

Diffusion Server AWS Deployment guide

Before You Begin

It's assumed that you have:

- an AWS account,
- an EC2 key pair

System Requirements

The amount of CPU and system memory your Diffusion Server requires depends on the number of client connections, data topics, and the number of messages sent to and from the Diffusion Server. The free demo version supports up to 5 client connections.

For more information about required system resources, such as vCPUs, memory, and storage, see the resource calculator.

Step 1: Get an AMI

You can get the AWS machine image (AMI) from AWS Marketplace

1. Navigate to the [DiffusionData page](#) of the AWS Marketplace, and if you haven't already, log into your account.
2. Select the desired version of the Diffusion Server to launch.
3. On the **Subscribe to this software** page, review the Terms and Conditions and product details. When you're done, click **Continue Configuration**.
4. On the **Configure this software** page, review the following settings and update them if necessary and click **Continue to Launch** when finish:
 - a. Fulfilment option
 - b. Region
5. On the **Launch this software** page, review the Usage instructions. Then, from the **Choose Action** dropdown menu, select **Launch through EC2**.
6. Click **Launch**. The **Launch an instance** page opens.

Step 2: Configure the Instance

To configure your EC2 instance, do the following:

Under **Application and OS Images (Amazon Machine Image)**:

- If you used your AWS account to get your AMI, select **My AMIs**. Then, select **Shared with Me** and choose your preferred AMI. If you used AWS Marketplace to

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get your AMI, your AMI is automatically selected for you under the **AMI from catalogue** tab.

EC2 > Instances > Launch an instance

Launch an instance [Info](#)

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

Name and tags [Info](#)

Name
 [Add additional tags](#)

Application and OS Images (Amazon Machine Image) [Info](#)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

AMI from catalog | **My AMIs** | Quick Start

Owned by me | Shared with me

[Browse more AMIs](#)
Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

ami-0d20b634254d326c2
2023-03-14T08:52:07.000Z Virtualization: hvm ENA enabled: true Root device type: ebs

Summary

Number of instances [Info](#)

Software Image (AMI)
Diffusion 6.9.0 AMI for AWS Ma...[read more](#)
ami-0d20b634254d326c2

Virtual server type (instance type)
t2.micro

Firewall (security group)
New security group

Storage (volumes)
1 volume(s) - 20 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 30 GiB of EBS storage, 2 million IOs, 1 GB of snapshots, and 100 GB of bandwidth to the internet.

Cancel [Launch instance](#)

- Under **Key pair (login)**, choose your authentication key pair for your Diffusion Server EC2 instance. This key pair is used to log in to the EC2 instance.

Key pair (login) [Info](#)

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.

Key pair name - *required*

[Default value](#) [Create new key pair](#)

- In case you do not have a key pair created yet, create a new one and download the PEM file.

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EC2 > Key pairs > Create key pair

Create key pair [Info](#)

Key pair
A key pair, consisting of a private key and a public key, is a set of security credentials that you use to prove your identity when connecting to an instance.

Name

The name can include up to 255 ASCII characters. It can't include leading or trailing spaces.

Key pair type [Info](#)

RSA
 ED25519

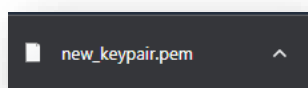
Private key file format

.pem
For use with OpenSSH

.ppk
For use with PuTTY

Tags - optional
No tags associated with the resource.

You can add up to 50 more tags.



- Under the **Instance type**, choose an instance that meets your resource needs (for example, for evaluation purposes, you might choose t4.micro). For information about the resources provided by the various instance types, see [Amazon EC2 Instance Types](#).

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▼ Instance type [Info](#)

Instance type

t2.micro Free tier eligible

Family: t2 1 vCPU 1 GiB Memory

On-Demand Windows pricing: 0.0162 USD per Hour

On-Demand SUSE pricing: 0.0116 USD per Hour

On-Demand RHEL pricing: 0.0716 USD per Hour

On-Demand Linux pricing: 0.0116 USD per Hour

[Compare instance types](#)

- Under **Network settings**, select an existing security group or create a new one that suits your use case.

▼ Network settings [Info](#) [Edit](#)

Network [Info](#)

vpc-04c19dd281b[REDACTED]

Subnet [Info](#)

No preference (Default subnet in any availability zone)

Auto-assign public IP [Info](#)

Enable

Firewall (security groups) [Info](#)

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

Create security group Select existing security group

We'll create a new security group called 'launch-wizard-1' with the following rules:

Allow SSH traffic from Anywhere
0.0.0.0/0
Helps you connect to your instance

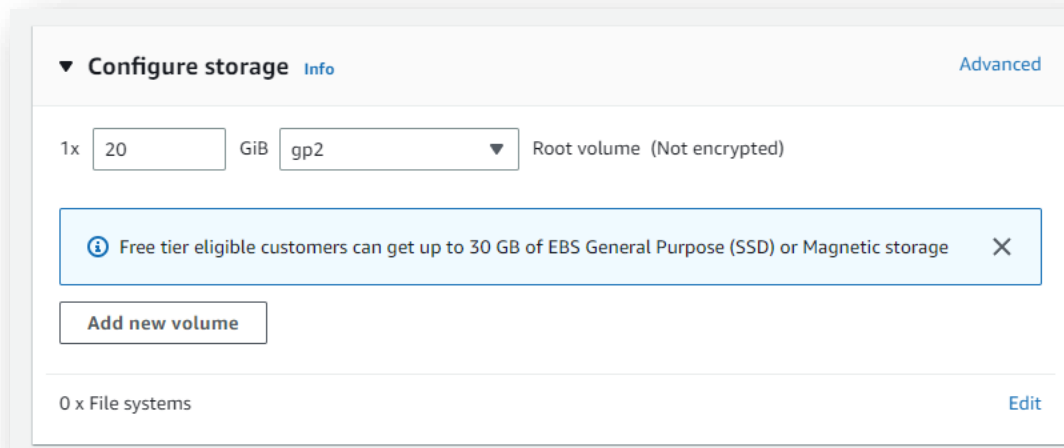
Allow HTTPS traffic from the internet
To set up an endpoint, for example when creating a web server

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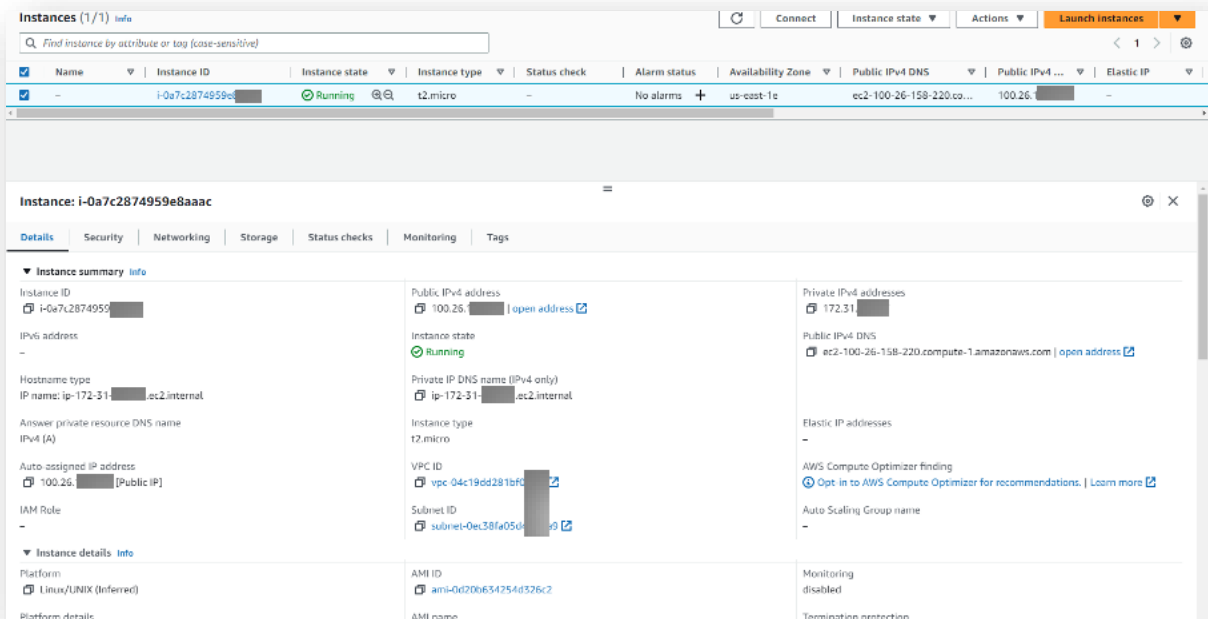
⚠ Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only. ✕

- Under **Configure storage**, select the size of your storage volume.

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- Click **Launch Instance**. When your instance has launched, the EC2 dashboard shows the Diffusion Server instance under **Instances**. Here you can find the external and internal IP addresses of the instance.



- Please make sure that the following security settings are applied for the EC2 instance:

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The screenshot shows the AWS Security Groups console. The 'Inbound rules' section contains four rules:

| Name | Security group rule ID | Port range | Protocol | Source | Security groups | Description |
|------|------------------------|------------|----------|-----------|--------------------------------------|-------------|
| - | sgr-05a641221a57d9429 | 8080 | TCP | 0.0.0.0/0 | ec2_diffusion_5_9_0_SG_for_AWS_Ma... | - |
| - | sgr-0bd6fe23d6b67cb88 | 8090 | TCP | 0.0.0.0/0 | ec2_diffusion_5_9_0_SG_for_AWS_Ma... | - |
| - | sgr-0d649a4b6dd6b3063 | 5701 | TCP | 0.0.0.0/0 | ec2_diffusion_5_9_0_SG_for_AWS_Ma... | - |
| - | sgr-0527892f6ed7588b8 | 22 | TCP | 0.0.0.0/0 | ec2_diffusion_5_9_0_SG_for_AWS_Ma... | - |

The 'Outbound rules' section contains one rule:

| Name | Security group rule ID | Port range | Protocol | Destination | Security groups | Description |
|------|------------------------|------------|----------|-------------|--------------------------------------|-------------|
| - | sgr-08b4e3ed249c60e7b | All | All | 0.0.0.0/0 | ec2_diffusion_5_9_0_SG_for_AWS_Ma... | - |

Step 3: Access the Diffusion Server EC2 Instance via SSH

Please note that Diffusion Server does not come with default user accounts. Thus, to log in to the web console, you need to manually add at least one user's credentials. To do this, you need to connect to your EC2 instance via SSH and add these details.

- Connect to your EC2 instance., you can SSH into your EC2 instance with your private key using the public IP address and port 22. You can get the IPO address from the AWS console (Public IPv4 DNS). Please use “ec2-user” as a username to connect to the CE2 instance.

```

ssh -i "new_keypair.pem" ec2-user@ec2-54-147-...compute-1.amazonaws.com
Last login: Tue Mar 14 08:44:45 2023 from 18.206...

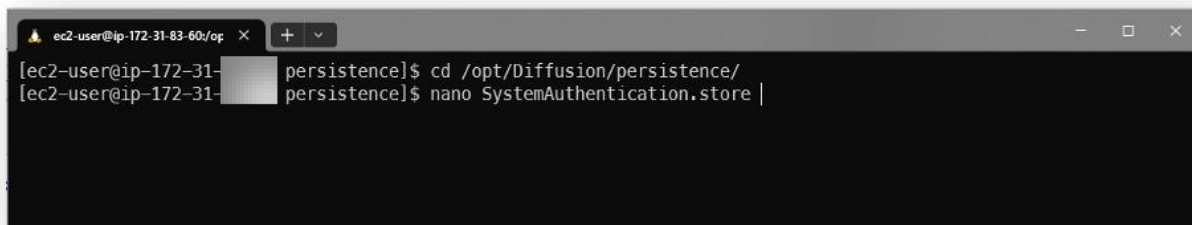
  _| _|_ )
  _| ( _| /  Amazon Linux 2 AMI
  _|\_|_||

https://aws.amazon.com/amazon-linux-2/
10 package(s) needed for security, out of 11 available
Run "sudo yum update" to apply all updates.
[ec2-user@ip-172-31-... ~]$

```

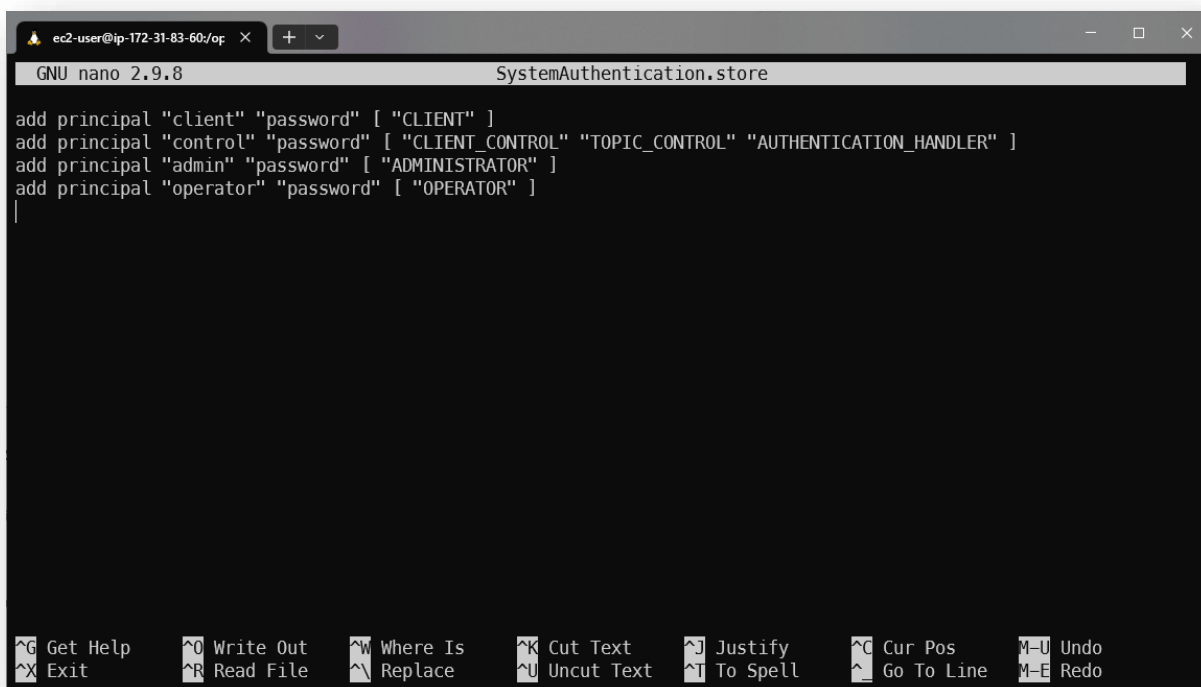
- As soon as you successfully connected and logged in to the EC2 instance enter the following commands:
`cd /opt/Diffusion/persistence`
`nano SystemAuthentication.store`

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```
ec2-user@ip-172-31-83-60:/opt/...$ cd /opt/Diffusion/persistence/  
ec2-user@ip-172-31-83-60:/opt/Diffusion/persistence$ nano SystemAuthentication.store
```

- As a result, you open SystemAuthentication.store file with the text editor where you should add credentials for at least one role:
add principal "admin" "password" ["ADMINISTRATOR"]
Later you will be able to add more users via the web Console.
Please ensure that you use strong password



```
GNU nano 2.9.8 SystemAuthentication.store  
add principal "client" "password" [ "CLIENT" ]  
add principal "control" "password" [ "CLIENT_CONTROL" "TOPIC_CONTROL" "AUTHENTICATION_HANDLER" ]  
add principal "admin" "password" [ "ADMINISTRATOR" ]  
add principal "operator" "password" [ "OPERATOR" ]  
|
```

Step 4. Login to Diffusion Server Console

- This is the final setup step. Please open your favourite web browser and navigate to <http://<Public IPv4 DNS>>. Please note, that the Diffusion server installation does not come with the preinstalled SSL certificate so, you'll see the following warning message from the browser:

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Your connection is not private

Attackers might be trying to steal your information from **ec2-100-26-158-220.compute-1.amazonaws.com** (for example, passwords, messages, or credit cards). [Learn more](#)

NET::ERR_CERT_AUTHORITY_INVALID

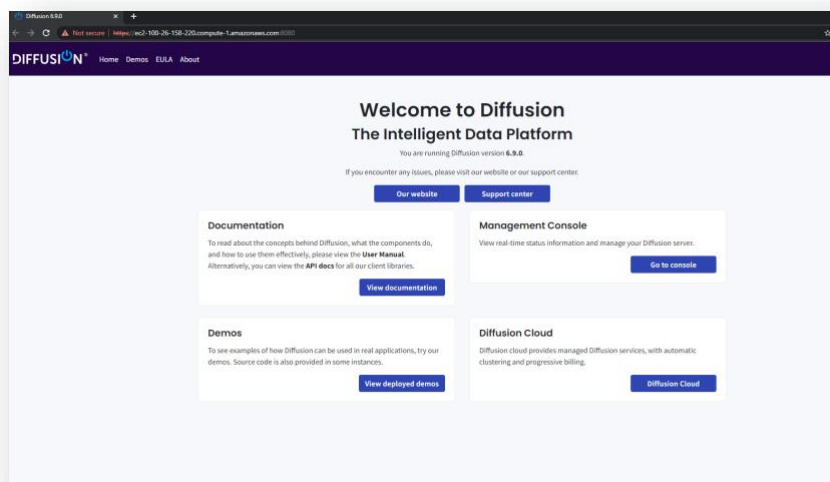
Hide advanced

Back to safety

This server could not prove that it is **ec2-100-26-158-220.compute-1.amazonaws.com**; its security certificate is not trusted by your computer's operating system. This may be caused by a misconfiguration or an attacker intercepting your connection.

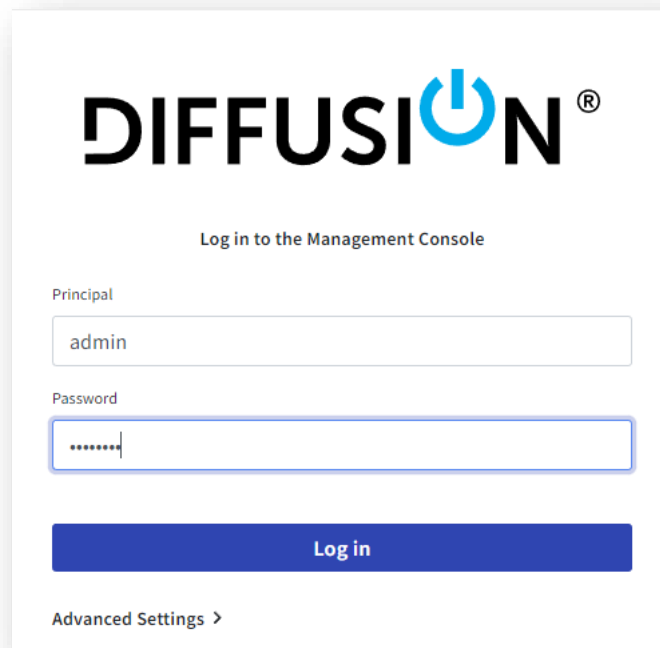
[Proceed to ec2-100-26-158-220.compute-1.amazonaws.com \(unsafe\)](#)

- As soon as you accept that warning you'll be navigated to the following page:



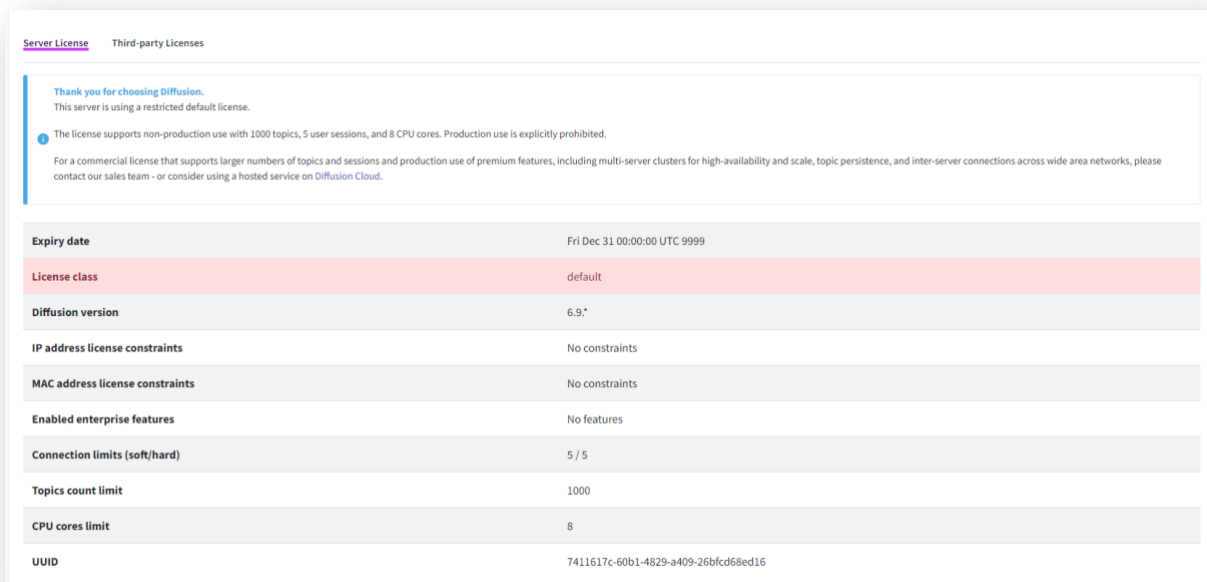
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- Click on the “Go to console” button and enter the credentials you’ve created on the previous step to the Login dialog.



The image shows a login dialog for the Diffusion Management Console. It features the Diffusion logo at the top, followed by the text "Log in to the Management Console". Below this, there are two input fields: "Principal" with the value "admin" and "Password" with masked characters. A blue "Log in" button is positioned below the password field. At the bottom left, there is a link for "Advanced Settings >".

- Finally, navigate to the License section and check the details of your licence:



The image shows the "Server License" section of the Diffusion interface. It includes a thank you message and a table of license details.

Thank you for choosing Diffusion.
This server is using a restricted default license.

The license supports non-production use with 1000 topics, 5 user sessions, and 8 CPU cores. Production use is explicitly prohibited.
For a commercial license that supports larger numbers of topics and sessions and production use of premium features, including multi-server clusters for high-availability and scale, topic persistence, and inter-server connections across wide area networks, please contact our sales team - or consider using a hosted service on Diffusion Cloud.

| | |
|---------------------------------|--------------------------------------|
| Expiry date | Fri Dec 31 00:00:00 UTC 9999 |
| License class | default |
| Diffusion version | 6.9.* |
| IP address license constraints | No constraints |
| MAC address license constraints | No constraints |
| Enabled enterprise features | No features |
| Connection limits (soft/hard) | 5 / 5 |
| Topics count limit | 1000 |
| CPU cores limit | 8 |
| UUID | 7411617c-60b1-4829-a409-26bfcd68ed16 |

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