

EC2 Instance Launch and Web Server Setup

1. Launching an EC2 Instance

Name and Tags

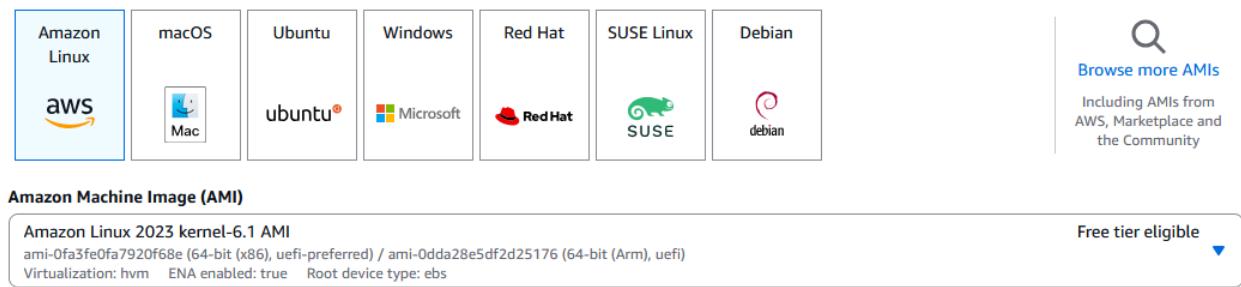
The instance is named http-server, making it easily identifiable for management and organization purposes.



A screenshot of the AWS Lambda console. In the 'Name and tags' section, the 'Name' field contains the value 'http-server'. There is also a link to 'Add additional tags'.

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.



A screenshot of the AWS Lambda console. Under the 'Amazon Machine Image (AMI)' section, the 'Amazon Linux' option is selected. Other options shown include macOS, Ubuntu, Windows, Red Hat, SUSE Linux, and Debian. To the right, there is a search icon and a link to 'Browse more AMIs'.

Amazon Machine Image (AMI)

Amazon Linux 2023 kernel-6.1 AMI
ami-0fa3fe0fa7920f68e (64-bit (x86), uefi-preferred) / ami-0dda28e5df2d25176 (64-bit (Arm), uefi)
Virtualization: hvm ENA enabled: true Root device type: ebs

Free tier eligible ▾

Instance Type

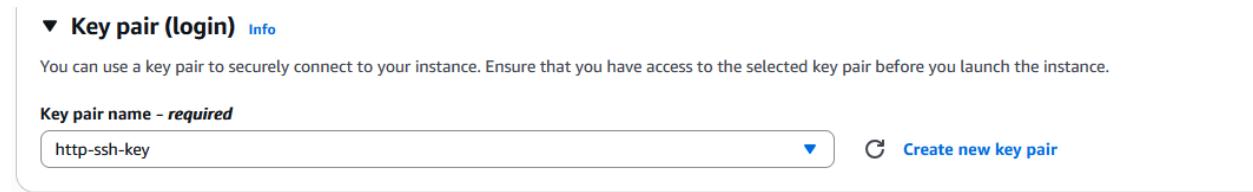
A t2.micro instance was chosen, featuring 1 vCPU and 1 GiB of memory. This instance type is also Free Tier eligible, making it cost-effective for basic web server setups.



A screenshot of the AWS Lambda console. Under the 'Instance type' section, the 't2.micro' option is selected. It shows details like Family: t2, 1 vCPU, 1 GiB Memory, Current generation: true, On-Demand Windows base pricing: 0.0162 USD per Hour, On-Demand Ubuntu Pro base pricing: 0.0154 USD per Hour, On-Demand SUSE base pricing: 0.0116 USD per Hour, On-Demand RHEL base pricing: 0.026 USD per Hour, and On-Demand Linux base pricing: 0.0116 USD per Hour. It also indicates 'Free tier eligible' and 'All generations'. A note at the bottom says 'Additional costs apply for AMIs with pre-installed software'.

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.



A screenshot of the AWS Key Pair configuration page. It shows a dropdown menu with the option 'http-ssh-key' selected. Below the dropdown is a button labeled 'Create new key pair'. A note above the dropdown states: 'You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.'

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

Security group name - *required*

http-ssh-sg

This security group will be added to all network interfaces. The name can't be edited after the security group is created. Max length is 255 characters and `_:-/()#,@[]+=&;{}!$^`

Description - *required* | [Info](#)

allows traffic through port 80 & 22

Inbound Security Group Rules

▼ Security group rule 1 (TCP, 22, 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.

```
chmod 400 http-ssh-key.pem
ssh -i ~/http-ssh-key.pem ec2-user@3.95.23.164
3.95.23.164)' can't be established.
```

```
           #_
~\_\_ #####_      Amazon Linux 2023
~~ \_\#####\
~~   \###|
~~     \#/ _-- https://aws.amazon.com/linux/amazon-linux-2023
~~       V~' '-->
~~     /
~~.._. /_
~/m/' [ec2-user@ip-172-31-24-69 ~]$ |
```

File Verification

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

index.html:

Manual instance with IP: 3.95.23.164

```
[ec2-user@ip-172-31-24-69 ~]$ cat /var/www/html/index.html
<h1>Manual instance with IP: 3.95.23.164</h1>
```

health.html:

ok

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