Spotinst Elastigroup for Amazon ECS on the AWS Cloud

Quick Start Reference Deployment

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Spotinst, Inc.
AWS Quick Start Team

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This Quick Start was created by Spotinst, Inc. in collaboration with Amazon Web Services (AWS).

**Quick Starts** are automated reference deployments that use AWS CloudFormation templates to deploy key technologies on AWS, following AWS best practices.

**Quick Links**

The links in this section are for your convenience. Before you launch the Quick Start, please review the architecture, security, and other considerations discussed in this guide.

- If you have an AWS account, and you’re already familiar with AWS services and Spotinst Elastigroup, you can launch the Quick Start to build the architecture shown in Figure 1 in a new or existing virtual private cloud (VPC). The deployment takes approximately 7 minutes. If you’re new to AWS or to Spotinst Elastigroup, please review the implementation details and follow the step-by-step instructions provided later in this guide.

- If you want to take a look under the covers, you can view the AWS CloudFormation templates that automate the deployment.

**Overview**

This Quick Start reference deployment guide provides step-by-step instructions for deploying Spotinst Elastigroup for Amazon Elastic Container Service (Amazon ECS) clusters on the AWS Cloud.
This Quick Start is for users who want to leverage Elastigroup’s capabilities in efficiently scaling Amazon ECS clusters while optimizing for performance and cost by using a variety of instance types and sizes running as Spot Instances at a roughly 80% discount compared to On-Demand Instances.

**Elastigroup for Amazon ECS on AWS**

Spotinst Elastigroup is an application scaling service. Similar to Amazon Elastic Compute Cloud (Amazon EC2) Auto Scaling groups, Spotinst Elastigroup is designed to optimize performance and costs by leveraging Spot Instances combined with On-Demand and **Reserved Instances**.

With Spotinst Elastigroup, you can run multiple instance types and sizes that share the same configuration within the Amazon ECS cluster. Elastigroup then leverages the variety of instances with a prediction algorithm to choose the best Spot Instances for you in terms of price and availability and predict the Spot Instance interruption 15 minutes ahead of time.

When an interruption is predicted, Elastigroup immediately spins up a new node in a different Spot capacity pool. As soon as that new node is healthy, Elastigroup starts to drain the instance that is marked for interruption. Elastigroup then terminates the instance after draining is completed.

The Spot Instance termination prediction and built-in Amazon ECS integration provide an ample amount of time to drain Amazon ECS tasks and reschedule them on new machines that are preemptively deployed by Elastigroup in an automatic, transparent, and graceful manner.

Using a combination of automated Spot Instance management and the variety of instance sizes, the Spotinst Elastigroup autoscaler scales according to the task resource requirements, instead of cluster resource thresholds, and achieves over 90% resource utilization while keeping your cluster resources as defragmented as possible.

The Elastigroup autoscaler also always maintains capacity in the cluster to enable instantaneous deployments of Amazon ECS tasks. This allows for immediate responsiveness from your infrastructure without waiting for scaling events.

**Costs and Licenses**

You are responsible for the cost of the AWS services used while running this Quick Start reference deployment. There is no additional cost for using the Quick Start.
The AWS CloudFormation template for this Quick Start includes configuration parameters that you can customize. Some of these settings, such as instance type, will affect the cost of deployment. For cost estimates, see the pricing pages for each AWS service you will be using. Prices are subject to change.

**Tip** After you deploy the Quick Start, we recommend that you enable the [AWS Cost and Usage Report](https://aws.amazon.com/cloudformation/quickstart/) to track costs associated with the Quick Start. This report delivers billing metrics to an S3 bucket in your account. It provides cost estimates based on usage throughout each month, and finalizes the data at the end of the month. For more information about the report, see the [AWS documentation](https://aws.amazon.com/cloudformation/quickstart/).

To deploy this AWS CloudFormation template, you need a Spotinst token and Account ID. You can generate the token and ID by registering for a 14-day free trial account with Spotinst at [console.spotinst.com](http://console.spotinst.com). Follow the instructions in **Step 2**.

Elastigroup requires no commitment periods, upfront costs or monthly fees. Standard pricing is calculated at 20% of the generated savings compared to On-Demand pricing. For example:

- Instance hours = 10
- Cost per hour (On Demand) = $1
- Cost per hour (Spot) = $0.2
- Potential cost = $10
- Actual cost = $2
- Savings = $8
- Spotinst fee = $1.6

**Note** Spotinst Elastigroup usage is calculated on a per second basis.

**Architecture**

Deploying this Quick Start for a new virtual private cloud (VPC) with **default parameters** builds the following Spotinst Elastigroup for Amazon ECS environment in the AWS Cloud (the diagram shows four Availability Zones, although the default is two Availability Zones).
Figure 1: Quick Start architecture for Spotinst Elastigroup on AWS

The Quick Start sets up the following:

- A highly available architecture that spans multiple Availability Zones.*
- A VPC configured with public and private subnets according to AWS best practices, to provide you with your own virtual network on AWS.*
- An internet gateway to allow access to the internet. This gateway is used by the bastion hosts to send and receive traffic.*
- In the public subnets, managed NAT gateways to allow outbound internet access for resources in the private subnets.*
- In the public subnets, a Linux bastion host in an Auto Scaling group to allow inbound Secure Shell (SSH) access to EC2 instances in public and private subnets.*
- An Amazon ECS security group with the necessary configurations.
- An Amazon ECS cluster to manage your tasks.
- An IAM role for your Amazon ECS cluster.
- Spotinst Elastigroup with Spotinst Elastigroup autoscaler utilizing Spot Instances.
* The template that deploys the Quick Start into an existing VPC skips the tasks marked by asterisks and prompts you for your existing VPC configuration.

**Prerequisites**

**Specialized Knowledge**

Before you deploy this Quick Start, we recommend that you become familiar with the following AWS services. (If you are new to AWS, see [Getting Started with AWS](#).)

- Amazon EC2
- Amazon EBS
- Amazon VPC
- AWS CloudFormation
- Amazon ECS
- Spot Instances

We recommend that you also become familiar with [Spotinst Elastigroup](#).

**Deployment Options**

This Quick Start provides two deployment options:

- **Deploy Elastigroup into a new VPC** (end-to-end deployment). This option builds a new AWS environment consisting of the VPC, subnets, NAT gateways, security groups, bastion hosts, and other infrastructure components, and then deploys Elastigroup and Amazon ECS into this new VPC.

- **Deploy Elastigroup into an existing VPC**. This option provisions Elastigroup and Amazon ECS into your existing AWS infrastructure.

The Quick Start provides separate templates for these options. It also lets you configure CIDR blocks, multiple instance types, and Elastigroup settings, as discussed later in this guide.

**Deployment Steps**

**Step 1. Prepare Your AWS Account**

1. If you don’t already have an AWS account, create one at [https://aws.amazon.com](https://aws.amazon.com) by following the on-screen instructions.

2. Use the region selector in the navigation bar to choose the AWS Region where you want to deploy Elastigroup.
Note  The Elastigroup for Amazon ECS Quick Start supports up to four Availability Zones, but not all Regions provide four Availability Zones. Refer to the AWS Global Infrastructure webpage to see a list of Regions and Availability Zones.

3. Create a key pair in your preferred region.

If necessary, request a service limit increase for the Amazon EC2 Spot Instance type. You might need to do this after you deploy Spotinst Elastigroup if this is the first time you deploy Spot Instances in the selected region in your account.

Step 2. Prepare your Spotinst Account

1. If you don’t already have a Spotinst account, follow the instructions at https://console.spotinst.com/#/auth/signUp to sign up for a 14-day free trial.

![Figure 2: Spotinst signup screen](image)

2. After you’re signed up, choose AWS as your cloud provider.

3. Connect Spotinst to your AWS account by using the AWS CloudFormation template to create an IAM role.
Figure 3: The Open Template in CloudFormation button

4. Create a Spotinst Token by choosing the avatar icon on the top right corner and choosing **My Account**.

Figure 4: My Account on the drop-down menu
Choose the **API** tab, and then choose **Generate Token**.

![Generate Token button](image)

**Figure 5: The Generate Token button.**

Copy and save the Access Token. You will use it as a parameter in the CloudFormation template.

![Access Token](image)

**Figure 6: The Access Token that you need to save**

5. To locate your Spotinst Account ID, choose the **Account** tab.

Copy and save the Account ID as you will use it as a parameter in the CloudFormation template.
Figure 7: The Account ID that you need to save

If want to keep using Spotinst Elastigroup after the 14-day trial, activate your Spotinst account:

1. Choose the avatar icon on the top right corner
2. Choose My Organization, and then choose Activate.
3. Enter your credit card information.

Step 3. Launch the Quick Start

Note You are responsible for the cost of the AWS services used while running this Quick Start reference deployment. There is no additional cost for using this Quick Start. For full details, see the pricing pages for each AWS service you will be using in this Quick Start. Prices are subject to change.
1. Choose one of the following options to launch the AWS CloudFormation template into your AWS account. For help choosing an option, see deployment options earlier in this guide.

   **Option 1**  
   **Deploy Elastigroup into a new VPC on AWS**  
   ![Launch](Launch)

   **Option 2**  
   **Deploy Elastigroup into an existing VPC on AWS**  
   ![Launch](Launch)

   **Important!** If you're deploying Elastigroup into an existing VPC, make sure that your VPC has two private subnets in different Availability Zones for the database instances. These subnets require [NAT gateways or NAT instances](#) in their route tables, to allow the instances to download packages and software without exposing them to the internet. You will also need the domain name option configured in the DHCP options as explained in the [Amazon VPC documentation](#). You will be prompted for your VPC settings when you launch the Quick Start.

   Each deployment takes about 7 minutes to complete.

2. Check the region that's displayed in the upper-right corner of the navigation bar, and change it if necessary. This is where the network infrastructure for Elastigroup will be built. The template is launched in the US East (Ohio) Region by default.

3. On the **Select Template** page, keep the default setting for the template URL, and then choose **Next**.

4. On the **Specify Details** page, change the stack name if needed. Review the parameters for the template. Provide values for the parameters that require input. For all other parameters, review the default settings and customize them as necessary. When you finish reviewing and customizing the parameters, choose **Next**.

   In the following tables, parameters are listed by category and described separately for the two deployment options:
   
   - **Parameters for deploying Elastigroup into a new VPC**
   - **Parameters for deploying Elastigroup into an existing VPC**
• **Option 1: Parameters for deploying Elastigroup into a new VPC**

**View template**

*Availability Zone configuration:*

<table>
<thead>
<tr>
<th>Parameter label (name)</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability Zones (AvailabilityZones)</td>
<td><strong>Requires input</strong></td>
<td>List of Availability Zones to use for the subnets in the VPC. Only two Availability Zones are used for this deployment, and the logical order of your selections is preserved.</td>
</tr>
<tr>
<td>Number of Availability Zones (NumberOfAZs)</td>
<td>2</td>
<td>Number of Availability Zones to use in the VPC. This must match your selections in the list of Availability Zones parameter.</td>
</tr>
</tbody>
</table>

*Network configuration:*

<table>
<thead>
<tr>
<th>Parameter label (name)</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VPC CIDR (VPCCIDR)</td>
<td>10.0.0.0/16</td>
<td>CIDR block for the VPC.</td>
</tr>
<tr>
<td>Public subnet 1 CIDR (PublicSubnet1CIDR)</td>
<td>10.0.128.0/20</td>
<td>CIDR block for the public DMZ subnet 1 located in Availability Zone 1.</td>
</tr>
<tr>
<td>Public subnet 2 CIDR (PublicSubnet2CIDR)</td>
<td>10.0.144.0/20</td>
<td>CIDR block for the public DMZ subnet 2 located in Availability Zone 2.</td>
</tr>
<tr>
<td>Public subnet 3 CIDR (PublicSubnet3CIDR)</td>
<td>10.0.160.0/20</td>
<td>CIDR block for the public DMZ subnet 3 located in Availability Zone 3.</td>
</tr>
<tr>
<td>Public subnet 4 CIDR (PublicSubnet4CIDR)</td>
<td>10.0.176.0/20</td>
<td>CIDR block for the public DMZ subnet 4 located in Availability Zone 4.</td>
</tr>
<tr>
<td>Create private subnets (CreatePrivateSubnets)</td>
<td>true</td>
<td>Set to false to create only public subnets. If false, the CIDR parameters for ALL private subnets will be ignored.</td>
</tr>
<tr>
<td>Private subnet 1A CIDR (PrivateSubnet1ACIDR)</td>
<td>10.0.0.0/19</td>
<td>CIDR block for private subnet 1A located in Availability Zone 1.</td>
</tr>
<tr>
<td>Private subnet 2A CIDR (PrivateSubnet2ACIDR)</td>
<td>10.0.32.0/19</td>
<td>CIDR block for private subnet 2A located in Availability Zone 2.</td>
</tr>
<tr>
<td>Private subnet 3A CIDR (PrivateSubnet3ACIDR)</td>
<td>10.0.64.0/19</td>
<td>CIDR block for private subnet 3A located in Availability Zone 3.</td>
</tr>
<tr>
<td>Private subnet 4A CIDR (PrivateSubnet4ACIDR)</td>
<td>10.0.96.0/19</td>
<td>CIDR block for private subnet 4A located in Availability Zone 4.</td>
</tr>
<tr>
<td>Allowed bastion external access CIDR (RemoteAccessCIDR)</td>
<td><strong>Requires input</strong></td>
<td>The CIDR IP range that is permitted to access the bastions. We recommend that you set this value to a trusted IP range.</td>
</tr>
</tbody>
</table>

*Amazon EC2 configuration:*
### Amazon Web Services – Elastigroup for Amazon ECS on the AWS Cloud

#### Parameter label (name) | Default | Description
--- | --- | ---
**Key pair name** (KeyPairName) | Requires input | The name of an existing public/private key pair, which allows you to securely connect to your instance after it launches.

**Bastion AMI operating system** (BastionAMIOS) | Amazon-Linux-HVM | The Linux distribution for the AMI to be used for the bastion instances.

**Bastion Instance Type** (BastionInstanceType) | t2.micro | Amazon EC2 instance type for the bastion instances.

#### Amazon ECS configuration:

<table>
<thead>
<tr>
<th>Parameter label (name)</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>New or existing ECS cluster</strong> (NewECS)</td>
<td>New Cluster</td>
<td>Use an existing Amazon ECS cluster or create a new one.</td>
</tr>
</tbody>
</table>

**ECS name** (ECSName) | Requires input | A name for the Amazon ECS cluster. |

#### Spotinst configuration:

<table>
<thead>
<tr>
<th>Parameter label (name)</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Spotinst Account ID</strong> (AccountID)</td>
<td>Requires input</td>
<td>Spotinst Account ID.</td>
</tr>
</tbody>
</table>

**Spotinst Access Token** (AccessToken) | Requires input | Spotinst API Token. |

#### Elastigroup configuration:

<table>
<thead>
<tr>
<th>Parameter label (name)</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Elastigroup name</strong> (ElastigroupName)</td>
<td>Requires input</td>
<td>Name for the Elastigroup.</td>
</tr>
</tbody>
</table>

**Cluster orientation** (ClusterOrientation) | balanced | The cluster orientation. |

**Spot Instances percentage** (SpotPercentage) | 100 | The percentage of Spot Instances in the cluster. |

**Instances capacity target** (CapacityTarget) | Requires input | The desired number of instances in the cluster. |

**Instances capacity minimum** (CapacityMin) | Requires input | The minimum number of instances in the cluster. |

**Instances capacity maximum** (CapacityMax) | Requires input | The maximum number of instances in the cluster. |
On-Demand Instance type (OnDemandInstanceType)  c4.large  The On-Demand Instance type to fall back to.

Spot Instances type (SpotInstancesType)  c4.large,c5.large  A comma-separated list of Spot Instances that are available to the Elastigroup.

Detailed monitoring (DetailedMonitoring)  False  Choose False to disable detailed CloudWatch monitoring. Choosing True might result in additional charges.

Product type (ProductType)  Linux/UNIX  The operating system for the instances.

**ECS autoscaler configuration:**

<table>
<thead>
<tr>
<th>Parameter label (name)</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turn on ECS autoscaler (AutoScalerEnable)</td>
<td>true</td>
<td>Choose False to disable the Spotinst autoscaler.</td>
</tr>
<tr>
<td>Autoscaler cooldown (AutoScalerCooldown)</td>
<td>180</td>
<td>The time, in seconds, between scaling activities (ignore if not using the autoscaler).</td>
</tr>
<tr>
<td>Autoscaler evaluation periods (AutoScalerEvaluationPeriods)</td>
<td>3</td>
<td>The number of consecutive periods that should pass before scaling down (ignore if not using the autoscaler).</td>
</tr>
<tr>
<td>Autoscaler Headroom units Count (AutoScalerHeadroomUnitCount)</td>
<td>0</td>
<td>The number of Headroom units to keep available at all times (ignore if not using the autoscaler).</td>
</tr>
<tr>
<td>Autoscaler Headroom CPU (AutoScalerHeadroomCPU)</td>
<td>0</td>
<td>The amount of CPU units reserved in each Headroom unit (ignore if not using the autoscaler).</td>
</tr>
<tr>
<td>Autoscaler Headroom RAM (AutoScalerHeadroomRAM)</td>
<td>0</td>
<td>The amount in memory (in MB) reserved in each Headroom unit (ignore if not using the autoscaler).</td>
</tr>
</tbody>
</table>

**AWS Quick Start configuration:**

<table>
<thead>
<tr>
<th>Parameter label (name)</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quick Start S3 bucket name (QSS3BucketName)</td>
<td>aws-quickstart</td>
<td>S3 bucket name for the Quick Start assets. This string can include numbers, lowercase letters, uppercase letters, and hyphens (-). It cannot start or end with a hyphen (-).</td>
</tr>
<tr>
<td>Quick Start S3 key prefix (QSS3KeyPrefix)</td>
<td>quickstart-spotinst-ecs/</td>
<td>S3 key prefix for the Quick Start assets. Quick Start key prefix can include numbers, lowercase letters, uppercase letters, hyphens (-), and forward slash (/).</td>
</tr>
</tbody>
</table>

- **Option 2:** Parameters for deploying Elastigroup into an existing VPC

  View template

Amazon ECS configuration:

<table>
<thead>
<tr>
<th>Parameter label (name)</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
</table>

---

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### New or existing ECS cluster (NewECS)

<table>
<thead>
<tr>
<th>Parameter label (name)</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Cluster</td>
<td></td>
<td>Use an existing Amazon ECS cluster or create a new one.</td>
</tr>
</tbody>
</table>

### ECS name (ECSName)

<table>
<thead>
<tr>
<th>Parameter label (name)</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requires input</td>
<td></td>
<td>A name for the Amazon ECS cluster.</td>
</tr>
</tbody>
</table>

### Spotinst configuration:

<table>
<thead>
<tr>
<th>Parameter label (name)</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spotinst Account ID (AccountID)</td>
<td>Requires input</td>
<td>Spotinst Account ID.</td>
</tr>
<tr>
<td>Spotinst Access Token (AccessToken)</td>
<td>Requires input</td>
<td>Spotinst API Token.</td>
</tr>
</tbody>
</table>

### Elastigroup configuration:

<table>
<thead>
<tr>
<th>Parameter label (name)</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elastigroup name (ElastigroupName)</td>
<td>Requires input</td>
<td>Name of the Elastigroup.</td>
</tr>
<tr>
<td>Cluster orientation (ClusterOrientation)</td>
<td>balanced</td>
<td>Cluster orientation.</td>
</tr>
<tr>
<td>Spot Instances percentage (SpotPercentage)</td>
<td>100</td>
<td>The percentage of Spot Instances in the cluster.</td>
</tr>
<tr>
<td>Instances capacity target (CapacityTarget)</td>
<td>Requires input</td>
<td>The desired number of instances in the cluster.</td>
</tr>
<tr>
<td>Instances capacity minimum (CapacityMin)</td>
<td>Requires input</td>
<td>The minimum number of instances in the cluster.</td>
</tr>
<tr>
<td>Instances capacity maximum (CapacityMax)</td>
<td>Requires input</td>
<td>The maximum number of instances in the cluster.</td>
</tr>
<tr>
<td>VPC (VPC)</td>
<td>Requires input</td>
<td>The VPC For the Elastigroup.</td>
</tr>
<tr>
<td>On-Demand Instance type (OnDemandInstanceType)</td>
<td>c4.large</td>
<td>The On-Demand Instance type to fall back to.</td>
</tr>
<tr>
<td>Spot Instances Type (SpotInstancesType)</td>
<td>c4.large,c5.large</td>
<td>A comma-separated list of Spot Instances that are available to the Elastigroup</td>
</tr>
<tr>
<td>Availability Zones (AvailabilityZones)</td>
<td>Requires input</td>
<td>The Availability Zones for the Cluster</td>
</tr>
<tr>
<td>SubnetIDs (SubnetIds)</td>
<td>Requires input</td>
<td>The subnet IDs for the cluster (must be from the selected VPC).</td>
</tr>
<tr>
<td>Detailed monitoring (DetailedMonitoring)</td>
<td>False</td>
<td>Choose False to disable detailed CloudWatch monitoring.</td>
</tr>
</tbody>
</table>
Key pair name (KeyName) | Requires input | Provide an existing EC2 KeyPair to enable SSH access to the instances.
---|---|---
Security group IDs (SecurityGroupsIds) | Requires input | A comma-separated list of security group IDs.
Product type (ProductType) | Linux/UNIX | The operating system for the instances.

**ECS autoscaler configuration:**

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<td>Choose False to disable the Spotinst autoscaler.</td>
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<td>Autoscaler cooldown (AutoScalerCooldown)</td>
<td>180</td>
<td>The time, in seconds, between scaling activities (ignore if not using the autoscaler).</td>
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<tr>
<td>Autoscaler evaluation periods (AutoScalerEvaluationPeriods)</td>
<td>3</td>
<td>The number of consecutive periods that should pass before scaling down (ignore if not using the autoscaler).</td>
</tr>
<tr>
<td>Autoscaler Headroom units count (AutoScalerHeadroomUnitCount)</td>
<td>0</td>
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<td>AutoScaler Headroom CPU (AutoScalerHeadroomCPU)</td>
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<td>The amount of CPU units reserved in each Headroom unit (ignore if not using the autoscaler).</td>
</tr>
<tr>
<td>AutoScaler Headroom RAM (AutoScalerHeadroomRAM)</td>
<td>0</td>
<td>The amount in memory (in MB) reserved in each Headroom unit (ignore if not using the autoscaler).</td>
</tr>
</tbody>
</table>

**AWS Quick Start configuration:**

<table>
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<th>Parameter label (name)</th>
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<th>Description</th>
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<tbody>
<tr>
<td>Quick Start S3 bucket name (QSS3BucketName)</td>
<td>aws-quickstart</td>
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</tr>
<tr>
<td>Quick Start S3 key prefix (QSS3KeyPrefix)</td>
<td>quickstart-spotinst-ecs/</td>
<td>S3 key prefix for the Quick Start assets. Quick Start key prefix can include numbers, lowercase letters, uppercase letters, hyphens (-), and forward slash (/).</td>
</tr>
</tbody>
</table>

5. On the **Options** page, you can specify tags (key-value pairs) for resources in your stack and set advanced options. When you’re done, choose **Next**.

6. On the **Review** page, review and confirm the template settings. Under **Capabilities**, select the check box to acknowledge that the template will create IAM resources.

7. Choose **Create** to deploy the stack.
8. Monitor the status of the stack. When the status is `CREATE_COMPLETE`, the Elastigroup for Amazon ECS cluster is ready.

9. Use the URLs displayed in the Outputs tab for the stack to view the resources that were created.

**Step 4. Test the Deployment**

1. In the AWS Console, go to the Elastic Container Service page and confirm that the new cluster is deployed.

2. Go to the Spotinst console at console.spotinst.com and verify that your Elastigroups count is at 1.

   ![Figure 8: The Elastigroups count](image)

3. On the left side menu, choose Elastigroups. On the Elastigroups screen, make sure that your Spotinst Elastigroup cluster is healthy, and that the Amazon ECS integration is connected.

   ![Figure 9: The Status checkmark and connection icon](image)

4. Choose the Elastigroup, and then choose the Instances tab. If the Instance Count graph is green, you're running Spot Instances.
Figure 10: The Instance Count graph

If the graph is blue, you’re running On-Demand Instances. This usually means that you need to request a service limit increase from AWS for the Amazon EC2 Spot Instance types that you used in the CloudFormation template. After your request is approved by AWS, Elastigroup will automatically move from On-Demand Instances to Spot Instances.

Best Practices for Using Spotinst Elastigroup on AWS

Add more Spot capacity pools by adding more instance types and sizes. Every Spot capacity pool is created at the intersection of an Instance Type and Availability Zone. The more Spot capacity pools that Elastigroup can choose from, the more it can optimize the Amazon ECS cluster in terms of price and availability.

1. On the Elastigroup menu, choose the Elastigroup.

2. On the top right corner, choose Actions and then choose Edit Configuration.
3. On the Configuration screen, add more Spot Instance types to create more available Spot capacity pools. To do this, click the Spot Types drop-down menu and check the boxes on the instances that you want to you utilize.

Security

Spotinst helps you automate and manage infrastructure by assuming an IAM role inside your AWS account. With that role, Spotinst only assumes access to the metadata of your account usage and not to any of the personal or user data stored in your account. As such, no additional security concerns need to be addressed.
FAQ

Q. I encountered a CREATE_FAILED error when I launched the Quick Start.
A. If AWS CloudFormation fails to create the stack, we recommend that you relaunch the template with **Rollback on failure** set to **No**. (This setting is under **Advanced** in the AWS CloudFormation console, **Options** page.) With this setting, the stack’s state will be retained and the instance will be left running, so you can troubleshoot the issue. (Look at the log files in `%ProgramFiles%\Amazon\EC2ConfigService` and `C:\cfn\log`.)

**Important** When you set **Rollback on failure** to **No**, you will continue to incur AWS charges for this stack. Please make sure to delete the stack when you finish troubleshooting.

For additional information, see [Troubleshooting AWS CloudFormation](https://aws.amazon.com/documentation/cloudformation/troubleshooting/) on the AWS website.

Q. I encountered a size limitation error when I deployed the AWS CloudFormation templates.
A. We recommend that you launch the Quick Start templates from the links in this guide or from another S3 bucket. If you deploy the templates from a local copy on your computer or from a non-S3 location, you might encounter template size limitations when you create the stack. For more information about AWS CloudFormation limits, see the [AWS documentation](https://aws.amazon.com/documentation/cloudformation/limits/).

Q. My Elastigroup failed creation during the AWS CloudFormation deployment.
A. First, make sure your account ID, token and all required fields are appropriately filled. If the error isn’t indicative of the issue, contact Spotinst support 24/7 either by clicking the `Chat` button on the right side of the console or by emailing cs@spotinst.com

GitHub Repository

You can visit our [GitHub repository](https://github.com/spotinst/aws-elastic-gp) to download the templates and scripts for this Quick Start, to post your comments, and to share your customizations with others.

Additional Resources

AWS services

- Amazon EBS
- Amazon EC2
  https://aws.amazon.com/documentation/ec2/
- Amazon VPC
  https://aws.amazon.com/documentation/vpc/
- AWS CloudFormation
  https://aws.amazon.com/documentation/cloudformation/
- Amazon ECS
  https://aws.amazon.com/documentation/ecs/

**Spotinst Elastigroup documentation**

- Spotinst Elastigroup Amazon ECS integration
  https://api.spotinst.com/container-management/amazon-ecs/
- Elastigroup autoscaler
  https://api.spotinst.com/container-management/amazon-ecs/elastigroup-for-ecs-concepts/autoscaling/
- Cluster orientation
  https://api.spotinst.com/elastigroup-for-aws/concepts/general-concepts/cluster-orientation/
- Headroom concept
  https://api.spotinst.com/container-management/amazon-ecs/elastigroup-for-ecs-concepts/autoscaler-headroom/

**Quick Start reference deployments**

- AWS Quick Start home page
  https://aws.amazon.com/quickstart/

**Document Revisions**

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