

AWS CloudFormation FAQs

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General

Q: What is AWS CloudFormation?

AWS CloudFormation is a service that gives developers and businesses an easy way to create a collection of related AWS resources and provision them in an orderly and predictable fashion.

Q: What can developers now do with AWS CloudFormation that they could not before?

AWS CloudFormation automates and simplifies the task of repeatedly and predictably creating groups of related resources that power your applications. Creating and interconnecting all resources your application needs to run is now as simple as creating a single EC2 or RDS instance.

Q: How is AWS CloudFormation different from AWS Elastic Beanstalk?

These services are designed to complement each other. AWS Elastic Beanstalk (<https://aws.amazon.com/elasticbeanstalk/>) provides an environment to easily deploy and run applications in the cloud. It is integrated with developer tools and provides a one-stop experience for you to manage the lifecycle of your applications. AWS CloudFormation is a convenient provisioning mechanism for a broad range of AWS resources (<http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/cfn-supported-resources.html>). It supports the infrastructure needs of many different types of applications such as existing enterprise applications, legacy applications, applications built using a variety of AWS resources and container-based solutions (including those built using AWS Elastic Beanstalk).

AWS CloudFormation supports Elastic Beanstalk application environments as one of the AWS resource types. This allows you, for example, to create and manage an AWS Elastic Beanstalk–hosted application along with an RDS database to store the application data. In addition to RDS instances, any other supported AWS resource can be added to the group as well.

Q: What new concepts does AWS CloudFormation introduce?

AWS CloudFormation introduces two concepts: The template, a JSON or YAML-format, text-based file that describes all the AWS resources you need to deploy to run your application and the stack, the set of AWS resources that are created and managed as a single unit when AWS CloudFormation instantiates a template.

Q: What resources does AWS CloudFormation support?

To see a complete list of supported AWS resources (<http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/cfn-supported-resources.html>) and their features, visit the Supported AWS Services page in the Release History of the documentation.

AWS CloudFormation custom resources (<http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/crpg-walkthrough.html>) enable management of additional AWS and non-AWS resources.

Q: Can I manage individual AWS resources that are part of an AWS CloudFormation stack?

Yes. AWS CloudFormation does not get in the way; you retain full control of all elements of your infrastructure. You can continue using all your existing AWS and third-party tools to manage your AWS resources.

Q: What are the elements of an AWS CloudFormation template?

AWS CloudFormation templates are JSON or YAML-formatted text files that are comprised of five types of elements:

1. An optional list of template parameters (input values supplied at stack creation time)
2. An optional list of output values (e.g. the complete URL to a web application)
3. An optional list of data tables used to lookup static configuration values (e.g., AMI names)
4. The list of AWS resources and their configuration values
5. A template file format version number

With parameters, you can customize aspects of your template at run time, when the stack is built. For example, the Amazon RDS database size, Amazon EC2 instance types, database and web server port numbers can be passed to AWS CloudFormation when a stack is created. Each parameter can have a default value and description and may be marked as “NoEcho” in order to hide the actual value you enter on the screen and in the AWS CloudFormation event logs. When you create an AWS CloudFormation stack, the AWS Management Console will automatically synthesize and present a pop-up dialog form for you to edit parameter values.

Output values are a very convenient way to present a stack’s key resources (such as the address of an Elastic Load Balancing load balancer or Amazon RDS database) to the user via the AWS Management Console, or the command line tools. You can use simple functions to concatenate string literals and value of attributes associated with the actual AWS resources.

Q: How does AWS CloudFormation choose actual resource names?

You can assign logical names to AWS resources in a template. When a stack is created, AWS CloudFormation binds

the logical name to the name of the corresponding actual AWS resource. Actual resource names are a combination of the stack and logical resource name. This allows multiple stacks to be created from a template without fear of name collisions between AWS resources.

Q: Why can't I name all my resources?

Although AWS CloudFormation allows you to name some resources (such as Amazon S3 buckets), CloudFormation doesn't allow this for all resources. Naming resources restricts the reusability of templates and results in naming conflicts when an update causes a resource to be replaced. To minimize these issues, CloudFormation will support resource naming on a case by case basis.

Q: Can I install software at stack creation time using AWS CloudFormation?

Yes. AWS CloudFormation provides a set of application bootstrapping scripts that enable you to install packages, files, and services on your EC2 instances by simply describing them in your CloudFormation template. For more details and a how-to see Bootstrapping Applications via AWS CloudFormation. (<https://s3.amazonaws.com/cloudformation-examples/BoostrappingApplicationsWithAWSCloudFormation.pdf>)

Q: Can I use AWS CloudFormation with Chef?

Yes. AWS CloudFormation can be used to bootstrap both the Chef Server and Chef Client software on your EC2 instances. For more details and a how-to see Integrating AWS CloudFormation with Chef. (<https://s3.amazonaws.com/cloudformation-examples/IntegratingAWSCloudFormationWithOpscodeChef.pdf>)

Q: Can I use AWS CloudFormation with Puppet?

Yes. AWS CloudFormation can be used to bootstrap both the Puppet Master and Puppet Client software on your EC2 instances. For more details and a how-to see Integrating AWS CloudFormation with Puppet (<https://s3.amazonaws.com/cloudformation-examples/IntegratingAWSCloudFormationWithPuppet.pdf>).

Q: Does AWS CloudFormation support Amazon EC2 tagging?

Yes. Amazon EC2 resources that support the tagging feature can also be tagged in an AWS template. The tag values can refer to template parameters, other resource names, resource attribute values (e.g. addresses), or values computed by simple functions (e.g., a concatenated a list of strings).AWS CloudFormation automatically tags Amazon EBS volumes and Amazon EC2 instances with the name of the AWS CloudFormation stack they are part of.

Q: Do I have access to the Amazon EC2 instance, or Auto Scaling Launch Configuration user-data fields?

Yes. You can use simple functions to concatenate string literals and attribute values of the AWS resources and pass them to user-data fields in your template. Please refer to our sample templates to learn more about these easy to use functions.

Q: What happens when one of the resources in a stack cannot be created successfully?

By default, the “automatic rollback on error” feature is enabled. This will cause all AWS resources that AWS CloudFormation created successfully for a stack up to the point where an error occurred to be deleted. This is useful when, for example, you accidentally exceed your default limit of Elastic IP addresses, or you don’t have access to an EC2 AMI you’re trying to run. This feature enables you to rely on the fact that stacks are either fully created, or not at all, which simplifies system administration and layered solutions built on top of AWS CloudFormation.

Q: Can stack creation wait for my application to start up?

Yes. AWS CloudFormation provides a *WaitCondition* resource that acts as a barrier, blocking the creation of other resources until a completion signal is received from an external source such as your application, or management system.

Q: Can I save my data when a stack is deleted?

Yes. AWS CloudFormation allows you to define deletion policies for resources in the template. You can specify that snapshots be created for Amazon EBS volumes or Amazon RDS database instances before they are deleted. You can also specify that a resource should be preserved and not deleted when the stack is deleted. This is useful for preserving Amazon S3 buckets when the stack is deleted.

Q: Can I update my stack after it has been created?

Yes. You can use AWS CloudFormation to modify and update the resources in your existing stacks in a controlled and predictable way. By using templates to manage your stack changes, you have the ability to apply version control to your AWS infrastructure just as you do with the software running on it.

Q: Can I create stacks in a Virtual Private Cloud (VPC)?

Yes. CloudFormation supports creating VPCs, Subnets, Gateways, Route Tables and Network ACLs as well as creating resources such as Elastic IPs, Amazon EC2 Instances, EC2 Security Groups, Auto Scaling Groups, Elastic Load Balancers, Amazon RDS Database Instances and Amazon RDS Security Groups in a VPC.

Getting Started

Q: How do I sign up for AWS CloudFormation?

To sign up for AWS CloudFormation, click Create Free Account on the AWS CloudFormation detail page. After signing up, please refer to the AWS CloudFormation documentation, which includes our Getting Started Guide.

Q: Why am I asked to verify my phone number when signing up for AWS CloudFormation?

AWS CloudFormation registration requires you to have a valid phone number and email address on file with AWS in

case we ever need to contact you. Verifying your phone number takes only a few minutes and involves receiving an automated phone call during the registration process and entering a PIN number using the phone key pad.

Q: How do I get started after I have signed up?

The best way to get started with AWS CloudFormation is to work through the Getting Started Guide, which is included in our technical documentation. Within a few minutes, you will be able to deploy and use one of our sample templates that illustrate how to create the infrastructure needed to run applications such as Tracks, WordPress, and others.

Q: Are there sample templates that I can use to check out AWS CloudFormation?

Yes, AWS CloudFormation includes sample templates that you can use to test drive the offering and explore its functionality. Our sample templates illustrate how to interconnect and use multiple AWS resources in concert, following best practices for multiple Availability Zone redundancy, scale out, and alarming. To get started, all you need to do is go to the AWS Management Console, click Create Stack, and follow the steps to select and launch one of our samples. Once created, select your stack in the console and review the Template and Parameter tabs to look at the details of the template file used to create the respective stack.

Billing

Q: How much does AWS CloudFormation cost?

There is no additional charge for AWS CloudFormation. You only pay for the AWS resources that are created (e.g., Amazon EC2 instances, Elastic Load Balancing load balancers etc.)

Q: Will I be charged for resources that were rolled back during a failed stack creation attempt?

Yes. Charges for AWS resources created during template instantiation apply irrespective of whether the stack as a whole could be created successfully or not.

Limits and Restrictions

Q: Are there limits to the number of templates or stacks?

There are no limits to the number of templates. Each AWS CloudFormation account is limited to a maximum of 200 stacks. Complete our request for a higher limit [here](#), and we will respond to your request within two business days.

Q: Are there limits to the size of description fields?

Template, Parameter, Output, and Resource description fields are limited to 4096 characters.

Q: Are there limits to the number of parameters or outputs in a template?

You can include up to 60 parameters and 60 outputs in a template.

Regions and Endpoints

Q: What are the AWS CloudFormation service access points in each region?

Endpoints for each region are available in the technical documentation. (<http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/using-cfn-endpoints.html>)

Q: What are the AWS regions where AWS CloudFormation is currently available?

Please refer to Regional Products and Services (<https://aws.amazon.com/about-aws/global-infrastructure/regional-product-services/>) for details of CloudFormation availability by region.

Learn more about AWS CloudFormation Pricing

Visit the AWS CloudFormation Pricing Page

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