Hands-on tutorials

Deploy a LAMP Web App on Amazon Lightsail

Deploy a LAMP Web App on Amazon Lightsail: Hands-on tutorials

Table of Contents

Deploy a LAMP Web App on Amazon Lightsail i
Overview 1
What you will accomplish 1
Prerequisites 1
Implementation 2
Modules 2
Module 1: Create Your Lightsail PHP Application 3
Overview 1
What you will accomplish 1
Prerequisites 1
Implementation 2
Conclusion 9
Module 2: Clean Up Resources 10
Overview 1
What you will accomplish 1
Implementation 2
Conclusion 9

Deploy a LAMP Web App on Amazon Lightsail

AWS Experience	Beginner
Time to complete	15 minutes
Cost to complete	Free Tier eligible
Code	Download the example project for this guide here **Note** Choosing the link downloads the file.
Last updated	March 17, 2023

Overview

In this guide, you will learn how to deploy a PHP web application on a LAMP (Linux, Apache, MySQL, PHP) stack deployed using Amazon Lightsail.

Lightsail is an easy-to-use virtual private server (VPS) provider that offers you everything needed to build an application or website for a cost-effective, monthly plan.

What you will accomplish

In this guide, you will learn how to:

- set up a LAMP stack using Amazon Lightsail blueprints
- deploy a PHP app to the instance

Prerequisites

Before Starting this guide, you will need:

- An AWS account: if you don't already have one follow the **Setup Your Environment** getting started guide for a quick overview.
- **(Optional)** Activity in this guide will heavily involve terminal activities. You can use your own development environment to follow this guide, or you can also use AWS Cloud9. For more information on how to setup your AWS Cloud9 environment, please refer to this guide Setting up AWS Cloud9.

Implementation

Modules

This tutorial is divided into the following short modules. You must complete each module before moving to the next one.

1. Module 1: Create Your Lightsail PHP Application (15 mins): Set up your LAMP stack with Lightsail and install your PHP application.
2. Module 2: Clean Up Resources: In this last part of the guide, you learn how to clean up resources after you are done.

Module 1: Create Your Lightsail PHP Application

AWS experience	Beginner
Time to complete	10 minutes
Last updated	March 17, 2023

Overview

You will use the AWS CLI to create a Lightsail instance from a blueprint that has the LAmazon Managed Service for Prometheus components preconfigured. You will install a PHP application from a GitHub repository during instance creation.

What you will accomplish

In this module, you will:

- Create a Lightsail instance using the AWS CLI.
- Deploy your PHP application using the user data of the instance.

Prerequisites

- AWS Account with administrator-level access
- Recommended browser: The latest version of Chrome or Firefox

> **Note**
>
> Accounts created within the past 24 hours might not yet have access to the services required for this tutorial.

Implementation

Step 1: Create a Lightsail instance

- We will use the following AWS CLI command to create a Lightsail instance:

```
aws lightsail create-instances \
    --instance-names <name_of_your_instance> \
    --availability-zone <availability_zone> \
    --blueprint-id <blueprint_id> \
    --bundle-id <bundle_id> \
    --key-pair-name <key_pair_name> \
    --user-data <user-data>
```

  The command expects the following parameters:

  - an **instance name**
  - an **Availability Zone,** where you want to deploy your instance
  - the **ID of a blueprint**
  - the **ID of a bundle**
  - an **SSH key pair** to access your instance
  - and **user data**, which will be executed at the start of your instance.

> **Note**
>
> A bundle refers to a preconfigured set of resources that determine the amount of memory, compute power, and storage that is available for an Amazon Lightsail instance. A blueprint, on the other hand, refers to the virtual machine image of the instance. This machine image includes the operation system and commonly used software applications that are configured on the machine.

Step 2: Define the user data

- As shown in the command above, when you create a Lightsail instance, you have the option of passing user data to the instance that can be used to perform common automated configuration tasks and even run scripts after the instance starts.

In our case, the user data will be used to deploy our LAmazon Managed Service for Prometheus stack. The following script will remove the default website of the blueprint, clone the sample app to replace it, set the appropriate file permissions, configure the auto-generated database password in the sample app's config file, and run the init.sql script to create the database and populate it with the initial values.

```
# remove default website
#-----------------------
cd /opt/bitnami/apache2/htdocs
rm -rf *

# clone github repo
#------------------
/usr/bin/git clone -b loft https://github.com/mikegcoleman/todo-php.git .

# set write permissons on the settings file
#------------------------------------------
chown bitnami:daemon ./*
chmod 666 connectvalues.php

# inject database password into configuration file
#-------------------------------------------------
sed -i.bak "s/<password>/$(cat /home/bitnami/bitnami_application_password)/;" /opt/
bitnami/apache2/htdocs/connectvalues.php

# create database
#----------------
cat /home/bitnami/htdocs/data/init.sql | /opt/bitnami/mariadb/bin/mysql -u root -p
$(cat /home/bitnami/bitnami_application_password)
```

Step 3: Create an SSH key pair

- In addition to the user data, we may also want to connect to our instance after it has been created. To connect to the instance, we will need an SSH key pair. To create an SSH key pair, you can use the AWS CLI. The following command will create an SSH key for you and save the public key in **lightsailguide.pub** and the private key in **lightsailguide.**

```
aws lightsail create-key-pair --key-pair-name LightsailGuide >
 ssh_key_response.json
```

```
cat ssh_key_response.json | jq -r '.publicKeyBase64' > lightsailguide.pub

cat ssh_key_response.json | jq -r '.privateKeyBase64' > lightsailguide

chmod 400 lightsailguide.pub lightsailguide
```

> **Note**
>
> You might need to install jq, a lightweight and flexible command line JSON processor, on your machine using a packet manager of your choice.

Step 4: Create the Lightsail instance

- Now that we prepared everything, we can use the AWS CLI to create the instance. For this guide, we will be using the Ireland (eu-west-1) Region, and the LAmazon Managed Service for Prometheus blueprint with the **blueprintId** of **lamp_7**.

```
aws lightsail get-blueprints
```

Step 5: Specify Instance Bundle

- You must specify an instance bundle when creating a Lightsail instance. For this guide, we will use a **micro_2_0** bundle. You can view a list of available bundles with the following command:

```
aws lightsail get-bundles
```

Step 6: Create your Lightsail instance

- To create your Lightsail instance with the user data script, and the SSH key you created, run the following command:

```
# Create the Lightsail instance:
aws lightsail create-instances \
    --instance-names "LightsailLampExample" \
    --availability-zone eu-west-1a \
```

```
    --blueprint-id lamp_7 \
    --bundle-id micro_2_0 \
    --key-pair-name LightsailGuide \
    --user-data '# remove default website
#-----------------------
cd /opt/bitnami/apache2/htdocs
rm -rf *

# clone github repo
#------------------
/usr/bin/git clone -b loft https://github.com/mikegcoleman/todo-php.git .

# set write permissons on the settings file
#----------------------------------
chown bitnami:daemon ./*
chmod 666 connectvalues.php

# inject database password into configuration file
#-------------------------------------------------
sed -i.bak "s/<password>/$(cat /home/bitnami/bitnami_application_password)/;" /opt/
bitnami/apache2/htdocs/connectvalues.php

# create database
#----------------
cat /home/bitnami/htdocs/data/init.sql | /opt/bitnami/mariadb/bin/mysql -u root -p
$(cat /home/bitnami/bitnami_application_password)'
```

Step 7: View the output

- The command will output details of the instance you created:

```
{
    "operations": [
        {
            "id": "a49e1398-fb81-455a-8a50-3159c9bd9966",
            "resourceName": "LightsailLampExample",
            "resourceType": "Instance",
            "createdAt": "2021-09-21T16:38:40.566000+02:00",
            "location": {
                "availabilityZone": "eu-west-1a",
                "regionName": "eu-west-1"
            },
```

```
            "isTerminal": false,
            "operationType": "CreateInstance",
            "status": "Started",
            "statusChangedAt": "2021-09-21T16:38:40.566000+02:00"
        }
    ]
}
```

Step 8: Check the progress

- It will take a few minutes for your instance to become available, and you can use the following command to check the progress:

```
aws lightsail get-instance-state --instance-name LightsailLampExample
```

Step 9: Confirm the instance is running

- When you see the following output, the instance is running, but it may still be working through the user data script:

```
{
    "state": {
        "code": 16,
        "name": "running"
    }
}
```

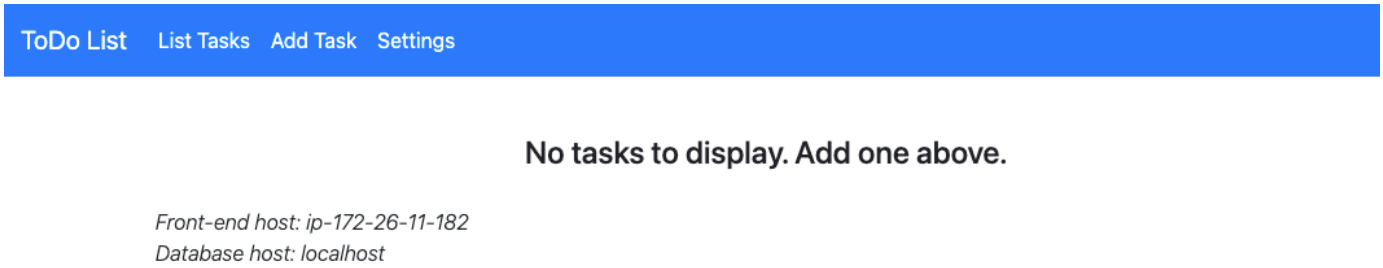
Step 10: Get the public IP address

- To test your application, you will need your instance's public IP address. Run the following command to retrieve your instance's public IP address.

```
aws lightsail get-instance --instance-name LightsailLampExample | jq -
r .instance.publicIpAddress
```

Step 11: Verify the app is running

- Copy the IP address and paste it in your browser. You should see the app running.



Conclusion

In this first module, we learned how to create our infrastructure using the AWS CLI, and deploy a sample application. In the next module, we will learn how to clean up the resources used in this guide.

Module 2: Clean Up Resources

Time to complete	< 2 minutes
Required	AWS Account with administrator-level access **Note** Accounts created within the past 24 hours might not yet have access to the services required for this tutorial. Recommended browser: The latest version of Chrome or Firefox
Last updated	March 17, 2023

Overview

If you followed the steps of this guide to experiment with Lightsail, and not to deploy a production-ready service, it is important to delete all cloud-based resources that you created. This will help you to avoid incurring charges on your AWS account.

In this module, you will clean up the resources that you deployed in previous modules

What you will accomplish

In this module, you will:

- Clean up all resources used by an Amazon Lightsail deployment

Implementation

In this module, you will clean up the resources that you deployed in previous modules

Step 1: Delete the cloud-based infrastructure

Amazon Lightsail makes it easy to delete your infrastructure with just one command.

1. Delete the instance

   Open your terminal and type the following command:

   ```
   aws lightsail delete-instance --instance-name LightsailLampExample
   ```

2. Delete the key pair

   To delete your SSH key pair, use this command:

   ```
   aws lightsail delete-key-pair --key-pair-name LightsailGuide
   ```

3. Verify deletion

   To verify all resources have been deleted, enter the following command:

   ```
   aws lightsail get-instances
   ```

   The command should output the following:

   ```
   {    "instances": []}
   ```

Conclusion

Congratulations! You have finished the **Deploy a LAMP Web Application on Amazon Lightsail** tutorial.