




THE PERFECT PAIR

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In this project we created a load-balanced WordPress website that sells socks. Our website uses different cloud services such as an Amazon S3 bucket and a MySQL database.





- fast
- simple to use
- easy to manage
- cheap
- scalable

In Amazon lightsail we launched and configured our wordpress instance. This involved selecting the aws region and availability zone (Ohio and us-east-2a), choosing an instance image (Linux for the platform, wordpress for the blueprint), choosing a plan, and naming it. Then we signed in to the administration dashboard of our wordpress website, and created a lightsail static IP address and attached it to our wordpress instance. Then we created a lightsail DNS zone and mapped a domain to our wordpress instance.



WordPress-1

512 MB RAM, 1 vCPU, 20 GB SSD
WordPress
Ohio, Zone A (us-east-2a)

Stop

Reboot

Status: **Running**

Static IP: **3.21.254.240** [↗](#)

Private IP: 172.26.1.158

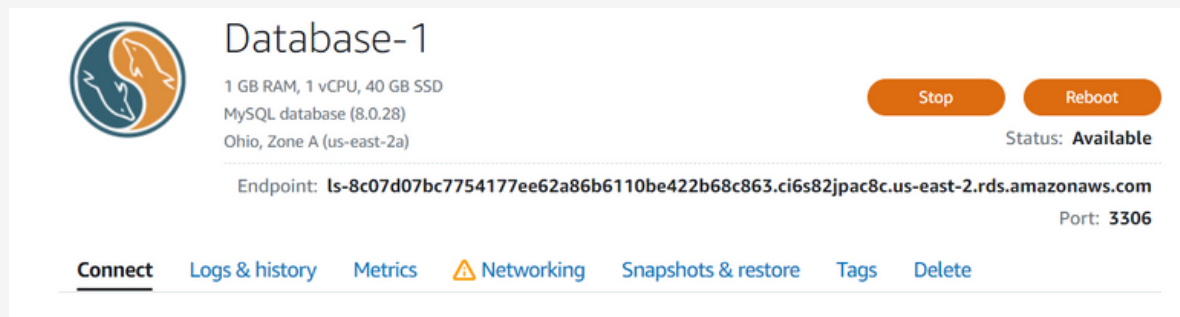
Public IPv6: 2600:1f16:a68:8600:9053:664f:d23a:e071

[Learn more about IPv6](#) [↗](#)

Creating a MySQL Managed Database

Next we had to create a MySQL managed database. From lightsail, we went to the database section and created a new database. First, we pick the region and availability zone and make them the same as the WordPress (us-east-2a). Then we chose MySQL 8.0.17 and the price plan. Then we marked down the database DNS name, username, and password.

The MySQL managed database will serve as the central database for all of the WordPress instances that will be load balanced.



We created an amazon S3 bucket to store the media from our wordpress website. First we went into the amazon S3 console and blocked public access through access control lists (ACL's). Then we clicked create bucket, which was only a couple steps.

cloud-computing-project-bucket-1 [Info](#)

[Objects](#)[Properties](#)[Permissions](#)[Metrics](#)[Management](#)[Access Points](#)

Objects (1)

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects grant them permissions. [Learn more](#)

Copy S3 URI

Copy URL

Download

Open

Delete

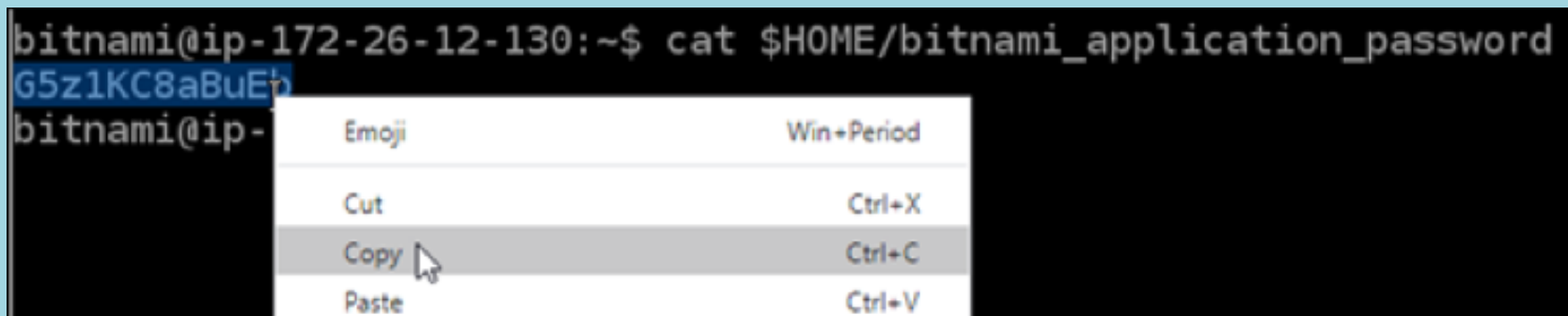
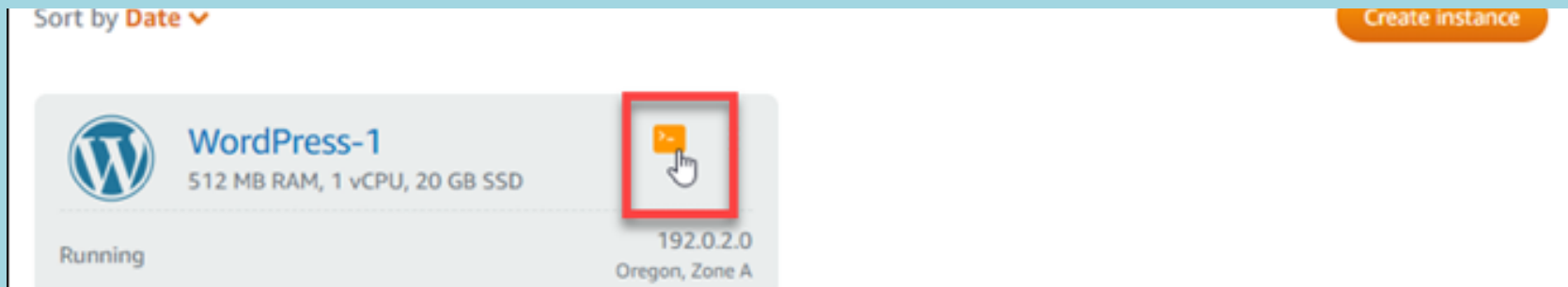
<input type="checkbox"/>	Name ▲	Type ▼	Last modified
<input type="checkbox"/>	wp-content/	Folder	-

JSON

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "VisualEditor0",
      "Effect": "Allow",
      "Action": [
        "s3:PutObject",
        "s3:GetObjectAcl",
        "s3:GetObject",
        "s3:PutBucketAcl",
        "s3:ListBucket",
        "s3:DeleteObject",
        "s3:GetBucketAcl",
        "s3:GetBucketLocation",
        "s3:PutObjectAcl"
      ],
      "Resource": [
        "arn:aws:s3:::<your bucket name>",
        "arn:aws:s3:::<your bucket name>/*"
      ]
    }
  ]
}
```

We created an IAM user and a policy to give the user access to the S3 bucket.

Through a series of commands using Bitnami WordPress, we exported the data from the MySQL database on our wordpress instance and imported it to the MySQL managed database in lightsail. Then we configured our WordPress instance to connect to the MySQL database and configured the IAM user credentials.



Installed the WP Offload Media Lite plugin to connect to the S3 bucket. Our website can upload media files to the Amazon S3 bucket. The S3 bucket serves as the central media files location for all of the WordPress instances that are load balanced.

Offload Media Lite

STORAGE PROVIDER



Amazon S3

- ☐ Define access keys in wp-config.php
- ☒ My server is on Amazon Web Services and I'd like to use IAM Roles.
If you host your WordPress site on Amazon Web Services, you can use IAM Roles to manage access to S3. [More info »](#)
- ☐ I understand the risks but I'd like to store access keys in my database (not recommended)


Amazon S3 > Buckets > cloud-computing-project-bucket-1 > wp-content/

uploads/


Objects


Properties

Objects (1)

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to manage their permissions. [Learn more](#) 

  Copy S3 URI  Copy URL  Download 


 Find objects by prefix

<input type="checkbox"/>	Name	Type	Last modified
<input type="checkbox"/>	 socks.jpg	jpg	April 19, 2022, 17:29

Took a snapshot and then used the snapshot to duplicate our WordPress Instance.


[Instances](#) [Containers](#) [Databases](#) [Networking](#) [Storage](#) [Snapshots](#)

Sort by **Date** ▼ [Create instance](#)

**WordPress-2**
512 MB RAM, 1 vCPU, 20 GB SSD

Running

3.144.107.166
2600:1f16:a68:8600:df3:6140:b0a6:35d1
Ohio, Zone A


**WordPress-1**
512 MB RAM, 1 vCPU, 20 GB SSD

Running


3.21.254.240 [↗](#)
2600:1f16:a68:8600:9053:664f:d23a:e071
Ohio, Zone A

Created a LoadBalancer in Lightsail and attached our WordPress Instances

LOAD BALANCERS



LoadBalancer-1
Load balancer, 2 instances



All instances balanced

Ohio, all zones

Why load-balanced?

We decided to use Amazon Lightsail to create a load-balanced wordpress website. The load balancer distributes network traffic over a pool of servers, which improves the number of concurrent users our website can handle. This is important because we expect this sock business to really take off.

Connected to the MySQL database using
Sqlectron.

Server Information

Name

Cloud Computing

Database Type

MySQL

SSL

Server Address

ls-8c07d07bc7754177ee62a86b6

3306

Domain

Unix socket path

User

dbmasteruser

Password

.....

Initial Database/Keyspace

Database

Initial Schema

Schema

URI

mysql://dbmasteruser:*****@ls-8c07d07bc7754177ee62a86b6110be422b68c863.ci6s82jpac8c.us-east-2.rds.amazonaws

Make the password visible in order to change the database credentials through the URI format.

SSH Tunnel

Filter

Test

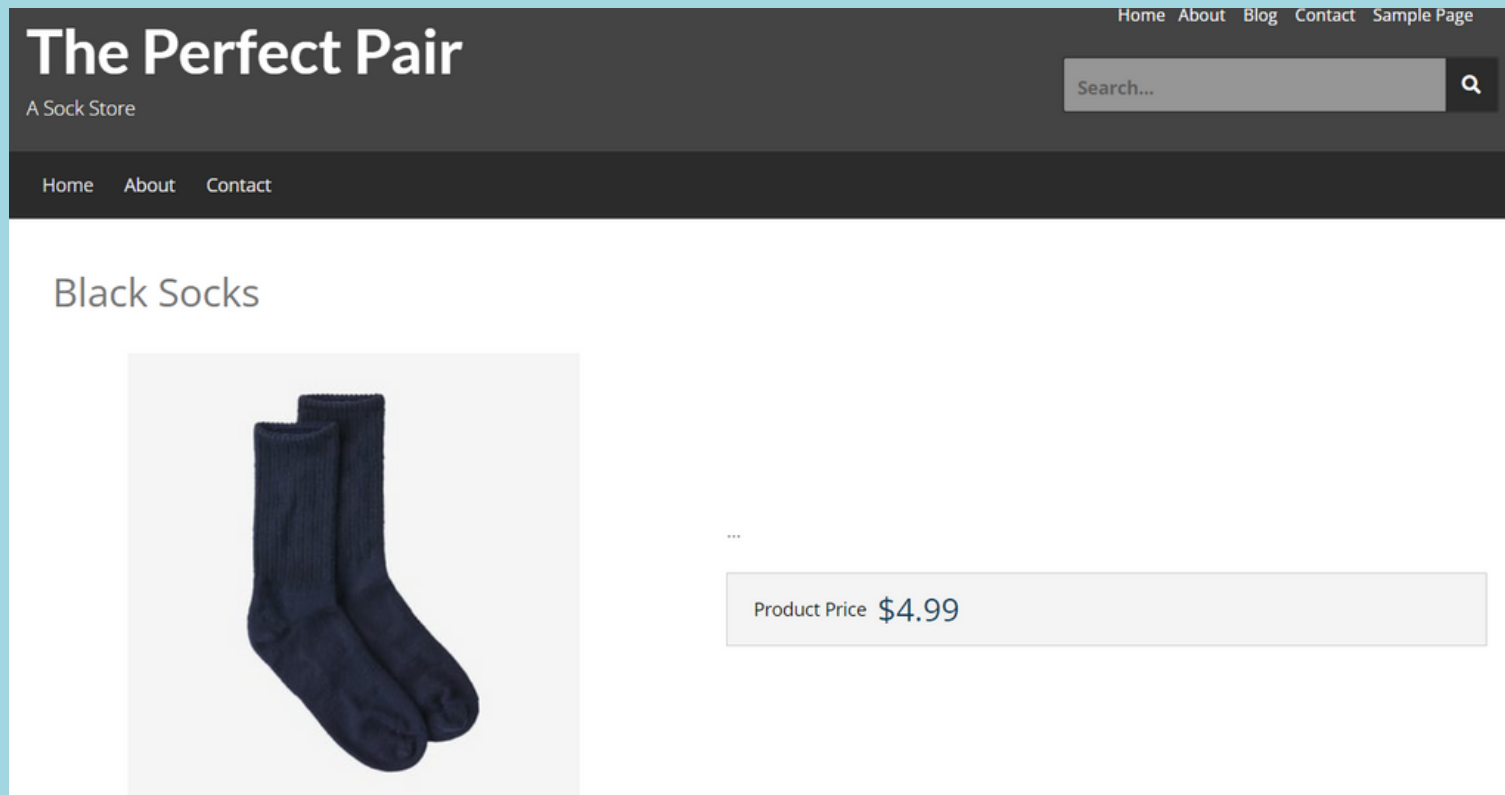
Duplicate

Cancel

Save

Remove

We customized our website and were able to view and edit the information from our website in our MySQL database.





**THANKS FOR
YOUR TIME!**
