

Installation guide

Installation on AWS



Edition	Changes
1.0	Creation

Content

1	<i>Introduction</i>	3
1.1	Context	3
1.2	Documents reference	3
2	<i>PREREQUISITES</i>	3
3	<i>Launch EC2 instance</i>	3
3.1	Instance creation	4
3.2	Create public IP address	6
4	<i>Connect to EC2 instance</i>	6
5	<i>Snapshot</i>	7
6	<i>Deploy rainbow packages</i>	7
7	<i>Rainbow configuration</i>	7
7.1	login	7
7.2	Network parameters	7
7.3	Rainbow configuration	9
8	<i>Upgrade</i>	10
8.1	Upgrade from	10
8.2	Remote upgrade	10
9	<i>Limitation/restrictions</i>	10
10	<i>Firewall consideration</i>	10
11	<i>Troubleshooting</i>	11

1 Introduction

1.1 Context

This document describes how to install WebRTC gateway on AWS environment.

- ☞ This document is a guideline that is not intended to replace a skilled AWS administrator.

1.2 Documents reference

Ref.	Title	Source
1		
2		

2 PREREQUISITES

AWS trained, skilled experts and an AWS account (credit card mandatory).
User has appropriate admin rights on AWS.

EC2 instance will be created from official Amazon Machine Image (AMI) Debian 12 provided by Debian (from AWS & trusted third-party AMIs) to benefit from AWS management & interface.

- ☞ Only AMI from Debian is supported by ALE (or a fork of an official Debian AMI).
- ☞ Using Community AMIs (even verified provider) is at your own risks & responsibilities.

3 Launch EC2 instance

Launch EC2 instance based on Debian 12 AMI 64-bit (x86) [provided by Debian](#) (Verified provider) and compatible with your region.

- ☞ Architecture : 64-bit (x86)
- ☞ Select instance type following your needs
- ☞ Manage VPC
- ☞ Subnet
- ☞ Select or create SSH key pair
- ☞ Define private Primary IP according to your VPC range
- ☞ Storage size is 8 Gb minimum by default and cannot be decrease to 4 Gb
 - keep the default value
- ☞ Associate Public IP with Elastic Ips
- ☞ Manage all necessary items (VPC, Security groups, Elastic IPs ...) with your administrator according to company's policies & best practices.

Create a Snapshot of your instance before installing Rainbow packages.

3.1 Instance creation

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: WRG [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.

Recent AMIs | My AMIs | **Quick Start**

Amazon Linux | Ubuntu | Windows | Red Hat | SUSE Linux | **Debian**  [Browse more AMIs](#)
Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

Debian 12 (HVM), SSD Volume Type [Free tier eligible](#) 

ami-0644165ab979df02d (64-bit (x86)) / ami-0639bd0dd196bc480 (64-bit (Arm))
Virtualization: hvm ENA enabled: true Root device type: ebs

Description
Debian 12 (HVM), EBS General Purpose (SSD) Volume Type. Community developed free GNU/Linux distribution.
<https://www.debian.org/>

Debian 12 (20250316-2053)

Architecture	AMI ID	Publish Date	Username	①
64-bit (x86) 	ami-0644165ab979df02d	2025-03-17	admin	Verified provider

- AMI ID will change depending on region & version
- Note the default username

Instance type [Info](#) | [Get advice](#)

Instance type

t3.micro
Family: t3 2 vCPU 1 GiB Memory Current generation: true
On-Demand Ubuntu Pro base pricing: 0.0153 USD per Hour
On-Demand SUSE base pricing: 0.0118 USD per Hour
On-Demand Linux base pricing: 0.0118 USD per Hour
On-Demand Windows base pricing: 0.021 USD per Hour
On-Demand RHEL base pricing: 0.0406 USD per Hour

 [All generations](#) [Compare instance types](#)

[Additional costs apply for AMIs with pre-installed software](#)

- t3.micro is for lab purpose only
- Minimum memory is 2Gb : adjust values following official ALE document regarding traffic & users

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**  [Create new key pair](#)

- Select/create ssh key pair

▼ Network settings [Info](#)

VPC - required [Info](#)

vpc-0d841e1d9b1990b9b (vpc) 10.0.0.0/16

Subnet [Info](#)

subnet-0c1d24de015bbed79 subnet-public1-eu-west-3a
VPC: vpc-0d841e1d9b1990b9b Owner: 405013722184 Availability Zone: eu-west-3a Zone type: Availability Zone IP addresses available: 4070 CIDR: 10.0.0.0/20

Create new subnet 

Auto-assign public IP [Info](#)

Disable

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

Common security groups [Info](#)

Select security groups

launch-wizard sg-0b070710de819dd3c    **Compare security group rules**

Security groups that you add or remove here will be added to or removed from all your network interfaces.

▼ Advanced network configuration

Network interface 1

Device index Info	Network interface Info	Description Info
0	New interface	
Subnet Info subnet-0c1d24de015bbed79 IP addresses available: 4070	Security groups Info Select security groups   	Auto-assign public IP Info Disable
Primary IP Info 123.123.123.1	Secondary IP Info Select	IPv6 IPs Info Select The selected subnet does not support IPv6 IPs.
IPv4 Prefixes Info Select	IPv6 Prefixes Info Select The selected subnet does not support IPv6 prefixes because it does not have an IPv6 CIDR	Assign Primary IPv6 IP Info Select A primary IPv6 address is only compatible with subnets that support IPv6

- ☞ Define your static private IP in “Primary IP”.
- ☞ Change any items as needed.

▼ Configure storage [Info](#) [Advanced](#)

1x 8 GiB gp3 Root volume, 3000 IOPS, Not encrypted

 Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage 

[Add new volume](#)

 Click refresh to view backup information
The tags that you assign determine whether the instance will be backed up by any Data Lifecycle Manager policies.

0 x File systems [Edit](#)

- ☞ Value cannot be less than 8Gb with selected Debian AMI: minimal recommended value is 4Gb of hard disk for WebRTC gateway. So 8Gb is correct.

Launch instance

 **Success**
Successfully initiated launch of instance ([i-016e1ebbe5f79707](#))

- ☞ Wait until EC2 image is “Running”.

3.2 Create public IP address

Using “Elastic IPs” menu, create & associate a public IP address to the new EC2 instance.

- ☞ Your instance should now be accessible by ssh.
- ☞ Configure your ssh client to use the ssh key defined during instance creation.
- ☞ Configure your VPC to allow incoming ssh connection on public IP address.

4 Connect to EC2 instance

☞ These first steps are fully under AWS administrator control and are given as guideline only.

Using ssh connection, log to instance

- ☞ Default login is admin for official Debian AMI image

Before starting Rainbow WebRTC gateway installation, proceed with image update/upgrade:

- ☞ sudo apt update
- ☞ sudo apt list --upgradable
- ☞ sudo apt upgrade -y

Remove unnecessary packages

- ☞ sudo apt autoremove
- ☞ check & remove

Check number of linux versions:

☞ dpkg --list grep linux-image	
ex:	
rc linux-image-6.1.0-32-cloud-amd64 6.1.129-1	amd64 Linux 6.1 for x86-64 cloud (signed)
ii linux-image-6.1.0-34-cloud-amd64 6.1.135-1	amd64 Linux 6.1 for x86-64 cloud (signed)
ii linux-image-6.1.0-37-cloud-amd64 6.1.140-1	amd64 Linux 6.1 for x86-64 cloud (signed)
ii linux-image-cloud-amd64 6.1.140-1	amd64 Linux for x86-64 cloud (meta-package)

- ☞ Check running image
uname -r
6.1.0-34-cloud-amd64
- ☞ Reboot your image to be able to remove unneeded images (32 & 34 here).

- ☞ After reboot
uname -r
6.1.0-37-cloud-amd64

- ☞ Remove unused images
In our case:
sudo apt remove --purge linux-image-6.1.0-34-cloud-amd64
sudo apt remove --purge linux-image-6.1.0-32-cloud-amd64

- ☞ Update boot grub
sudo update-grub
sudo reboot

5 Snapshot

Create a snapshot of EC2 instance or volume.

6 Deploy rainbow packages

Download Rainbow package installer for AWS “Rainbow_AWS_Installer-xxxx.tar” in /tmp.

- ☞ Note that the /tmp directory is emptied after each reboot. You can use another working folder.

From /tmp, unzip packages:

```
tar -xvf Rainbow_AWS_Installer-xxxxxx.tar
```

From /tmp folder, install packages:

```
./Rainbow_AWS_Installer.sh
```

- ☞ You can log detailed operations by:
bash -x Rainbow_AWS_Installer.sh (see [Troubleshooting](#))

When installation is finished, reboot EC2 instance.

- ☞ sudo reboot

7 Rainbow configuration

7.1 login

After reboot, log in via ssh using the **rainbow** account.

- ☞ Default admin account can be used as backup or can be disabled (be sure to have another sudo account in this case).

Rainbow config file is allowing ssh (based on key) connection by default for AWS.

- ☞ You should have a warning message when login with the rainbow account:
[WARNING] SSH server is active

- ☞ You can disable ssh connection, type: mpssh off
- ☞ Note that ssh connection is using same key as admin account.
- ☞ You cannot connect through ssh with login/password.
- ☞ Login/password is used only for console connection.

7.2 Network parameters

Private IP address is affected during EC2 instance creation. This private IP is reserved until instance is terminated.

This private IP cannot be changed afterward.

For that reason, WebRTC gateway will be used in DHCP only at application level. Static private IP is managed at EC2 instance level.

- ☞ Only hostname & proxy settings can be changed with mpnetwork (all other options are ignored).
- ☞ Domain name, DNS servers and NTP servers values should be managed with “DHCP options sets” in VPC (Virtual Private Cloud) associated to your EC2 instance.

Ex:

Create DHCP option set Info
Dynamic Host Configuration Protocol (DHCP) provides a standard for passing configuration information to hosts on a TCP/IP network. The options field of a DHCP message contains configuration parameters.

Tag settings
DHCP option set name - *optional*
dhcp_options-wrg

DHCP option
Specify at least one configuration parameter.

Domain name Info
labale.bzh

Domain name servers Info
1.1.1.1, 8.8.8.8
Enter up to four IPv4 addresses and four IPv6 addresses, separated by commas.

NTP servers
146.59.88.209, 109.190.177.200, 82.65.248.56, 45.13.105.44
Enter up to four IPv4 addresses and four IPv6 addresses, separated by commas.

NetBIOS name servers
192.168.0.4, 198.168.0.5
Enter up to four IP addresses, separated by commas.

NetBIOS node type
Choose a node type
We recommend that you select point-to-point (2 - P-node). Broadcast and multicast are not currently supported.

IPv6 preferred lease time
100000
Seconds
Enter your preferred IPv6 lease time in seconds, minutes, hours, or years

▶ AWS Command Line Interface command

☞ These values are reflected to EC2 instance with mpshow:

```
DHCP informations:
Current IP: 10.0.10.30
DHCP lease:
Link state: Link detected: yes

Latest informations found in lease file:

IP:          10.0.10.30
NETMASK:     255.255.240.0
GATEWAY:     10.0.0.1
DNS:          1.1.1.1 8.8.8.8
NTP:          146.59.88.209
HOSTNAME:    ip-10-0-10-30
HOSTDOMAIN:  labale.bzh
```

7.3 Rainbow configuration

Configure Rainbow settings:

- ☞ `mpconfig -PBXID=xxxx-xxxx-xxxx-xxxx -PBX_DOMAIN=<pabx FQDN or IP>`

Force services restart to enable all necessary services.

- ☞ `mprestart`

Check settings:

- ☞ `mpshow`

Check your configuration

- ☞ `mpstatus`

```
Rainbow WebRTC Gateway version: <version>
<date>
mp-monitor status ...
[OK] enabled/active
kamailio status ...
[OK] enabled/active
janus-gateway-mediapillar status ...
[OK] enabled/active
otlitemediapillargateway status ...
[OK] enabled/active
systemd-timesyncd status ...
[OK] enabled/active
registration status ...
traceroute -n -4 -T -p 5060 <PBX_DOMAIN>
[OK] route <local private IP>
rainbow auth status ...
[OK] [OK]
kamailio registered users ...
"Address": "sip:BBB@<local private IP:port>;transport=udp",
rainbow registered users ...
```

- ☞ `mpcheck`

```
Rainbow WebRTC Gateway version: <version>
<date>
Network settings ...
[OK]
Rainbow settings ...
[OK]
DNS test resolution of 'openrainbow.net' ...
[OK] dnstest host (24 ms) 51.178.224.139 51.178.224.136
Rainbow connect ...
[OK] Rainbow connection (openrainbow.net) can be established
[OK] Rainbow connection (51.178.224.139) can be established
[OK] Rainbow connection (51.178.224.136) can be established
Rainbow TLS check ...
[OK] Rainbow TLS check to openrainbow.net
STUN/TURN test will be done using GEOIP config
DNS test resolution of 'turn-ipv6.openrainbow.net' ...
[OK] dnstest turn (36 ms) 51.178.89.150
STUN/TURN test turn-ipv6.openrainbow.net ...
51.178.89.150-u-3478 ... /opt/mediapillar/cv/mpstc -u -s20000 -a51.178.89.150 -d3478 -w2
[ok] 51.178.89.150:u:3478-51.44.100.60:20229
[OK] stun/turn test (19 ms)
DNS test resolution of 'turn-rbx1.openrainbow.net' ...
[OK] dnstest turn (38 ms) 51.178.224.132
STUN/TURN test turn-rbx1.openrainbow.net ...
51.178.224.132-u-3478 ... /opt/mediapillar/cv/mpstc -u -s20000 -a51.178.224.132 -d3478 -w2
[ok] 51.178.224.132:u:3478-51.44.100.60:20302
[OK] stun/turn test (29 ms)
PBX_DOMAIN access ...
ping -4 -c 2 <PBX_DOMAIN>
[OK] ping <PBX_DOMAIN>
PBX_DOMAIN SIP OPTIONS ...
sptest ... /opt/mediapillar/cv/mpstc -S -a<PBX_DOMAIN> -d5060 -w2
[OK] success
registration access ...
traceroute -n -4 -T -p 5060 <local private IP>
```

OK route <local private IP>

- ☞ mpsystem
- ☞ check that Amazon is recognized:
machine: Amazon EC2

If all is correct, your system is ready to use.

8 Upgrade

8.1 Upgrade from

This is the same process as traditional WebRTC gateway:

- ☞ Download iso + iso.md5 files in /upgrade folder
- ☞ Upgrade manually with mpupgrade command
mpupgrade [--now | --delay=XXX[s|m|h]] [--yes] [--abort] [--cleanup]

8.2 Remote upgrade

This is the same process as traditional WebRTC gateway using admin web interface:

- ☞ Remote download of available version
- ☞ Upgrade process

9 Limitation/restrictions

The following features are not supported with AWS:

- ☞ DO NOT manage multiple network interfaces (eni)
- ☞ Duolan mode is not supported

10 Firewall consideration

If your EC2 instance for WebRTC gateway has a public IP address, you can allow direct RTP between your Rainbow user (over internet) and WebRTC gateway's public IP.

- ☞ In that case, you will not pass through TURN servers.

11 Troubleshooting

If installation fails, please do following operations:

- 1) Come back to previous state:
 - ☞ Use your snapshot (recommended solution to have clean disk)
 - ☞ Uninstall all components:
./Rainbow_AWS_Installer.sh -undoall
sudo reboot
- 2) Install rainbow as follow:
bash -x Rainbow_AWS_Installer-xxxx.sh
 - ☞ Save results of operations in a log file & send it to ALE support.

If remote upgrade fails, create an empty file before launching upgrade with admin web interface:

```
touch /tmp/tracelog
```

- ☞ This will create /temp/ folder with some log files.

Save /temp/*.log files & send it to ALE support.