

# Magento on the AWS Cloud

## Quick Start Reference Deployment

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*September 2015  
Last update: October 2017 ([revisions](#))*

This guide is also available in HTML format at  
<https://docs.aws.amazon.com/quickstart/latest/magento/>.



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## About This Guide

This Quick Start reference deployment guide includes architectural considerations and configuration steps for deploying a Magento Open Source (formerly Community Edition) version 2.1.9 cluster on the Amazon Web Services (AWS) Cloud. Magento is an open-source content management system for e-commerce websites. Magento is licensed under the Open Software License (OSL 3.0).

This guide discusses best practices for deploying Magento on AWS using services such as Amazon Elastic Compute Cloud (Amazon EC2), Amazon Virtual Private Cloud (Amazon VPC), Amazon Relational Database Service (Amazon RDS), Amazon ElastiCache, and Amazon Elastic File System (Amazon EFS). It also provides links to automated [AWS CloudFormation](#) templates that you can leverage for your deployment or launch directly into your AWS account.

The guide is for IT infrastructure architects, administrators, and DevOps professionals who are planning to implement or extend their Magento workloads on the AWS Cloud.

## Quick Links

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

- If you have an AWS account, and you're already familiar with AWS services and Magento, 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 30 minutes for the baseline Magento deployment, or up to 60 minutes when you choose to install with sample data. If you're new to AWS or to Magento, please review the implementation details and follow the [step-by-step instructions](#) provided later in this guide.

**Launch  
(for new VPC)**

**Launch  
(for existing VPC)**

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

**View template**

**View template**

## About Quick Starts

[Quick Starts](#) are automated reference deployments that use AWS CloudFormation templates to deploy key technologies in the AWS Cloud, following AWS best practices.

## Overview

### Magento on AWS

Magento is an open-source content management system for e-commerce websites. AWS enables you to set up the infrastructure to support Magento deployment in a flexible, scalable, and cost-effective manner in the AWS Cloud. This reference deployment will help you rapidly build a Magento Open Source cluster by automating configuration and deployment tasks.

The automated deployment builds a cluster that runs Magento version 2.1.9 along with optional sample data.

This guide covers the deployment of Magento Open Source in the AWS Cloud. It doesn't provide Magento product usage information. For general guidance and best practices for using Magento, see the [Magento User Guide](#) on the Magento website.

### Cost and Licenses

This deployment launches Magento Open Source automatically into a configuration of your choice. 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 cost will vary depending on the storage and compute configuration of the cluster you deploy. See the pricing pages for each AWS service you will be using for full details.

This Quick Start uses Magento Open Source (formerly Community Edition), which is open-source software distributed under the Open Software License (OSL 3.0).

### AWS Services

The core AWS components used by this Quick Start include the following AWS services. (If you are new to AWS, see the [Getting Started section](#) of the AWS documentation.)

- [Amazon EC2](#) – The Amazon Elastic Compute Cloud (Amazon EC2) service enables you to launch virtual machine instances with a variety of operating systems. You can choose from existing Amazon Machine Images (AMIs) or import your own virtual machine images.

- [Amazon VPC](#) – The Amazon Virtual Private Cloud (Amazon VPC) service lets you provision a private, isolated section of the AWS Cloud where you can launch AWS services and other resources in a virtual network that you define. You have complete control over your virtual networking environment, including selection of your own IP address range, subnet creation, and configuration of route tables and network gateways.
- [AWS CloudFormation](#) – AWS CloudFormation gives you an easy way to create and manage a collection of related AWS resources, and provision and update them in an orderly and predictable way. You use a template to describe all the AWS resources (e.g., EC2 instances) that you want. You don't have to create and configure the resources or figure out dependencies; AWS CloudFormation handles all of that.
- [Auto Scaling](#) – Auto Scaling helps maintain high availability and manage capacity by automatically increasing or decreasing the EC2 instance fleet. You can use Auto Scaling to run your fleet at optimal utilization by increasing instance capacity during demand spikes and decreasing capacity during down times.
- [Elastic Load Balancing](#) – Elastic Load Balancing automatically distributes incoming application traffic across multiple EC2 instances.
- [Amazon ElastiCache](#) – Amazon ElastiCache service makes it easy to deploy, operate, and scale an in-memory data store or cache in the cloud. The service improves the performance of web applications by allowing you to retrieve information from fast, managed, in-memory data stores, instead of relying entirely on slower disk-based databases.
- [Amazon EFS](#) – Amazon Elastic File System (Amazon EFS) provides simple, scalable file storage for use with EC2 instances. This Magento deployment uses Amazon EFS to share and retrieve common media assets by web server instances.

**Note** As of October 2017, Amazon EFS isn't yet supported in all AWS Regions. Before you launch this Quick Start, [confirm that Amazon EFS is supported](#) in the Region where you're planning to deploy Magento.

- [Amazon RDS](#) – Amazon Relational Database Service (Amazon RDS) makes it easy to set up, operate, and scale a growing set of relational databases, including MySQL and Amazon Aurora, both of which are supported by the Magento Quick Start. With Amazon RDS, you can deploy scalable relational databases in minutes with cost-efficient and resizable hardware capacity.
- [IAM](#) – AWS Identity and Access Management (IAM) enables you to securely control access to AWS services and resources for your users. With IAM, you can manage users,

security credentials such as access keys, and permissions that control which AWS resources users can access, from a central location.

## Architecture

This Quick Start provides two deployment options. Depending upon which option you choose, it creates and configures the necessary AWS components in the AWS Cloud.

Deploying this Quick Start **with default parameters for end-to-end deployment** (which creates a new VPC) builds the following Magento environment in the AWS Cloud.

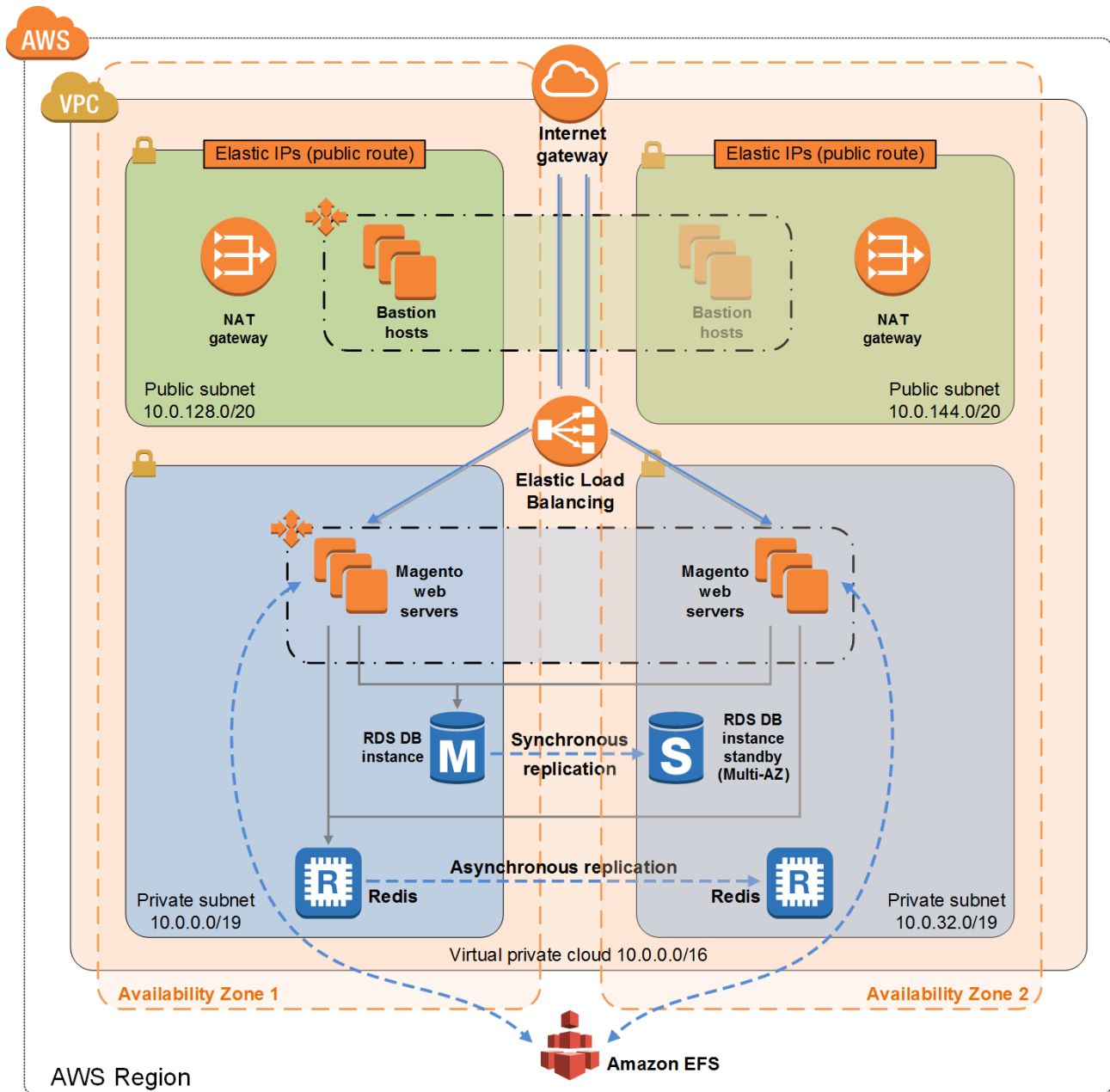


Figure 1: Quick Start architecture for Magento

## AWS Components

Running this Quick Start with default parameters for a new VPC deploys and configures the following AWS components in the AWS Cloud:

- A VPC that spans two Availability Zones. Each Availability Zone is configured with a private and a public subnet.
- In a public subnet, a bastion host to provide Secure Shell (SSH) access to the Magento web servers. The bastion host is maintained by an Auto Scaling group that spans multiple Availability Zones, and is configured to ensure there is always one bastion host available.
- AWS-managed network address translation (NAT) gateways deployed into the public subnets and configured with an Elastic IP address for outbound Internet connectivity. NAT gateways are used for Internet access for all EC2 instances launched within the private network.
- Either an Amazon RDS for MySQL or an Amazon Aurora database engine deployed via Amazon RDS in the first private subnet. If you choose Multi-AZ deployment, a synchronously replicated secondary database is deployed in the second private subnet. This provides high availability and built-in automated failover from the primary database.
- An Amazon ElastiCache cluster with the Redis cache engine launched in the private subnets.
- EC2 web server instances launched in the private subnets.
- Elastic Load Balancing deployed to automatically distribute traffic across the multiple web server instances.
- Amazon EFS created and automatically mounted on web server instances to store shared media files.
- Auto Scaling enabled to automatically increase capacity if there is a demand spike, and to reduce capacity during low traffic times. The default installation sets up low and high CPU-based thresholds for scaling the instance capacity up or down. You can modify these thresholds during launch and after deployment.
- An IAM instance role with fine-grained permissions for access to AWS services necessary for the deployment process.
- Appropriate security groups for each instance or function to restrict access to only necessary protocols and ports. For example, access to HTTP server ports on Amazon



EC2 web servers is limited to Elastic Load Balancing. The security groups also restrict access to Amazon RDS DB instances by web server instances.

## Magento Components

This Quick Start deploys Magento Open Source v2.1.9 with the following prerequisite software:

- Operating system: Amazon Linux x86-64
- Web server: NGINX
- Database: Amazon RDS for MySQL 5.6 or Amazon Aurora
- Programming language: PHP 7, including the required extensions

This Quick Start also optionally deploys Magento sample data, which lets you experiment with custom themes and view the web store. If you choose to install Magento software with sample data, the Quick Start mounts an Amazon EFS file system as a drive within the web server nodes and installs common media assets in the Amazon EFS file system.

For more information about these utilities, see [Install the Magento archive on your server](#) on the Magento website.

## Design Considerations

Magento is a robust e-commerce platform that can be deployed with a variety of options, depending on your needs. This Quick Start provides a great starting point for building your e-commerce solution rapidly with Magento on the AWS Cloud. The following sections discuss design considerations for large-scale deployments and options for optimizing performance.

### Amazon Aurora and Amazon RDS for MySQL

By default, this Quick Start uses Amazon Aurora, but you can deploy Amazon RDS for MySQL instead by setting a template parameter during deployment. If you choose Amazon Aurora, but it's not available in the selected AWS Region (please check the [region table](#)), you will not be able to launch the Quick Start.

Amazon Aurora is a MySQL 5.6-compatible [relational database](#) engine that combines the speed and availability of high-end commercial databases with the simplicity and cost-effectiveness of open source databases. It provides up to five times better performance than

MySQL, and the security, availability, and reliability of a commercial database at one-tenth the cost. See the [Amazon Aurora Pricing](#) page for further details.

Amazon RDS deployments are preconfigured with a set of parameters and settings appropriate for the DB instance class you choose. Amazon RDS supports automatic software patching, database backups, backup storage for a user-defined retention period, and point-in-time recovery.

Amazon RDS supports three types of storage: Magnetic, General Purpose (SSD), and Provisioned IOPS (SSD). General Purpose (SSD) storage delivers a consistent baseline of 3 IOPS per provisioned GiB and provides the ability to burst up to 3,000 IOPS. To achieve a higher level of performance, consider using Provisioned IOPS (SSD) to provision from 1,000 IOPS up to 30,000 IOPS per DB instance. (Maximum realized IOPS may be lower.) You can provision up to 3 TiB storage and 30,000 IOPS per database instance. We recommend using Magnetic storage for small database workloads where data is accessed less frequently. Note that you can convert from standard storage to Provisioned IOPS storage on a running cluster. (There is a short availability impact on the servers.)

To enhance availability and reliability for production workloads, you should use the Multi-AZ deployment option. This provides an automated failover from the primary database to a synchronously replicated secondary database that is running in a different Availability Zone. This option also enables you to scale out beyond the capacity of a single database for read-heavy database workloads.

## Amazon EC2 Web Server Instances

The deployment installs NGINX on EC2 instances running Amazon Linux x86-64. Elastic Load Balancing is used to automatically distribute the website load across these instances. In addition, all the instances are launched in an Auto Scaling group that dynamically manages the Amazon EC2 fleet. The deployment sets low and high CPU utilization thresholds to automatically scale the number of EC2 instances up or down depending on load. Default policy adds new instances when the CPU load exceeds 90% for 10 minutes, and removes instances when the CPU load drops below 70% for 10 minutes.

You can specify the maximum number of instances in the Auto Scaling group, and Auto Scaling ensures that your group never goes above this size. You can also specify the desired capacity, either when you create the group or at any time thereafter, and Auto Scaling will ensure that your group has the desired number of instances. These options are configurable during Quick Start launch.

The Quick Start supports a variety of EC2 instance types. We recommend that you benchmark the cluster to make sure you achieve the level of performance you need before starting a production deployment. For high availability, we recommend using at least two web server instances in different Availability Zones.

## Amazon EFS

When you deploy Magento with this Quick Start, you can use the Magento archive (tar file) with sample Magento data. (For details, see the [Download](#) section of the Magento website.) If you choose this option, the common media assets derived from the samples are stored in Amazon EFS.

Amazon EFS is a file storage service with a simple interface that enables you to create and configure file systems quickly and easily. Multiple EC2 instances can access an Amazon EFS file system at the same time, providing a common data source for workloads and applications running on more than one instance.

## Amazon ElastiCache

Amazon ElastiCache is a web service that helps you deploy and operate an in-memory cache in the AWS Cloud. This Quick Start automatically deploys an ElastiCache cluster using the Redis caching engine. ElastiCache reduces the operational overhead involved in deploying a distributed caching environment, and provides a way to improve application load times. For more information, see the [Amazon ElastiCache documentation](#).

# Deployment Options

This Quick Start provides two deployment options:

- **Deploy Magento into a new VPC** (end-to-end deployment). This option builds a new AWS environment consisting of the VPC, subnets, NAT gateways, security groups, and other infrastructure components, and then deploys Magento into this new VPC.
- **Deploy Magento into an existing VPC**. This option provisions Magento in your existing AWS infrastructure.

The Quick Start also lets you configure additional settings such as CIDR blocks, instance types, and Magento settings, as discussed later in this guide.

# Deployment Steps

The procedure for deploying a Magento cluster on AWS consists of the following steps. For detailed instructions, follow the links for each step.

## [Step 1. Prepare an AWS account](#)

Sign up for an AWS account, choosing a region, creating a key pair, and requesting increases for account limits, if necessary.

## [Step 2. Download the Magento software](#)

Create a free [Magento account](#), download Magento Open Source either with or without sample data, and place the software in an S3 bucket.

## [Step 3. Launch the Quick Start](#)

Launch the AWS CloudFormation template into your AWS account, specify parameter values, and create the stack. The Quick Start provides separate templates for end-to-end deployment and deployment into an existing VPC.

## [Step 4. Test your Magento deployment](#)

In this step, you'll validate the installation of the AWS and Magento components. You'll also validate the sample web store if you installed Magento with optional sample data.

## Step 1. Prepare an AWS Account

1. If you don't already have an AWS account, create one at <http://aws.amazon.com> by following the on-screen instructions. Part of the sign-up process involves receiving a phone call and entering a PIN using the phone keypad.
2. Use the region selector in the navigation bar to choose the AWS Region where you want to deploy the Magento cluster on AWS. For more information, see [Regions and Availability Zones](#). Regions are dispersed and located in separate geographic areas. Each Region includes at least two Availability Zones that are isolated from one another but connected through low-latency links.

**Important** This Quick Start uses Amazon EFS and Amazon Aurora, which may not be available in all AWS Regions. Before you launch this Quick Start, please check the [region table](#) for availability.

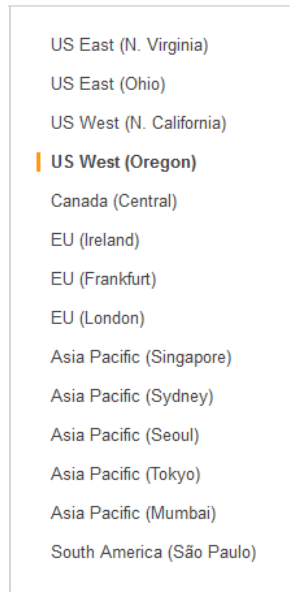


Figure 2: Choosing an AWS Region

**Tip** Consider choosing a region closest to your data center or corporate network to reduce network latency between systems running on AWS and the systems and users on your corporate network.

3. Create a [key pair](#) in your preferred region. To do this, in the navigation pane of the Amazon EC2 console, choose **Key Pairs**, **Create Key Pair**, type a name, and then choose **Create**.

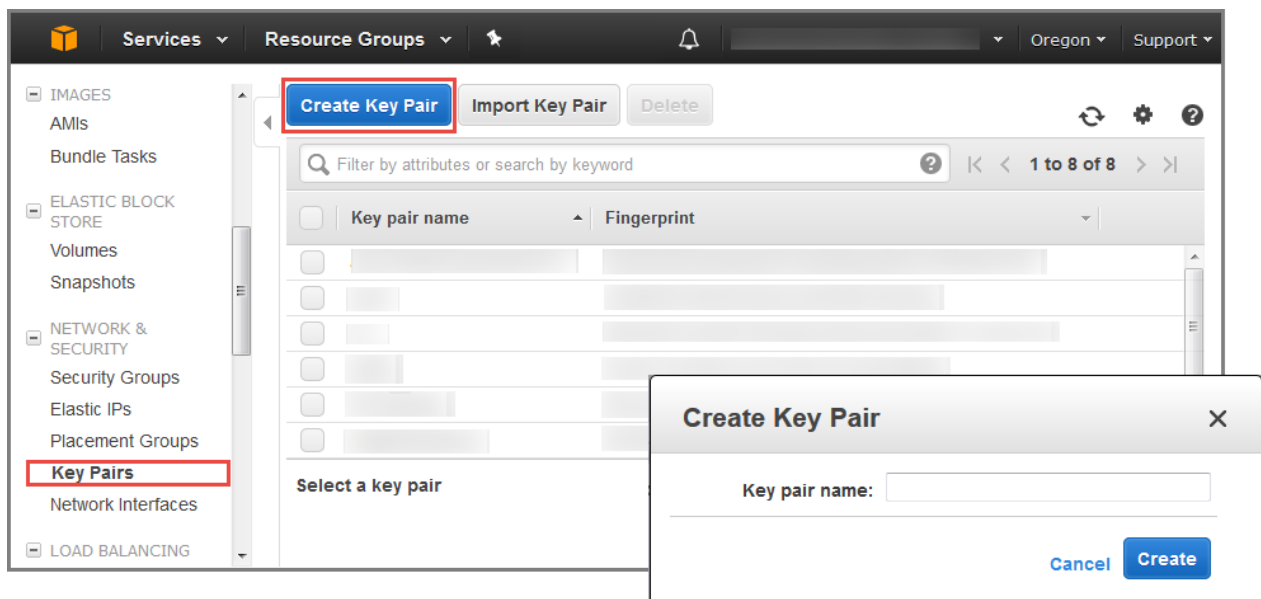


Figure 3: Creating a key pair

Amazon EC2 uses public-key cryptography to encrypt and decrypt login information. To be able to log in to your instances, you must create a key pair. On Linux, we use the key pair to authenticate SSH login.

4. If necessary, [request a service limit increase](#) for the EC2 instance types that you intend to deploy. To do this, in the AWS Support Center, choose **Create Case, Service Limit Increase, EC2 instances**, and then complete the fields in the limit increase form.

The default limit for the number of instances depends on the instance type you choose and currently ranges from 2 to 20 (see the [Amazon EC2 FAQs page](#)). If you have existing deployments that also use this instance type, or if you plan to exceed the default with this reference deployment, you will need to request a limit increase. It might take a few days for the new service limit to become effective. For more information, see [Amazon EC2 Service Limits](#) in the AWS documentation.

The screenshot shows the AWS Support Center interface. On the left, a sidebar contains 'Dashboard', 'Create Case' (highlighted with a red box), and 'Case History'. The main area is titled 'Create Case' and shows the 'Basic Support Plan' with a 'Change' link. The form includes fields for 'Name' and 'Account'. Under 'Regarding\*', the 'Service Limit Increase' radio button is selected and highlighted with a red box. Below this, the 'Limit Type\*' dropdown is set to 'EC2 Instances' and is also highlighted with a red box. A 'Request 1' section contains the following fields: 'Region\*' (US East (Ohio)), 'Primary Instance' (c4.8xlarge), 'Type\*' (Instance Limit), and 'New limit value\*' (25). The 'Limit\*' dropdown is set to 'Instance Limit'.

Figure 4: Requesting a service limit increase

## Step 2. Download the Magento Software

Before you launch the Quick Start, you must download the Magento Open Source software with or without sample data into an S3 bucket. When you launch the Quick Start, you specify the full path to the downloaded files as input to the main AWS CloudFormation template, and the Quick Start automatically installs Magento for you.

1. If you don't already have a Magento account (which is free), [create an account](#).
2. Download the Magento Open Source (formerly Community Edition) version 2.1.9 **full release** from the [Magento Download Releases, Patches and Tools](#) page. Choose the .tar.gz format for the download. At the time of publication, the latest full release was `Magento-CE-2.1.9_sample_data-2017-09-13-03-57-21.tar.gz`.

—or—

If you want to set up the sample store, download the Magento Open Source (formerly Community Edition) version 2.1.9 **full release with sample data** from the [Magento Download Releases, Patches and Tools](#) page. Choose the .tar.gz format for the download (for example, `Magento-CE-2.1.9_sample_data-2017-09-13-03-57-21.tar.gz`).

5. Create an S3 bucket by following the [instructions](#) in the *Amazon S3 Getting Started Guide*.
6. Add the downloaded files to the S3 bucket by following the [instructions](#) in the *Amazon S3 Getting Started Guide*.
7. Note the full paths to the downloaded files. After you launch the Quick Start, when you set parameters for the AWS CloudFormation template, you'll specify these paths.

For example, if your S3 bucket is named `mymagentobucket`, you'll set the **MagentoReleaseMedia** parameter to:

```
https://s3.amazonaws.com/mymagentobucket/Magento-CE-2.1.9-2017-09-13-03-35-18.tar.gz
```

If you've downloaded Magento with sample data to `mymagentobucket`, you'll set the **MagentoReleaseMedia** parameter to:

```
https://s3.amazonaws.com/mymagentobucket/Magento-CE-2.1.9_sample_data-2017-09-13-03-57-21.tar.gz
```

## 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.

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	Option 2
Deploy Magento into a new VPC on AWS	Deploy Magento into an existing VPC on AWS
<a href="#">Launch</a>	<a href="#">Launch</a>

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

Each deployment takes approximately 30-60 minutes to create, depending on whether you chose to download Magento with sample data in [step 2](#).

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 Magento will be built. The template is launched in the US West (Oregon) Region by default.

**Important** This Quick Start uses Amazon EFS and Amazon Aurora, which may not be available in all AWS Regions. Before you launch this Quick Start, please check the [region table](#) for availability.

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 Magento into a new VPC](#)
- [Parameters for deploying Magento into an existing VPC](#)

- **Option 1: Parameters for deploying Magento into a new VPC**

[View template](#)

#### *VPC Network Configuration:*

We recommend that you use the default values for the CIDR block parameters unless you're an experienced network administrator.

Parameter label (name)	Default	Description
<b>Availability Zones</b> (AvailabilityZones)	<i>Requires input</i>	Choose two Availability Zones that will be used to deploy the components for Magento. The Quick Start preserves the logical order you specify.
<b>VPC CIDR</b> (VPCCIDR)	10.0.0.0/16	CIDR block for the VPC to create.
<b>Private subnet 1 CIDR</b> (PrivateSubnet1CIDR)	10.0.0.0/19	CIDR block for the private subnet in Availability Zone 1.
<b>Private subnet 2 CIDR</b> (PrivateSubnet2CIDR)	10.0.32.0/19	CIDR block for the private subnet in Availability Zone 2.
<b>Public subnet 1 CIDR</b> (PublicSubnet1CIDR)	10.0.128.0/20	CIDR block for the public subnet in Availability Zone 1.
<b>Public subnet 2 CIDR</b> (PublicSubnet2CIDR)	10.0.144.0/20	CIDR block for the public subnet in Availability Zone 2.
<b>Allowed bastion external access CIDR</b> (RemoteAccessCIDR)	<i>Requires input</i>	The CIDR IP range for external SSH access to the bastion host instances. We recommend that you set this value to a trusted CIDR block. For example, you might want to grant only your corporate network access to the software.
<b>Permitted IP range</b> (AccessCIDR)	<i>Requires input</i>	The CIDR IP range that is permitted to access Magento instances. Note that a value of 0.0.0.0/0 will allow access from any IP address.

*Amazon EC2 Configuration:*

Parameter label (name)	Default	Description
<b>Key pair name</b> (KeyPairName)	<i>Requires input</i>	An existing public/private key pair, which allows you to connect securely to your instance after it launches. This is the key pair you created in <a href="#">step 1</a> , when you prepared your AWS account.
<b>Bastion AMI OS</b> (BastionAMIOS)	Amazon-Linux-HVM	The Linux distribution for the AMI to be used for the bastion host instances. If you choose CentOS, make sure that you have a subscription to the <a href="#">CentOS AMI in AWS Marketplace</a> .
<b>Bastion instance type</b> (BastionInstanceType)	t2.micro	EC2 instance type for the bastion host instances.
<b>Web server cluster node instance type</b> (WebServerInstanceType)	m4.large	EC2 instance type for web server instances.
<b>Minimum number of web server instances</b> (WebServerMinSize)	1	Minimum number of EC2 instances in the Auto Scaling group of web servers.
<b>Maximum number of web server instances</b> (WebServerMaxSize)	1	Maximum number of EC2 instances in the Auto Scaling group of web servers.
<b>Desired number of web server instances</b> (WebServerDesiredCapacity)	1	Desired number of EC2 instances in the Auto Scaling group before deployment is considered successful.

*Amazon RDS (Aurora/MySQL) Configuration:*

Parameter label (name)	Default	Description
<b>DB engine</b> (DBEngineType)	Amazon Aurora	Database engine to use for Magento database. Choose Amazon Aurora or MySQL.
<b>Amazon Aurora/MySQL DB instance type</b> (DBInstanceClass)	db.r3.2xlarge	The name of the compute and memory capacity class of the Amazon RDS (Aurora/MySQL) DB instance.
<b>DB name</b> (DBName)	MagentoQuickstartDB	Name of the initial database for the Amazon RDS instance. This is a 5-64 character string. It must begin with a letter and contain only uppercase and lowercase letters and numbers.
<b>Enable Multi-AZ deployment for DB instance</b> (DBMultiAZ)	true	Set to <b>false</b> if Multi-AZ RDS deployment isn't needed.
<b>DB master user name</b> (DBMasterUsername)	admin	User name for the database administrator account.

Parameter label (name)	Default	Description
<b>DB master password</b> (DBMasterUserPassword)	<i>Requires input</i>	Password for the database administrator account. The password must be at least 8 characters, consisting of uppercase and lowercase letters, numbers, and symbols.
<b>DB storage size (in GiB)</b> (DBAllocatedStorage)	16	Size of the database (in GiB). You can enter a value between 5 and 4,096 GiB. If you set the <b>DB Storage Type</b> parameter to <b>io1</b> (Provisional IOPS), you must allocate at least 100 GiB in storage, and the <b>DB IOPS</b> value must be 1,000 at the minimum.
<b>DB storage type</b> (DBStorageType)	gp2	Storage type associated with the database instance. You can choose <b>standard</b> (Magnetic), <b>gp2</b> (General Purpose SSD), or <b>io1</b> (Provisioned IOPS SSD).
<b>DB IOPS</b> (DBIops)	1000	Provisioned IOPS for DB storage. Used only when you set the <b>DBStorageType</b> parameter to <b>io1</b> (that is, Provisioned IOPS).
<b>Automatic upgrade to new Amazon Aurora/MySQL minor versions</b> (DBAutoMinorVersionUpgrade)	true	Determines whether the DB instance will automatically be upgraded to new Amazon Aurora or MySQL minor versions as they are supported by Amazon RDS. Set to <b>false</b> to disable auto-upgrades.
<b>DB backup retention period</b> (DBBackupRetentionPeriod)	7	Number of days for which automatic DB snapshots are retained.

### Amazon ElastiCache Configuration:

Parameter label (name)	Default	Description
<b>ElastiCache automatic failover</b> (ElastiCacheAutomaticFailover)	true	Automatic failover setup. Select <b>false</b> to disable automatic failover.
<b>ElastiCache node type</b> (ElastiCacheNodeType)	cache.m4.large	Name of the compute and memory capacity class of the ElastiCache instance.
<b>Number of ElastiCache nodes</b> (ElastiCacheNodes)	2	Number of nodes in the ElastiCache cluster. This must be a value between 2 and 5.

### Magento Configuration:

Parameter label (name)	Default	Description
<b>Public DNS name</b> (DNSName)	<i>Optional</i>	DNS name for the Magento site. If you provide a DNS name, you should create an alias for the ELB load balancer after stack creation.
<b>Administrator first name</b> (AdminFirstName)	<i>Requires input</i>	First name of the Magento site administrator.
<b>Administrator last name</b> (AdminLastName)	<i>Requires input</i>	Last name of the Magento site administrator.

Parameter label (name)	Default	Description
<b>Administrator email</b> (AdminEmail)	<i>Requires input</i>	Email of the Magento site administrator.
<b>Administrator user name</b> (AdminUserName)	<i>Requires input</i>	User name of the Magento site administrator.
<b>Administrator password</b> (AdminPassword)	<i>Requires input</i>	Password of the Magento site administrator. The password must be at least 8 characters, consisting of uppercase and lowercase letters, numbers, and symbols.
<b>Email address to notify</b> (NotificationEmail)	<i>Requires input</i>	Email address to notify if there are any scaling operations.
<b>Magento currency</b> (MagentoCurrency)	USD	The currency you'd like to use to display prices in the Magento store.
<b>Magento language</b> (MagentoLanguage)	en_US	The language you'd like to use for the text that appears throughout the Magento store.
<b>Magento timezone</b> (MagentoTimezone)	America/ Los_Angeles	The time zone setting that specifies the primary market served by the Magento store.
<b>S3 file path to download Magento</b> (MagentoReleaseMedia)	<i>Requires input</i>	The full path to the Magento tar.gz file downloaded in <a href="#">step 2</a> , entered as <code>https://s3.amazonaws.com/mybucket/magento.tar.gz-file</code> .
<b>SSL certificate ARN</b> (SSLCertificateId)	<i>Optional</i>	The ARN of the SSL certificate to use for the web server.

### *AWS Quick Start Configuration:*

Parameter label (name)	Default	Description
<b>Quick Start S3 bucket name</b> (QSS3BucketName)	quickstart- reference	S3 bucket name for the Quick Start assets. The bucket name can include numbers, lowercase letters, uppercase letters, and hyphens (-). It cannot start or end with a hyphen (-).
<b>Quick Start S3 key prefix</b> (QSS3KeyPrefix)	magento/latest/	S3 key prefix for the Quick Start assets. The key prefix can include numbers, lowercase letters, uppercase letters, hyphens (-), and forward slashes (/).

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

[View template](#)

#### *VPC Network Configuration:*

Parameter label (name)	Default	Description
<b>VPC ID</b> (VPCID)	<i>Requires input</i>	ID of your existing VPC (e.g., vpc-0343606e).
<b>VPC CIDR</b> (VPCCIDR)	<i>Requires input</i>	The CIDR block for your existing VPC (e.g., 10.0.0.0/16).
<b>Private subnet 1 ID</b> (PrivateSubnet1ID)	<i>Requires input</i>	ID of the private subnet in Availability Zone 1 in your existing VPC (e.g., subnet-a0246dcd).
<b>Private subnet 2 ID</b> (PrivateSubnet2ID)	<i>Requires input</i>	ID of the private subnet in Availability Zone 2 in your existing VPC (e.g., subnet-b58c3d67).
<b>Public subnet 1 ID</b> (PublicSubnet1ID)	<i>Requires input</i>	ID of the public subnet in Availability Zone 1 in your existing VPC.
<b>Public subnet 2 ID</b> (PublicSubnet2ID)	<i>Requires input</i>	ID of the public subnet in Availability Zone 2 in your existing VPC.
<b>Permitted IP range</b> (AccessCIDR)	<i>Requires input</i>	The CIDR IP range that is permitted to access Magento instances. Note that a value of 0.0.0.0/0 will allow access from any IP address.

#### *Amazon EC2 Configuration:*

Parameter label (name)	Default	Description
<b>Key pair name</b> (KeyPairName)	<i>Requires input</i>	An existing public/private key pair, which allows you to connect securely to your instance after it launches. This is the key pair you created in <a href="#">step 1</a> , when you prepared your AWS account.
<b>Web server cluster node instance type</b> (WebServerInstanceType)	m4.large	EC2 instance type for web server instances.
<b>Minimum number of web server instances</b> (WebServerMinSize)	1	Minimum number of EC2 instances in the Auto Scaling group of web servers.
<b>Maximum number of web server instances</b> (WebServerMaxSize)	1	Maximum number of EC2 instances in the Auto Scaling group of web servers.
<b>Desired number of web server instances</b> (WebServerDesiredCapacity)	1	Desired number of EC2 instances in the Auto Scaling group before deployment is considered successful.

*Amazon RDS (Aurora/MySQL) Configuration:*

Parameter label (name)	Default	Description
<b>DB engine</b> (DBEngineType)	Amazon Aurora	Database engine to use for Magento database. Choose Amazon Aurora or MySQL.
<b>Amazon Aurora/MySQL DB instance type</b> (DBInstanceClass)	db.r3.2xlarge	The name of the compute and memory capacity class of the Amazon RDS (Aurora/MySQL) DB instance.
<b>DB name</b> (DBName)	MagentoQuickstartDB	Name of the initial database for the Amazon RDS instance. This is a 5-64 character string. It must begin with a letter and contain only uppercase and lowercase letters and numbers.
<b>Enable Multi-AZ deployment for DB instance</b> (DBMultiAZ)	true	Set to <b>false</b> if Multi-AZ RDS deployment isn't needed.
<b>DB master user name</b> (DBMasterUsername)	admin	User name for the database administrator account.
<b>DB master password</b> (DBMasterUserPassword)	<i>Requires input</i>	Password for the database administrator account. The password must be at least 8 characters, consisting of uppercase and lowercase letters, numbers, and symbols.
<b>DB storage size (in GiB)</b> (DBAllocatedStorage)	16	Size of the database (in GiB). You can enter a value between 5 and 4,096 GiB. If you set the <b>DB Storage Type</b> parameter to <b>io1</b> (Provisional IOPS), you must allocate at least 100 GiB in storage, and the <b>DB IOPS</b> value must be 1,000 at the minimum.
<b>DB storage type</b> (DBStorageType)	gp2	Storage type associated with the database instance. You can choose <b>standard</b> (Magnetic), <b>gp2</b> (General Purpose SSD), or <b>io1</b> (Provisioned IOPS SSD).
<b>DB IOPS</b> (DBIops)	1000	Provisioned IOPS for DB storage. Used only when you set the <b>DBStorageType</b> parameter to <b>io1</b> (that is, Provisioned IOPS).
<b>Automatic upgrade to new Amazon Aurora/MySQL minor versions</b> (DBAutoMinorVersionUpgrade)	true	Determines whether the DB instance will automatically be upgraded to new Amazon Aurora or MySQL minor versions as they are supported by Amazon RDS. Set to <b>false</b> to disable auto-upgrades.
<b>DB backup retention period</b> (DBBackupRetentionPeriod)	7	Number of days for which automatic DB snapshots are retained.

*Amazon ElastiCache Configuration:*

Parameter label (name)	Default	Description
<b>ElastiCache automatic failover</b> (ElastiCacheAutomaticFailover)	true	Automatic failover setup. Select <b>false</b> to disable automatic failover.
<b>ElastiCache node type</b> (ElastiCacheNodeType)	cache.m4.large	Name of the compute and memory capacity class of the ElastiCache instance.
<b>Number of ElastiCache nodes</b> (ElastiCacheNodes)	2	Number of nodes in the ElastiCache cluster. This must be a value between 2 and 5.

*Magento Configuration:*

Parameter label (name)	Default	Description
<b>Public DNS name</b> (DNSName)	<i>Optional</i>	DNS name for the Magento site. If you provide a DNS name, you should create an alias for the ELB load balancer after stack creation.
<b>Administrator first name</b> (AdminFirstName)	<i>Requires input</i>	First name of the Magento site administrator.
<b>Administrator last name</b> (AdminLastName)	<i>Requires input</i>	Last name of the Magento site administrator.
<b>Administrator email</b> (AdminEmail)	<i>Requires input</i>	Email of the Magento site administrator.
<b>Administrator user name</b> (AdminUserName)	<i>Requires input</i>	User name of the Magento site administrator.
<b>Administrator password</b> (AdminPassword)	<i>Requires input</i>	Password of the Magento site administrator. The password must be at least 8 characters, consisting of uppercase and lowercase letters, numbers, and symbols.
<b>Email address to notify</b> (NotificationEmail)	<i>Requires input</i>	Email address to notify if there are any scaling operations.
<b>Magento currency</b> (MagentoCurrency)	USD	The currency you'd like to use to display prices in the Magento store.
<b>Magento language</b> (MagentoLanguage)	en_US	The language you'd like to use for the text that appears throughout the Magento store.
<b>Magento timezone</b> (MagentoTimezone)	America/Los_Angeles	The time zone setting that specifies the primary market served by the Magento store.
<b>S3 file path to download Magento</b> (MagentoReleaseMedia)	<i>Requires input</i>	The full path to the Magento tar.gz file downloaded in <a href="#">step 2</a> , entered as <code>https://s3.amazonaws.com/mybucket/magento.tar.gz-file</code> .

Parameter label (name)	Default	Description
<b>SSL certificate ARN</b> (SSLCertificateId)	<i>Optional</i>	The ARN of the SSL certificate to use for the web server.

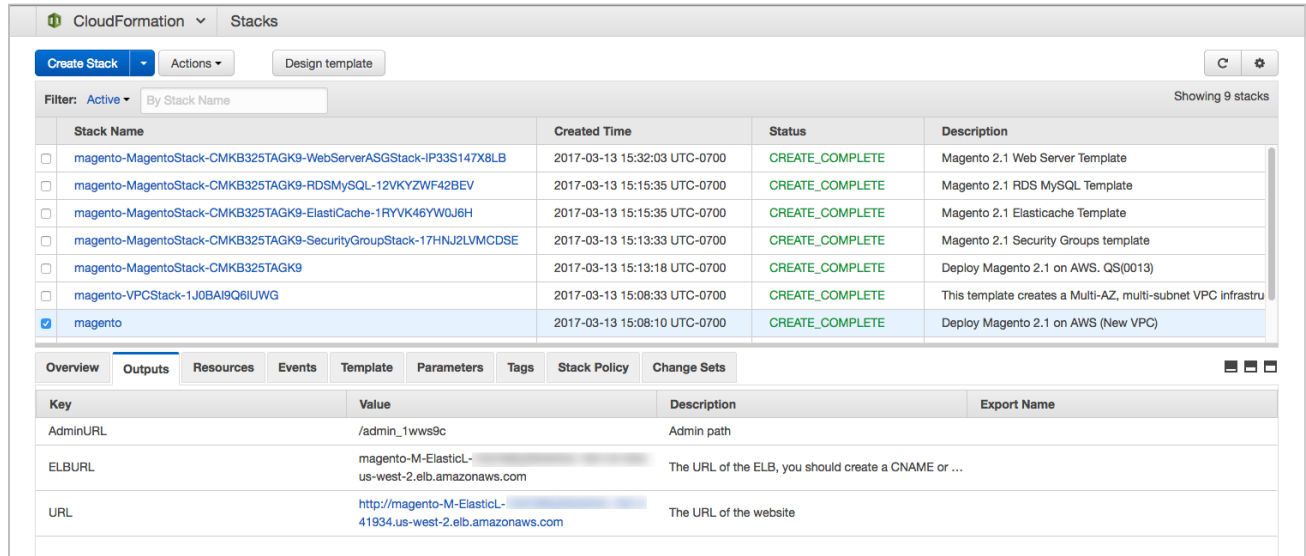
### *AWS Quick Start Configuration:*

Parameter label (name)	Default	Description
<b>Quick Start S3 bucket name</b> (QSS3BucketName)	quickstart-reference	S3 bucket name for the Quick Start assets. The bucket name can include numbers, lowercase letters, uppercase letters, and hyphens (-). It cannot start or end with a hyphen (-).
<b>Quick Start S3 key prefix</b> (QSS3KeyPrefix)	magento/latest/	S3 key prefix for the Quick Start assets. The key prefix can include numbers, lowercase letters, uppercase letters, hyphens (-), and forward slashes (/).

2. 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**.
3. 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.
4. Choose **Create** to deploy the stack.
5. Monitor the status of the stack. When the status is **CREATE\_COMPLETE**, as shown in Figure 5, the Magento cluster is ready.

**Note** This Quick Start deployment is automated by nested AWS CloudFormation templates. The main template builds the network-related resources first, using the VPC template, and then launches four separate templates for security groups, Amazon ElastiCache, web server instances, and Amazon Aurora or Amazon RDS MySQL. Deleting the main template deletes the entire stack.





Stack Name	Created Time	Status	Description
magento-MagentoStack-CMKB325TAGK9-WebServerASGStack-IP33S147X8LB	2017-03-13 15:32:03 UTC-0700	CREATE_COMPLETE	Magento 2.1 Web Server Template
magento-MagentoStack-CMKB325TAGK9-RDSMySQL-12VKYZWF42BEV	2017-03-13 15:15:35 UTC-0700	CREATE_COMPLETE	Magento 2.1 RDS MySQL Template
magento-MagentoStack-CMKB325TAGK9-ElastiCache-1RYVK46YW0J6H	2017-03-13 15:15:35 UTC-0700	CREATE_COMPLETE	Magento 2.1 ElastiCache Template
magento-MagentoStack-CMKB325TAGK9-SecurityGroupStack-17HNJ2LVMCDSE	2017-03-13 15:13:33 UTC-0700	CREATE_COMPLETE	Magento 2.1 Security Groups template
magento-MagentoStack-CMKB325TAGK9	2017-03-13 15:13:18 UTC-0700	CREATE_COMPLETE	Deploy Magento 2.1 on AWS. QS[0013]
magento-VPCStack-1J0BAI9Q8IUWG	2017-03-13 15:08:33 UTC-0700	CREATE_COMPLETE	This template creates a Multi-AZ, multi-subnet VPC infrastru
<b>magento</b>	2017-03-13 15:08:10 UTC-0700	CREATE_COMPLETE	Deploy Magento 2.1 on AWS (New VPC)

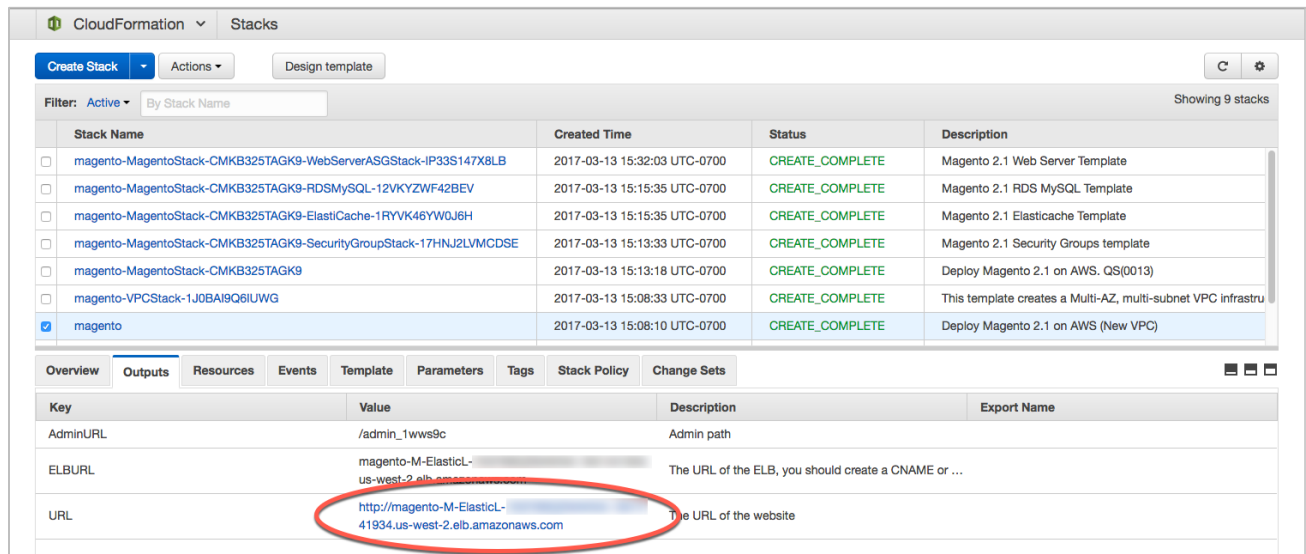
  

Key	Value	Description	Export Name
AdminURL	/admin_1wws9c	Admin path	
ELBURL	magento-M-ElasticL- us-west-2.elb.amazonaws.com	The URL of the ELB, you should create a CNAME or ...	
URL	http://magento-M-ElasticL- 41934.us-west-2.elb.amazonaws.com	The URL of the website	

Figure 5: Successful creation of the Magento cluster

## Step 4. Test Your Magento Deployment

When the AWS CloudFormation template has successfully created the stack, all web server nodes will be running with the software installed in your AWS account. To connect to the Magento stack, use the URL of the Elastic Load Balancing endpoint, as shown in Figure 6.



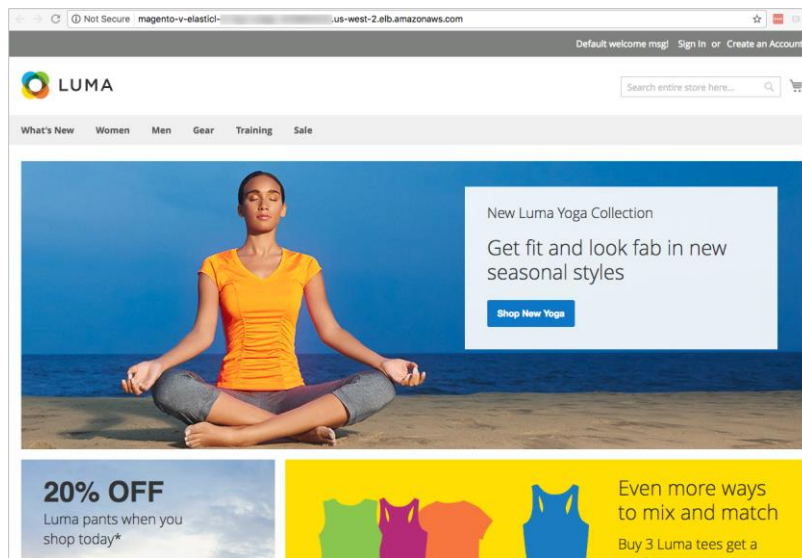
Stack Name	Created Time	Status	Description
magento-MagentoStack-CMKB325TAGK9-WebServerASGStack-IP33S147X8LB	2017-03-13 15:32:03 UTC-0700	CREATE_COMPLETE	Magento 2.1 Web Server Template
magento-MagentoStack-CMKB325TAGK9-RDSMySQL-12VKYZWF42BEV	2017-03-13 15:15:35 UTC-0700	CREATE_COMPLETE	Magento 2.1 RDS MySQL Template
magento-MagentoStack-CMKB325TAGK9-ElastiCache-1RYVK46YW0J6H	2017-03-13 15:15:35 UTC-0700	CREATE_COMPLETE	Magento 2.1 ElastiCache Template
magento-MagentoStack-CMKB325TAGK9-SecurityGroupStack-17HNJ2LVMCDSE	2017-03-13 15:13:33 UTC-0700	CREATE_COMPLETE	Magento 2.1 Security Groups template
magento-MagentoStack-CMKB325TAGK9	2017-03-13 15:13:18 UTC-0700	CREATE_COMPLETE	Deploy Magento 2.1 on AWS. QS[0013]
magento-VPCStack-1J0BAI9Q8IUWG	2017-03-13 15:08:33 UTC-0700	CREATE_COMPLETE	This template creates a Multi-AZ, multi-subnet VPC infrastru
<b>magento</b>	2017-03-13 15:08:10 UTC-0700	CREATE_COMPLETE	Deploy Magento 2.1 on AWS (New VPC)

Key	Value	Description	Export Name
AdminURL	/admin_1wws9c	Admin path	
ELBURL	magento-M-ElasticL- us-west-2.elb.amazonaws.com	The URL of the ELB, you should create a CNAME or ...	
URL	http://magento-M-ElasticL- 41934.us-west-2.elb.amazonaws.com	The URL of the website	

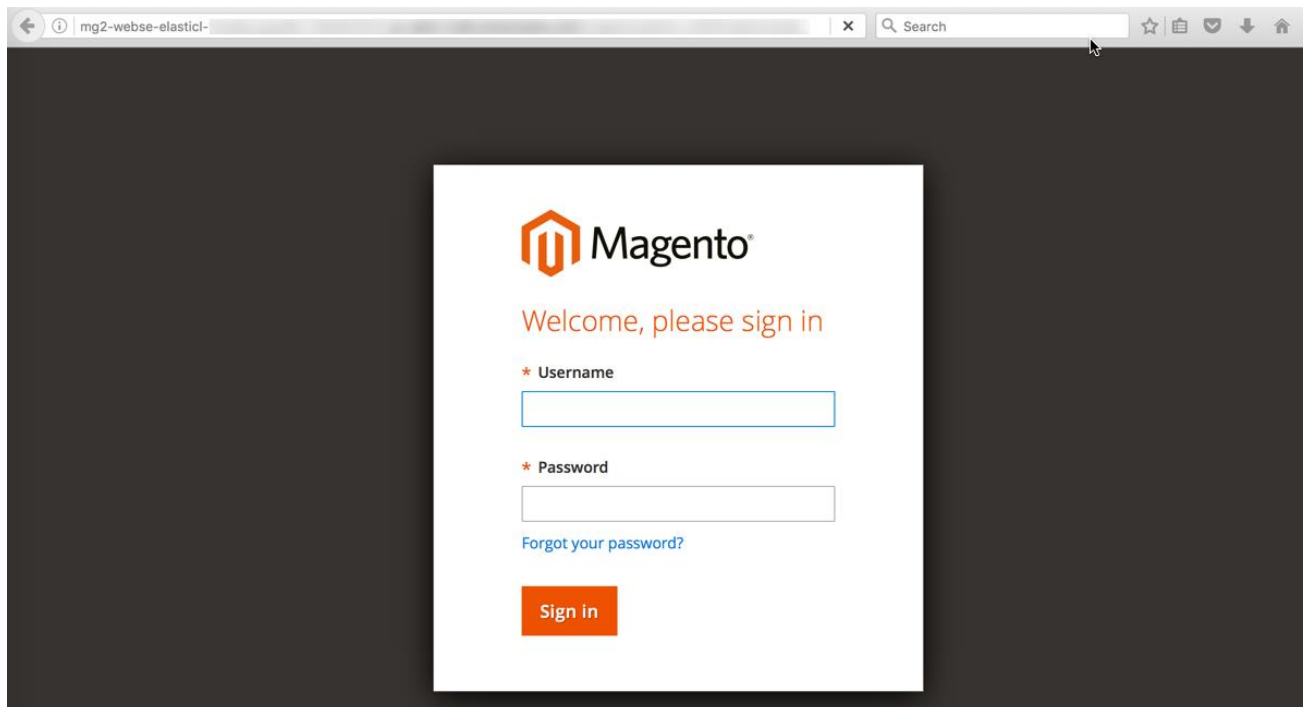
Figure 6: Elastic Load Balancing endpoint URL for the Magento stack

This URL brings up the Magento store home page when you've installed the Magento software with sample data, as shown in Figure 7.



**Figure 7: Magento store when installed with sample data**

You can access the Magento Admin Panel by going to the URL endpoint followed by the admin path. You can log in with the user name and password you chose when creating the stack. Make sure to change the user name and password for subsequent logins to help ensure the security of your account.

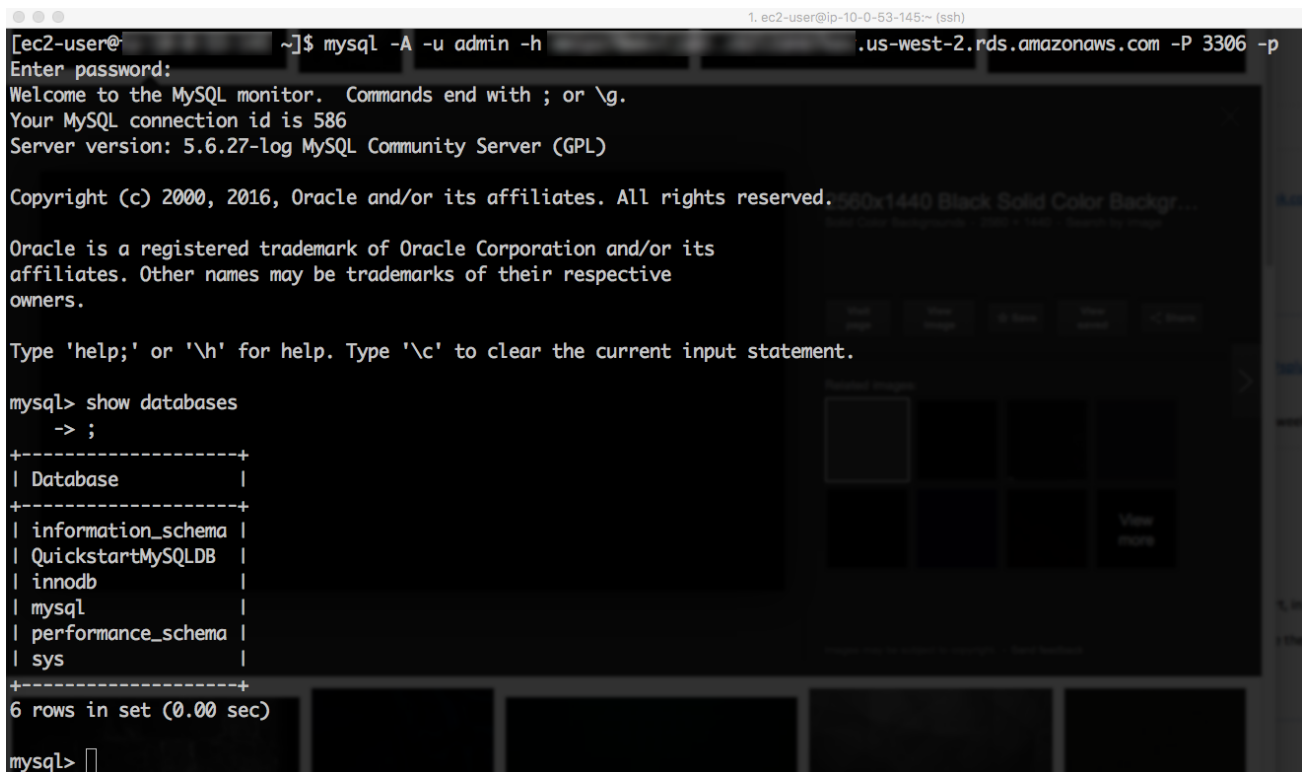


**Figure 8: Logging in to the Magento Admin Panel**

To connect to the web server instance and validate MySQL, use SSH to connect to the bastion host instance in your VPC. Use an SSH agent to forward your private key on connection. For more information about SSH agents, see the [GitHub documentation](#).

**Important** Do not copy your private key to the bastion host instance.

You can test MySQL connectivity from the web server instance as shown in Figure 9. Because Amazon Aurora is compatible with MySQL 5.6, you can use the same tools to connect to the deployed Amazon Aurora database as you would for Amazon RDS for MySQL.

A screenshot of a terminal window titled "1. ec2-user@ip-10-0-53-145~ (ssh)". The terminal shows the command `mysql -A -u admin -h .us-west-2.rds.amazonaws.com -P 3306 -p` being executed. The MySQL prompt shows a successful connection to the MySQL monitor. The user enters the command `show databases`, and the terminal displays a list of databases: `information_schema`, `QuickstartMySQLDB`, `innodb`, `mysql`, `performance_schema`, and `sys`. The output indicates "6 rows in set (0.00 sec)".

```
[ec2-user@~]$ mysql -A -u admin -h .us-west-2.rds.amazonaws.com -P 3306 -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 586
Server version: 5.6.27-log MySQL Community Server (GPL)

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> show databases
+-----+
| Database |
+-----+
| information_schema |
| QuickstartMySQLDB |
| innodb |
| mysql |
| performance_schema |
| sys |
+-----+
6 rows in set (0.00 sec)

mysql>
```

Figure 9: Testing MySQL connectivity

## Troubleshooting

**Q.** I encountered a `CREATE_FAILED` error when I launched the Quick Start. What should I do?

**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. (You may want to look at the log file `/var/log/cloud-init.log` for additional details about the cause of the failure.)

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

For additional information, see [Troubleshooting AWS CloudFormation](#) 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 location we've provided 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](#).

## Security

The AWS Cloud provides a scalable, highly reliable platform that helps customers deploy applications and data quickly and securely.

When you build systems on the AWS infrastructure, security responsibilities are shared between you and AWS. This shared model can reduce your operational burden as AWS operates, manages, and controls the components from the host operating system and virtualization layer down to the physical security of the facilities in which the services operate. In turn, you assume responsibility and management of the guest operating system (including updates and security patches), other associated applications, as well as the

configuration of the AWS-provided security group firewall. For more information about security on AWS, visit the [AWS Security Center](#).

## AWS Identity and Access Management (IAM)

This solution leverages an IAM role with least privileged access. It is not necessary or recommended to store SSH keys, secret keys, or access keys on the provisioned instances.

## OS Security

The root user on cluster nodes can be accessed only by using the SSH key specified during the deployment process. AWS doesn't store these SSH keys, so if you lose your SSH key you can lose access to these instances.

Operating system patches are your responsibility and should be performed on a periodic basis.

## Security Groups

A *security group* acts as a firewall that controls the traffic for one or more instances. When you launch an instance, you associate one or more security groups with the instance. You add rules to each security group that allow traffic to or from its associated instances. You can modify the rules for a security group at any time. The new rules are automatically applied to all instances that are associated with the security group.

The security groups created and assigned to the individual instances as part of this solution are restricted as much as possible while allowing access to the various functions needed by Magento. We recommend reviewing security groups to further restrict access as needed once the cluster is up and running.

## Additional Resources

### AWS services

- Getting Started  
<http://docs.aws.amazon.com/gettingstarted/latest/awsgsg-intro/intro.html>
- AWS CloudFormation  
<http://aws.amazon.com/documentation/cloudformation/>

- Amazon EC2
  - User guide for Linux instances:  
<http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/concepts.html>
  - Regions and Availability Zones:  
<http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/using-regions-availability-zones.html>
  - Key pairs:  
<http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/ec2-key-pairs.html>
  - Instance stores:  
<http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/InstanceStorage.html#instance-storage-concepts>
  - FAQ:  
<http://aws.amazon.com/ec2/faqs>
- Amazon Identity and Access Management
  - User guide:  
<http://docs.aws.amazon.com/IAM/latest/UserGuide/introduction.html>
  - Benefits of the IAM role:  
<http://docs.aws.amazon.com/IAM/latest/UserGuide/role-usecase-ec2app.html>
- Auto Scaling  
<http://docs.aws.amazon.com/AutoScaling/latest/DeveloperGuide/WhatIsAutoScaling.html>
- Elastic Load Balancing  
<http://docs.aws.amazon.com/ElasticLoadBalancing/latest/DeveloperGuide/elastic-load-balancing.html>
- Amazon EFS
  - Getting started guide  
<https://aws.amazon.com/efs/getting-started/>
  - User guide  
<http://docs.aws.amazon.com/efs/latest/ug/whatisefs.html>
- Amazon ElastiCache
  - Getting started guide  
<https://aws.amazon.com/elasticache/getting-started/>

- User guide  
<http://docs.aws.amazon.com/AmazonElastiCache/latest/UserGuide/WhatIs.html>
- Amazon RDS
  - User guide  
<http://docs.aws.amazon.com/AmazonRDS/latest/UserGuide/Welcome.html>
  - MySQL on Amazon RDS  
[http://docs.aws.amazon.com/AmazonRDS/latest/UserGuide/CHAP\\_MySQL.html](http://docs.aws.amazon.com/AmazonRDS/latest/UserGuide/CHAP_MySQL.html)
  - Amazon Aurora Resources  
<https://aws.amazon.com/rds/aurora/resources/>
- Amazon VPC
  - Documentation:  
<http://aws.amazon.com/documentation/vpc/>
  - High availability for NAT instances  
<https://aws.amazon.com/articles/2781451301784570>
  - Linux Bastion Hosts on the AWS Cloud  
<http://docs.aws.amazon.com/quickstart/latest/linux-bastion/>
- AWS Security Center  
<http://aws.amazon.com/security/>

## Magento

- Magento Open Source (formerly Community Edition) software  
<https://magento.com/tech-resources/download>
- Magento Installation Guide  
<http://devdocs.magento.com/guides/v2.0/install-gde/bk-install-guide.html>
- Magento Configuration Guide  
<http://devdocs.magento.com/guides/v2.0/install-gde/install/post-install-config.html>
- Magento User Guide  
[http://docs.magento.com/m2/ce/user\\_guide/getting-started.html](http://docs.magento.com/m2/ce/user_guide/getting-started.html)

## Quick Start reference deployments

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

## Send Us Feedback

You can visit our [GitHub repository](#) to download the templates and scripts for this Quick Start, to post your comments, and to share your customizations with others.

## Document Revisions

Date	Change	In sections
October 2017	Added support for Amazon Aurora as the default database; added deployment of Linux bastion host; updated for Magento version 2.1.9	Template updates; changes throughout deployment guide
April 2017	Added new Magento configuration parameters for currency, language, and time zone	Template updates; <a href="#">step 3</a> parameter descriptions
March 2017	Updated for Magento version 2.1.5; added Amazon EFS and caching support	Template updates; changes throughout deployment guide
September 2015	Initial publication	–



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