This complete guide outlines the steps to launch an AWS EC2 instance with an automated web server installation using a User Data script. The process covers the setup from the AWS console to final verification.

💾 User Data Script (Ubuntu)

This script will update the system, install the Apache web server (apache2), start the service, enable it to run on boot, and deploy a simple custom HTML page.

Bash

```bash
#!/bin/bash

# 1. Update package list and install Apache web server
sudo apt update -y
sudo apt install -y apache2

# 2. Start the Apache service and enable it on system boot
sudo systemctl start apache2
sudo systemctl enable apache2

# 3. Get the instance's Availability Zone (AZ) metadata
EC2_AVAIL_ZONE=$(curl -s
http://169.254.169.254/latest/meta-data/placement/availability-zone)

# 4. Create custom index.html file with dynamic details
echo "<h1>Successful Automated Deployment!</h1>" > /var/www/html/index.html
echo "<p>Web Server is running on: $(hostname -f)</p>" >> /var/www/html/index.html
echo "<p>Located in AWS Availability Zone: $EC2_AVAIL_ZONE</p>" >> /var/www/html/index.html
```

🚀 Step-by-Step Deployment Guide

Part 1: AWS Console Configuration

1. **Navigate to EC2:** Log in to the AWS Management Console and go to the **EC2 Dashboard**.
2. **Launch Instance:** Click **"Launch instances"**.
3. **Basic Details:** Give your instance a name and select an **Ubuntu AMI** (e.g., Ubuntu Server 22.04 LTS). Choose an appropriate **Instance Type** (e.g., t2.micro).
4. **Create/Select Key Pair:** Choose an existing **Key pair** or create a new one to allow SSH access later for troubleshooting.
5. **Configure Network/Security Group (Crucial!):**
   ○ Find the **Network settings** section.
   ○ Click **"Edit"** if needed to ensure you select or create a Security Group.
   ○ The Security Group **must have two Inbound Rules**:
      ■ **SSH (Port 22):** For access to the server (Source: Your IP or 0.0.0.0/0).
      ■ **HTTP (Port 80):** For web access (Source: 0.0.0.0/0 to allow anyone to view the website).
6. **Insert User Data:**
   ○ Scroll down and expand **"Advanced details"**.
   ○ Scroll to the very bottom to find the **"User data"** text box.
   ○ **Paste the script provided above** into this box.
7. **Launch Instance:** Review all settings and click **"Launch instance"**.

Part 2: Verification

1. **Wait for Boot:** Wait until the instance status checks show **"2/2 checks passed"** (this can take 2-5 minutes as the script runs during boot).
2. **Access Web Server (External Check):**
   ○ Select your running instance.
   ○ Copy its **Public IPv4 address** or **Public DNS** from the details pane.
   ○ Paste this address into a web browser.
   ○ **Success Confirmation:** You should see the custom HTML page with the "Successful Automated Deployment!" heading.
3. **Check Logs (Internal Check - for troubleshooting):**
   ○ Connect to the instance using **SSH** with your key pair.
   ○ Check the cloud-init log for confirmation or errors:
     Bash

```
sudo cat /var/log/cloud-init-output.log
```

To see a demonstration of how to configure this on Amazon Linux, watch [How to use EC2 User Data Script to Install Apache Web Server](#).