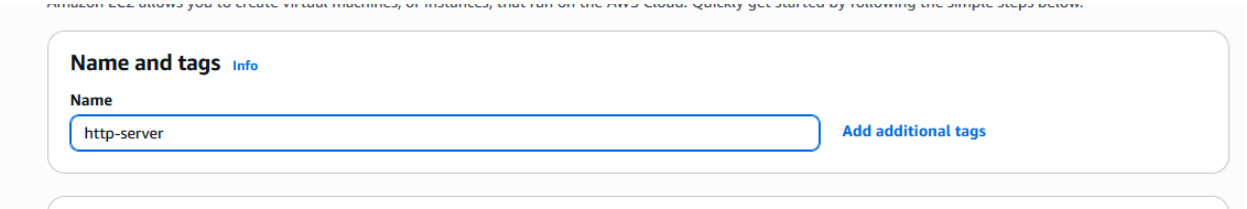
EC2 Instance Launch and Web Server Setup

1. Launching an EC2 Instance

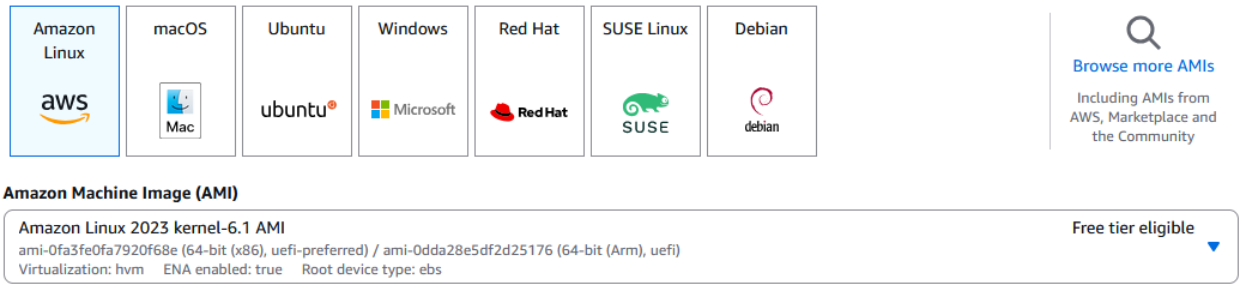
Name and Tags

The instance is named http-server, making it easily identifiable for management and organization purposes.



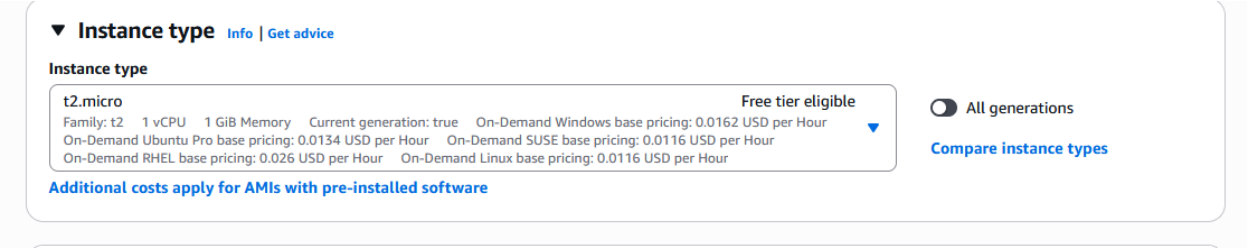
Amazon Machine Image (AMI)

The operating system selected is Amazon Linux, using the Amazon Linux 2023 kernel-6.1 AMI. The AMI ID is ami-0fa3fe0fa7920f68e, which is a 64-bit x86 architecture image and is eligible for the AWS Free Tier.



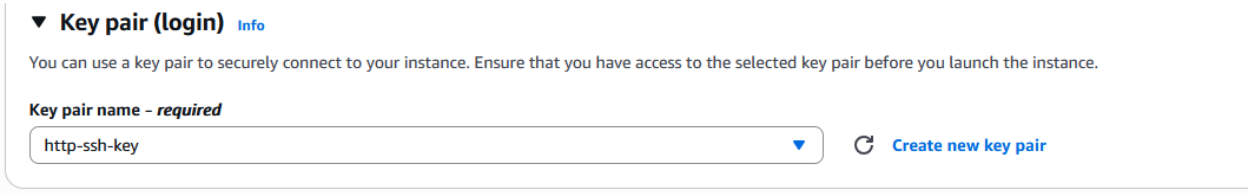
Instance Type

A t2.micro instance was chosen, featuring 1 vCPU and 1 GiB of memory. This instance type is also Free Tier eligible, making it cost-effective for basic web server setups.



Key Pair and Access

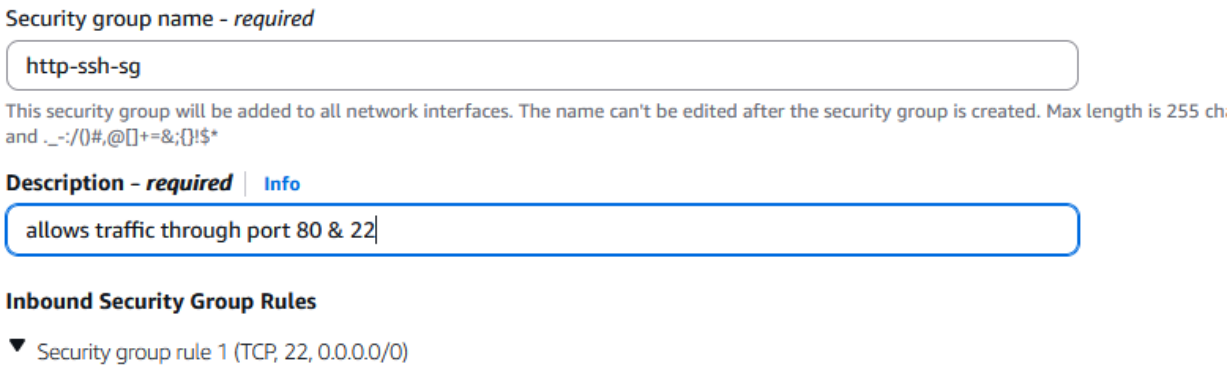
The key pair http-ssh-key was specified for SSH access, with the corresponding private key file named http-ssh-key.pem.



Network Settings and Security Groups

A security group named http-ssh-sg was configured to allow incoming traffic on port 22 (SSH) and port 80 (HTTP) from any IP address. This setup ensures remote management and public web access:

- SSH (TCP, Port 22) - 0.0.0.0/0
- HTTP (TCP, Port 80) - 0.0.0.0/0



User Data Script

During launch, a user data script was provided to automate the installation and configuration of the Apache web server. The script performs the following actions:

- Updates the system and installs the Apache HTTP server (httpd).
- Starts and enables the Apache service, compatible with both Amazon Linux 2 and 2023.
- Includes fallback commands for older versions of Amazon Linux 2.
- Fetches the instance's public IP address using IMDSv2 for future compatibility.
- Creates a default index.html page displaying the public IP address.
- Creates a health.html file containing "ok" for health checks.

```
#!/bin/bash

# Update and install Apache
yum update -y
yum install -y httpd

# Start and enable httpd (works on both Amazon Linux 2 and 2023)
systemctl start httpd
systemctl enable httpd

# For older Amazon Linux 2 (fallback, harmless if already enabled)
service httpd start 2>/dev/null || true
chkconfig httpd on 2>/dev/null || true

# Get public IP using IMDSv2 (required and future-proof)
```

2. Instance Details After Launch

Property	Value
Instance ID	i-0bd3fc89fbb587a8a
Instance State	Running
Instance Type	t2.micro
Availability Zone	us-east-1b
Public IPv4	3.95.23.164
Public DNS	ec2-3-95-23-164.compute-1.amazonaws.com

3. Verification Steps

Web Server Access

The web server was successfully accessed by visiting http://3.95.23.164 in a browser. The displayed page showed:

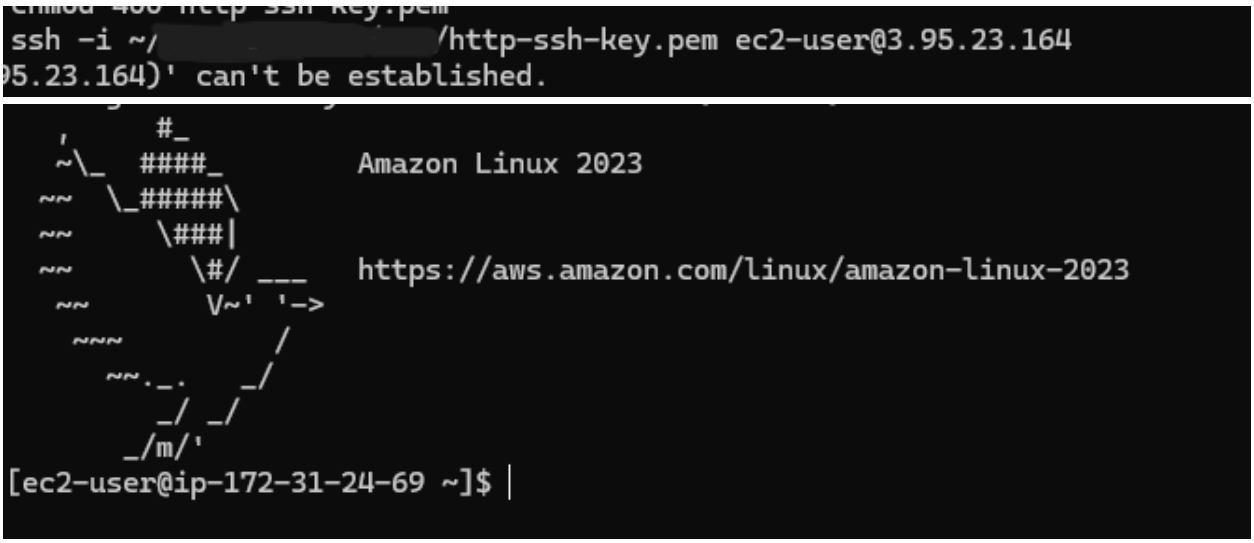
Manual instance with IP: 3.95.23.164

SSH Access

SSH connectivity was tested using the following command:

ssh -i folder/http-ssh-key.pem ec2-user@3.95.23.164

This confirmed successful login to the Amazon Linux 2023 instance.



File Verification

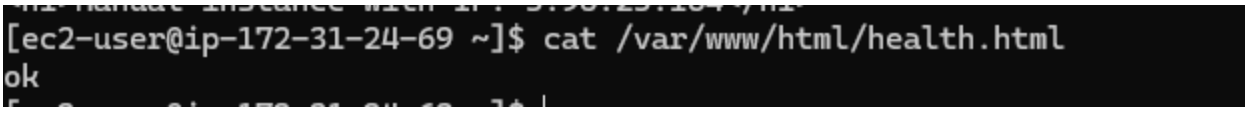
Verification of web server files confirmed the creation of the following content:

index.html:

Manual instance with IP: 3.95.23.164

health.html:

ok


[ec2-user@ip-172-31-24-69 ~]$ cat /var/www/html/health.html
ok