Type: [ResourceChange](#) object

Required: No

### **Type**

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

Type: String

Valid Values: Resource

Required: No

## See Also

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

- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

# 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

Specifies the points in provisioning logic where a 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 Go](#)
- [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

Required: No

### ResourceType

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

Type: String

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

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 Go](#)

- [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 name of the 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 Go](#)
- [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 AWS CloudFormation is still creating it or in an OBSOLETE state because the stack was already updated.

Type: String

Valid Values: UNAVAILABLE | AVAILABLE | EXECUTE\_IN\_PROGRESS | EXECUTE\_COMPLETE | EXECUTE\_FAILED | OBSOLETE

Required: No

## **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\_IN\_PROGRESS, 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, AWS 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 Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

# DeploymentTargets

[Service-managed permissions] The AWS Organizations accounts to which StackSets deploys. StackSets 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.

For update operations, you can specify either Accounts or OrganizationalUnitIds. For create and delete operations, specify OrganizationalUnitIds.

## Contents

### AccountFilterType

Limit deployment targets to individual accounts or include additional accounts with provided OUs.

The following is a list of possible values for the AccountFilterType operation.

- INTERSECTION: StackSets deploys to the accounts specified in Accounts parameter.
- DIFFERENCE: StackSets excludes the accounts specified in Accounts parameter. This enables user to avoid certain accounts within an OU such as suspended accounts.
- UNION: StackSets includes additional accounts deployment targets.

This is the default value if AccountFilterType is not provided. This enables user to update an entire OU and individual accounts from a different OU in one request, which used to be two separate requests.

- NONE: Deploys to all the accounts in specified organizational units (OU).

Type: String

Valid Values: NONE | INTERSECTION | DIFFERENCE | UNION

Required: No

### Accounts.member.N

The names of one or more AWS accounts for which you want to deploy stack set updates.

Type: Array of strings

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

Required: No

## AccountsUrl

Returns the value of the AccountsUrl property.

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 to which StackSets deploys.

Type: Array of strings

Pattern: ^(ou-[a-zA-Z0-9]{4,32}-[a-zA-Z0-9]{8,32}|r-[a-zA-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 Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

# Export

The Export structure describes the exported output values for a 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 Go](#)
- [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 Go](#)
- [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`, StackSets performs non-conflicting operations concurrently and queues conflicting operations. After conflicting operations finish, StackSets starts queued operations in request order.

 **Note**

If there are already running or queued operations, StackSets queues all incoming operations even if they are non-conflicting.

You can't modify your stack set's execution configuration while there are running or queued operations for that stack set.

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 Go](#)
- [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 [Using modules to encapsulate and reuse resource configurations](#) in the *AWS CloudFormation User Guide*.

## Contents

### LogicalIdHierarchy

A concatenated list of the logical IDs of the module or modules containing 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 [Referencing resources in a module](#) in the *CloudFormation User Guide*.

Type: String

Required: No

### TypeHierarchy

A concatenated list of the module type or types containing 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 Go](#)
- [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 Go](#)
- [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 Go](#)
- [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, AWS 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 SSM parameter key. This field is returned only for [SSM](#) parameter types in the template.

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 Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

# ParameterConstraints

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

## Contents

### AllowedValues.member.N

A list of values that are permitted for a parameter.

Type: Array of strings

Required: No

## See Also

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

- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

# 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 AWS 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 Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

# PhysicalResourceIdContextKeyValuePair

Context information that enables AWS CloudFormation to uniquely identify a resource. AWS 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 Go](#)
- [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 [Detecting Unregulated Configuration Changes to Stacks and Resources](#).

## 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 Go](#)
- [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 [Activating public modules for use in your account](#) 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 [Specifying 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 Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

# ResourceChange

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

## Contents

### Action

The action that AWS CloudFormation takes on the resource, such as Add (adds a new resource), Modify (changes a resource), Remove (deletes a resource), Import (imports a resource), or Dynamic (exact action for the resource can't be determined).

Type: String

Valid Values: Add | Modify | Remove | Import | Dynamic

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 AWS 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

## Replacement

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

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

Type: String

Valid Values: True | False | Conditional

Required: No

## ResourceType

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

Type: String

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

Required: No

### Scope.member.N

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

Type: Array of strings

Valid Values: Properties | Metadata | CreationPolicy | UpdatePolicy | DeletionPolicy | 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 Go](#)
- [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 AWS CloudFormation will make to that resource.

## Contents

### CausingEntity

The identity of the entity that triggered this change. This entity is a member of the group that'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, AWS CloudFormation sets the `ChangeSource` to `Automatic` because the nested stack's template might have changed. Changes to a nested stack's template aren't visible to AWS CloudFormation until you run an update on the parent stack.

Type: String

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

Required: No

## Evaluation

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

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

For **Dynamic** evaluations, 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 AWS 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 Go](#)

- [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

**Resourcelidentifier** , `Resourcelidentifier.entry.N.key` (key) , `Resourcelidentifier.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 User guide for extension development*.

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 [IaC generator supported resource types](#) 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 Go](#)
- [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 User guide for extension development*.

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 [IaC generator supported resource types](#) 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 Go](#)
- [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 Go](#)
- [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

### StartTime

The time that the resource scan was started.

Type: `Timestamp`

Required: No

### Status

Status of the resource scan.

#### INPROGRESS

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 Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

# ResourceTargetDefinition

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

## Contents

### Attribute

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

Type: String

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

Required: No

### Name

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

Type: String

Required: No

### RequiresRecreation

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

Type: String

Valid Values: Never | Conditionally | Always

Required: No

## See Also

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

- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

# 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 [Resources that support import operations](#) 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 Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

# RollbackConfiguration

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

Rollback triggers enable you to have AWS 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 [Monitor and Roll Back Stack Operations](#).

## 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, AWS 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 Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

# RollbackTrigger

A rollback trigger AWS 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 Go](#)
- [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 AWS 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 User guide for extension development*.

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 [IaC generator supported resource types](#) 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 Go](#)
- [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 User guide for extension development*.

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 [IaC generator supported resource types](#) 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 Go](#)
- [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

### **DeletionTime**

The time the stack was deleted.

Type: Timestamp

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

### **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 [Detecting Unregulated Configuration Changes to Stacks and Resources](#).

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 [Protecting a Stack From Being Deleted](#) in the *AWS CloudFormation User Guide*.

Type: Boolean

Required: No

## LastUpdatedTime

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

Type: Timestamp

Required: No

## NotificationARNs.member.N

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--stacks created as resources for another stack--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 [Working with 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 AWS Identity and Access Management (IAM) role that's associated with the stack. During a stack operation, AWS 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 AWS 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--stacks created as resources for another stack--the stack ID of the top-level stack to which the nested stack ultimately belongs.

For more information, see [Working with 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 Go](#)
- [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: AWS 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: This value is reserved for future use.

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 Go](#)
- [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: AWS 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: This value is reserved for future use.

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 Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

# StackEvent

The StackEvent data type.

## Contents

### EventId

The unique ID 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

### **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

### **HookInvocationPoint**

Invocation points are points in provisioning logic where hooks are initiated.

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

### **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 | 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, go to [AWS Resource Types Reference](#) in the AWS CloudFormation User Guide.)

Type: String

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

Required: No

## See Also

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

- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

# StackInstance

An AWS CloudFormation stack, in a specific account and Region, that's part of a stack set 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 stack set. Each stack instance contains the ID of its associated stack set, 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 stack set to which it belongs.

- DRIFTED: The stack differs from the expected template and parameter configuration of the stack set to which it belongs. A stack instance is considered to have drifted if one or more of the resources in the associated stack have drifted.
- NOT\_CHECKED: AWS CloudFormation hasn't checked if the stack instance differs from its expected stack set configuration.
- IN\_SYNC: The stack instance's actual configuration matches its expected stack set 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 on which drift detection hasn't yet been performed.

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-zA-Z0-9]{4,32}-[a-zA-Z0-9]{8,32}|r-[a-zA-Z0-9]{4,32})\$

Required: No

## ParameterOverrides.member.N

A list of parameters from the stack set 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

## StackInstanceState

The detailed status of the stack instance.

Type: [StackInstanceStateComprehensiveStatus](#) object

Required: No

## StackSetId

The name or unique ID of the stack set 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.
- OUTDATED: The stack isn't currently up to date with the stack set 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 stack set.

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 Go](#)
- [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 stack set operation, or because the failure tolerance of the stack set operation has been exceeded.
- FAILED: The operation in the specified account and Region failed. If the stack set operation fails in enough accounts within a Region, the failure tolerance for the stack set 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

Required: No

## See Also

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

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

- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

# 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 Go](#)
- [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, go to [AWS Resource Types Reference](#) in the AWS CloudFormation User Guide.

Type: String

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

Required: Yes

### StackId

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:** AWS CloudFormation doesn't currently return this value.

Type: String

Valid Values: IN\_SYNC | MODIFIED | DELETED | NOT\_CHECKED

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 AWS CloudFormation.

Type: String

Required: No

## PhysicalResourceIdContext.member.N

Context information that enables AWS CloudFormation to uniquely identify a resource. AWS 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 Go](#)
- [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 stack set to which it belongs.

- DRIFTED: The stack differs from the expected template and parameter configuration of the stack set to which it belongs. A stack instance is considered to have drifted if one or more of the resources in the associated stack have drifted.
- NOT\_CHECKED: AWS CloudFormation hasn't checked if the stack instance differs from its expected stack set configuration.
- IN\_SYNC: The stack instance's actual configuration matches its expected stack set 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 on which drift detection hasn't yet been performed.

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-zA-Z0-9]{4,32}-[a-zA-Z0-9]{8,32}|r-[a-zA-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 stack set 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.
- OUTDATED: The stack isn't currently up to date with the stack set 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 stack set.

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 Go](#)
- [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 | 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, go to [AWS Resource Types Reference](#) in the AWS CloudFormation User Guide.

Type: String

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

Required: Yes

## 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 [Detecting Unregulated Configuration Changes to Stacks and Resources](#).

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 AWS 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 Go](#)
- [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 | 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, go to [AWS Resource Types Reference](#) in the AWS CloudFormation User Guide.

Type: String

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

Required: Yes

## 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 [Detecting Unregulated Configuration Changes to Stacks and Resources](#).

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 AWS 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 Go](#)
- [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 AWS CloudFormation has detected drift. Only resource properties explicitly defined in the stack template are checked for drift. For more information, see [Detecting Unregulated Configuration Changes to Stacks and Resources](#).

Resources that don't currently support drift detection can't be checked. For a list of resources that support drift detection, see [Resources that Support 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:** AWS CloudFormation does not currently return this value.

Type: String

Valid Values: IN\_SYNC | MODIFIED | DELETED | NOT\_CHECKED

Required: Yes

### Timestamp

Time at which AWS CloudFormation performed drift detection on the stack resource.

Type: Timestamp

Required: Yes

### ActualProperties

A JSON structure containing the actual property values of the stack resource.

For resources whose StackResourceDriftStatus is DELETED, this structure will not be present.

Type: String

Required: No

### ExpectedProperties

A JSON structure containing 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 AWS CloudFormation.

Type: String

Required: No

## PhysicalResourceIdContext.member.N

Context information that enables AWS CloudFormation to uniquely identify a resource. AWS 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 Go](#)
- [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:** AWS 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 [Resources that Support Drift Detection](#).

- **IN\_SYNC:** The resource's actual configuration matches its expected configuration.

Type: String

Valid Values: IN\_SYNC | MODIFIED | DELETED | NOT\_CHECKED

Required: Yes

### LastCheckTimestamp

When AWS 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 Go](#)
- [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: AWS 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 [Resources that Support 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

Required: Yes

### LastCheckTimestamp

When AWS 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 Go](#)
- [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 |  
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, go to [AWS Resource Types Reference](#) in the AWS CloudFormation User Guide.)

Type: String

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

Required: Yes

## 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 [Detecting Unregulated Configuration Changes to Stacks and Resources](#).

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 Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

# StackSet

A structure that contains information about a stack set. A stack set enables you to provision stacks into AWS accounts and across Regions by using a single CloudFormation template. In the stack set, you specify the template to use, in addition to any parameters and capabilities that the template requires.

## 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 stack sets within the same administrator account. For more information, see [Prerequisites: Granting Permissions for Stack Set Operations](#) in the *AWS CloudFormation User Guide*.

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).

Type: [AutoDeployment](#) object

Required: No

### Capabilities.member.N

The capabilities that are allowed in the stack set. Some stack set 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 AWS CloudFormation Templates](#).

Type: Array of strings

Valid Values: CAPABILITY\_IAM | CAPABILITY\_NAMED\_IAM | CAPABILITY\_AUTO\_EXPAND

Required: No

## Description

A description of the stack set that you specify when the stack set 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 stack set.

Use customized execution roles to control which stack resources users and groups can include in their stack sets.

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-zA-Z0-9]{4,32}-[a-zA-Z0-9]{8,32}|r-[a-zA-Z0-9]{4,32})\$

Required: No

### **Parameters.member.N**

A list of input parameters for a stack set.

Type: Array of [Parameter](#) objects

Required: No

### **PermissionModel**

Describes how the IAM roles required for stack set 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 Stack Set Permissions](#).
- With service-managed permissions, StackSets automatically creates the IAM roles required to deploy to accounts managed by AWS Organizations. For more information, see [Grant Service-Managed Stack Set Permissions](#).

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 stack set.

Type: String

Required: No

## StackSetDriftDetectionDetails

Detailed information about the drift status of the stack set.

For stack sets, contains information about the last *completed* drift operation performed on the stack set. Information about drift operations currently in progress isn't included.

Type: [StackSetDriftDetectionDetails](#) object

Required: No

## StackSetId

The ID of the stack set.

Type: String

Required: No

## StackSetName

The name that's associated with the stack set.

Type: String

Required: No

## Status

The status of the stack set.

Type: String

Valid Values: ACTIVE | DELETED

Required: No

## Tags.member.N

A list of tags that specify information about the stack set. 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 stack set.

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 Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

# StackSetDriftDetectionDetails

Detailed information about the drift status of the stack set.

For stack sets, contains information about the last *completed* drift operation performed on the stack set. Information about drift operations in-progress isn't included.

For stack set operations, includes information about drift operations currently being performed on the stack set.

For more information, see [Detecting unmanaged changes in stack sets](#) in the *AWS CloudFormation User Guide*.

## Contents

### DriftDetectionStatus

The status of the stack set 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 stack set. 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 stack set's actual configuration compared to its expected template and parameter configuration. A stack set is considered to have drifted if one or more of its stack instances have drifted from their expected template and parameter configuration.

- DRIFTED: One or more of the stack instances belonging to the stack set stack 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: AWS CloudFormation hasn't checked the stack set for drift.
- IN\_SYNC: All of the stack instances belonging to the stack set stack match from 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 stack set.

Type: Integer

Valid Range: Minimum value of 0.

Required: No

### LastDriftCheckTimestamp

Most recent time when CloudFormation performed a drift detection operation on the stack set. This value will be NULL for any stack set on which drift detection hasn't yet been performed.

Type: Timestamp

Required: No

### TotalStackInstancesCount

The total number of stack instances belonging to this stack set.

The total number of stack instances is equal to the total of:

- Stack instances that match the stack set configuration.
- Stack instances that have drifted from the stack set 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 Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)



# StackSetOperation

The structure that contains information about a stack set operation.

## Contents

### Action

The type of stack set operation: CREATE, UPDATE, or DELETE. Create and delete operations affect only the specified stack set instances that are associated with the specified stack set. Update operations affect both the stack set itself, in addition to *all* associated stack set 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 stack set operation.

Use customized administrator roles to control which users or groups can manage specific stack sets within the same administrator account. For more information, see [Define Permissions for Multiple Administrators](#) 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 AWS 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

[Service-managed permissions] The AWS Organizations accounts affected by the stack operation.

Type: [DeploymentTargets](#) object

Required: No

## EndTimestamp

The time at which the stack set operation ended, across all accounts and Regions specified. Note that this doesn't necessarily mean that the stack set 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 stack set.

Use customized execution roles to control which stack resources users and groups can include in their stack sets.

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 stack set 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 AWS CloudFormation performs this stack set operation.

Type: [StackSetOperationPreferences object](#)

Required: No

## RetainStacks

For stack set operations of action type DELETE, specifies whether to remove the stack instances from the specified stack set, but doesn't delete the stacks. You can't re-associate a retained stack, or add an existing, saved stack to a new stack set.

Type: Boolean

Required: No

## StackSetDriftDetectionDetails

Detailed information about the drift status of the stack set. This includes information about drift operations currently being performed on the stack set.

This information will only be present for stack set operations whose Action type is DETECT\_DRIFT.

For more information, see [Detecting Unmanaged Changes in Stack Sets](#) in the AWS CloudFormation User Guide.

Type: [StackSetDriftDetectionDetails object](#)

Required: No

## StackSetId

The ID of the stack set.

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 AWS 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 [stack set operation 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 Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

# StackSetOperationPreferences

The user-specified preferences for how AWS CloudFormation performs a stack set operation.

For more information about maximum concurrent accounts and failure tolerance, see [Stack set operation options](#).

## 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 MaxConcurrentCount +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 stack set 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, for which this operation can fail before AWS CloudFormation stops the operation in that Region. If the operation is stopped in a Region, AWS CloudFormation doesn't attempt the operation in any subsequent Regions.

Conditional: You must 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, for which this stack operation can fail before AWS CloudFormation stops the operation in that Region. If the operation is stopped in a Region, AWS CloudFormation doesn't attempt the operation in any subsequent Regions.

When calculating the number of accounts based on the specified percentage, AWS CloudFormation rounds *down* to the next whole number.

Conditional: You must 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.

Conditional: You must 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, AWS CloudFormation rounds down to the next whole number. This is true except in cases where rounding down would result in 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.

Conditional: You must 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.

**Note**

RegionOrder isn't followed if AutoDeployment is enabled.

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 Go](#)
- [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 AWS CloudFormation invokes, if present, before proceeding with stack set 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-zA-Z0-9]{4,32}-[a-zA-Z0-9]{8,32}|r-[a-zA-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 stack set 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 stack set operation, or because the failure tolerance of the stack set operation has been exceeded.
- FAILED: The operation in the specified account and Region failed.

If the stack set operation fails in enough accounts within a Region, the failure tolerance for the stack set 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 Go](#)
- [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 Go](#)
- [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 stack set. Update operations affect both the stack set itself and *all* associated stack set 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 stack set operation might differ from the creation time of the individual stacks themselves. This is because AWS 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 stack set operation ended, across all accounts and Regions specified. Note that this doesn't necessarily mean that the stack set operation was successful, or even attempted, in each account or Region.

Type: Timestamp

Required: No

### OperationId

The unique ID of the stack set 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 AWS CloudFormation performs a stack set operation.

For more information about maximum concurrent accounts and failure tolerance, see [Stack set 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 AWS 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 [stack set operation 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 stack set 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 Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

# StackSetSummary

The structures that contain summary information about the specified stack set.

## 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 stack set that you specify when the stack set is created or updated.

Type: String

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

Required: No

### DriftStatus

Status of the stack set's actual configuration compared to its expected template and parameter configuration. A stack set is considered to have drifted if one or more of its stack instances have drifted from their expected template and parameter configuration.

- DRIFTED: One or more of the stack instances belonging to the stack set stack 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: AWS CloudFormation hasn't checked the stack set for drift.
- IN\_SYNC: All the stack instances belonging to the stack set stack match from 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 stack set. This value will be NULL for any stack set on which drift detection hasn't yet been performed.

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 stack set 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 Stack Set Permissions](#).
- With **service-managed** permissions, StackSets automatically creates the IAM roles required to deploy to accounts managed by AWS Organizations. For more information, see [Grant Service-Managed Stack Set Permissions](#).

Type: String

Valid Values: SERVICE\_MANAGED | SELF\_MANAGED

Required: No

### StackSetId

The ID of the stack set.

Type: String

Required: No

## StackSetName

The name of the stack set.

Type: String

Required: No

## Status

The status of the stack set.

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 Go](#)
- [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 [Detecting Unregulated Configuration Changes to Stacks and Resources](#).

Type: [StackDriftInformationSummary](#) object

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--stacks created as resources for another stack--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 [Working with Nested Stacks](#) in the *AWS CloudFormation User Guide*.

Type: String

Required: No

### RootId

For nested stacks--stacks created as resources for another stack--the stack ID of the top-level stack to which the nested stack ultimately belongs.

For more information, see [Working with 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 Go](#)
- [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 AWS CloudFormation stack.

## Contents

### Key

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

Type: String

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

Required: Yes

### Value

*Required.* A string containing 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 Go](#)
- [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 Go](#)
- [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 Go](#)
- [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 Go](#)
- [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 Go](#)
- [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 Go](#)
- [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 [Configuring extensions at the account level](#) 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 Amazon Resource Name (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 Amazon Resource Name (ARN) for the extension, in this account and Region.

For public extensions, this will be the ARN assigned when you [activate the type](#) in this account and Region. For private extensions, this will be the ARN assigned when you [register the type](#) 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 Go](#)
- [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 Amazon Resource Name (ARN) for the extension, in this account and Region.

For public extensions, this will be the ARN assigned when you [activate the type](#) in this account and Region. For private extensions, this will be the ARN assigned when you [register the type](#) 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 Amazon Resource Name (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 Go](#)
- [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 Go](#)
- [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

### IsActive

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 [Setting CloudFormation to 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 [Specifying 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 [Setting CloudFormation to 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 [Registering your account to publish CloudFormation extensions](#) in the *CFN-CLI User Guide for Extension Development*.

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 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/.+

Required: No

## TypeName

The name of the extension.

If you specified a `TypeNameAlias` when you [activate this extension](#) 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 Go](#)
- [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 Amazon Resource Name (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 [Setting CloudFormation to 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 Amazon Resource Name (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 Go](#)
- [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 [IaC generator and 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

Required: No

## See Also

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

- [AWS SDK for C++](#)
- [AWS SDK for Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

# 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 Go](#)
- [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 Go](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

# Common Parameters

The following list contains the parameters that all actions use for signing Signature Version 4 requests with a query string. Any action-specific parameters are listed in the topic for that action. For more information about Signature Version 4, see [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 Errors

This section lists the errors common to the API actions of all AWS services. For errors specific to an API action for this service, see the topic for that API action.

## **AccessDeniedException**

You do not have sufficient access to perform this action.

HTTP Status Code: 400

## **IncompleteSignature**

The request signature does not conform to AWS standards.

HTTP Status Code: 400

## **InternalFailure**

The request processing has failed because of an unknown error, exception or failure.

HTTP Status Code: 500

## **InvalidAction**

The action or operation requested is invalid. Verify that the action is typed correctly.

HTTP Status Code: 400

## **InvalidClientTokenId**

The X.509 certificate or AWS access key ID provided does not exist in our records.

HTTP Status Code: 403

## **InvalidParameterCombination**

Parameters that must not be used together were used together.

HTTP Status Code: 400

## **InvalidParameterValue**

An invalid or out-of-range value was supplied for the input parameter.

HTTP Status Code: 400

## **InvalidQueryParameter**

The AWS query string is malformed or does not adhere to AWS standards.

HTTP Status Code: 400

## **MalformedQueryString**

The query string contains a syntax error.

HTTP Status Code: 404

## **MissingAction**

The request is missing an action or a required parameter.

HTTP Status Code: 400

## **MissingAuthenticationToken**

The request must contain either a valid (registered) AWS access key ID or X.509 certificate.

HTTP Status Code: 403

## **MissingParameter**

A required parameter for the specified action is not supplied.

HTTP Status Code: 400

## **NotAuthorized**

You do not have permission to perform this action.

HTTP Status Code: 400

## **OptInRequired**

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

HTTP Status Code: 403

## **RequestExpired**

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

HTTP Status Code: 400

### **ServiceUnavailable**

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

HTTP Status Code: 503

### **ThrottlingException**

The request was denied due to request throttling.

HTTP Status Code: 400

### **ValidationException**

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

HTTP Status Code: 400