

Load Balancing FreePBX/Asterisk in AWS

Version 1.3.0



Table of Contents

| 1. About this Guide | . 3 |
|--|-----|
| 2. Software Versions Supported | . 3 |
| 2.1. Loadbalancer.org Appliance | . 3 |
| 2.2. FreePBX | . 3 |
| 3. Related Documentation | . 3 |
| 4. Load Balanced Ports / Services | . 3 |
| 5. VPC Security Group inbound rules | . 3 |
| 6. Appliance Configuration Overview | . 4 |
| 6.1. Operation Mode | . 4 |
| 6.2. FreePBX Server Health-check | . 4 |
| 7. Deploying & Accessing the Appliance | . 4 |
| 7.1. Deployment | . 4 |
| 7.2. Accessing the Appliance WebUI | . 4 |
| WebUI Menu Options | . 5 |
| 8. Configuration Steps | . 6 |
| 8.1. Appliance Configuration | . 6 |
| Configure the Virtual Service | . 6 |
| Define the Real (Free-PBX) Servers | . 6 |
| 8.2. AWS Configuration | . 7 |
| Associate the VIP with an Elastic IP Address | |
| Configure Routing Rules | |
| Configure the Source/Dest. Check | . 7 |
| 8.3. Free-PBX Server Configuration | . 7 |
| Configure the External IP address | . 8 |
| Configuring Users | . 8 |
| 9. Testing | . 8 |
| 10. Loadbalancer.org Technical Support | . 8 |
| 11. Document Revision History | . 9 |

1. About this Guide

This document provides a quick reference guide on how to load balance FreePBX/Asterisk servers using the Enterprise AWS Loadbalancer.org Amazon cloud appliance.

2. Software Versions Supported

2.1. Loadbalancer.org Appliance

v8.7.0 and later

8 Note

The screenshots used throughout this document aim to track the latest Loadbalancer.org software version. If using an older software version, note that the screenshots presented here may not match the WebUI exactly.

2.2. FreePBX

All versions

3. Related Documentation

For additional information, please refer to the Administration Manual and the AWS Quickstart Configuration Guide.

4. Load Balanced Ports / Services

| Ports | Use | Transport Layer Protocol |
|---------------|--|--------------------------|
| 5060 | Non-encrypted Session Initiation Protocol (SIP) | UDP & TCP |
| 5061 | Encrypted Session Initiation Protocol (SIP) | UDP & TCP |
| 4569 | Inter Asterisk eXchange (IAX) | UDP |
| 10000 - 20000 | Real Time Transport Protocol (RTP) | UDP |
| 10000 - 20000 | Real Time Transport Control Protocol (RTCP) | UDP |

5. VPC Security Group inbound rules

The following inbound rules must be configured in your Security Group:

- For management: TCP 9443 (Appliance WebUI)
- For VoIP services: UDP 5060 & 5061 (SIP), UDP 10000-20000 (RTP & RTCP) and UDP 4569 (IAX)

6. Appliance Configuration Overview

6.1. Operation Mode

The load balancer is configured using layer 4 NAT mode. For NAT mode to operate correctly, routing rules for the Real (FreePBX) Server subnet must be changed so that return traffic passes back via the load balancer.

6.2. FreePBX Server Health-check

A connect to port health-check is used to verify that each FreePBX Server is available.

7. Deploying & Accessing the Appliance

7.1. Deployment

Deploy the Loadbalancer.org appliance as described in the AWS Quickstart Configuration Guide.

7.2. Accessing the Appliance WebUI

Using a browser, navigate to the public IP address or public DNS name on port 9443:

https://<Public IP address>:9443

or

https://<Public DNS name>:9443

8 Note

You'll receive a warning about the WebUl's certificate. This is due to the default self signed certificate that is used. If preferred, you can upload your own certificate - for more information, please refer to Appliance Security Features.

Log in to the WebUI using the following default credentials:

Username: loadbalancer **Password**: <EC2 Instance-ID>

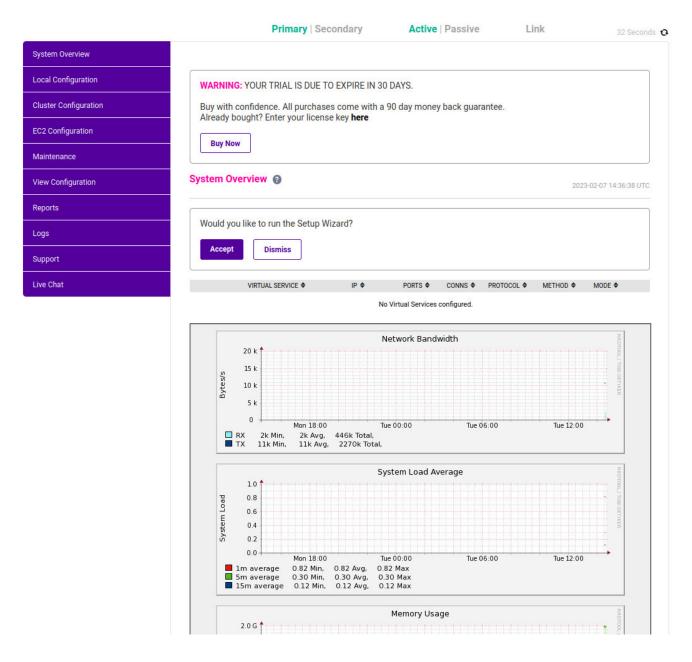
Note

To change the password for the 'loadbalancer' account, use the WebUI option: *Maintenance > Passwords*.

Once logged in, the WebUI is displayed:

LOADBALANCER





WebUI Menu Options

System Overview - Displays a graphical summary of all VIPs, RIPs and key appliance statistics

Local Configuration - Configure local host settings such as IP address, DNS, system time etc.

Cluster Configuration - Configure load balanced services such as VIPs & RIPs

EC2 Configuration - Configure AWS specific settings

Maintenance - Perform maintenance tasks such as service restarts and taking backups

View Configuration - Display the saved appliance configuration settings

Reports - View various appliance reports & graphs

Logs - View various appliance logs

Support - Create a support download, contact the support team & access useful links

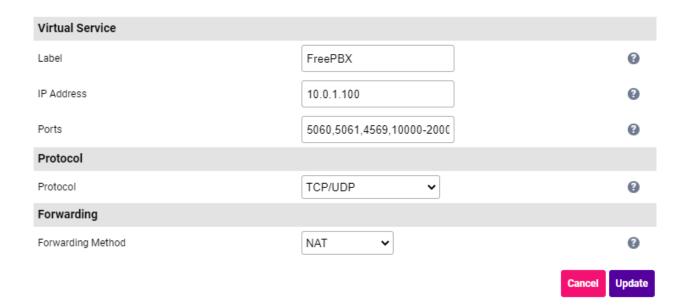
Live Chat - Start a Live Chat session with one of our Support Engineers

8. Configuration Steps

8.1. Appliance Configuration

Configure the Virtual Service

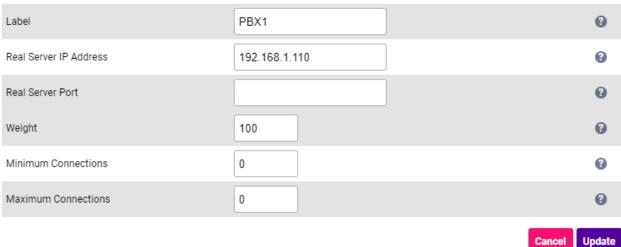
- 1. Using the WebUI, navigate to: *Cluster Configuration > Layer 4 Virtual Services* and click **Add a New Virtual Service**.
- 2. Enter the following details:



- 3. Define the required *Label* (name) for the VIP, e.g. **FreePBX**.
- 4. Set the *Virtual Service IP Address* field to an appropriate value, e.g. **10.0.1.100**.
- 5. Set the Virtual Service Ports field to 5060,5061,4569,10000-20000.
- 6. Change Protocol to TCP/UDP.
- 7. Change the *Forwarding Method* to **NAT**.
- 8. Click **Update**.

Define the Real (Free-PBX) Servers

- 1. Using the WebUI, navigate to: *Cluster Configuration > Layer 4 Real Servers* and click **Add a new Real**Server next to the newly created VIP.
- 2. Enter the following details:





- 3. Enter an appropriate label for the Real Server, e.g. **PBX1**.
- 4. Change the *Real Server IP Address* field to the required address, e.g. 192.168.1.110.
- 5. Leave the *Real Server Port* field blank.
- 6. Click Update.
- 7. Repeat the above steps to add your other FreePBX server(s).

8.2. AWS Configuration

Associate the VIP with an Elastic IP Address

- 1. Using the EC2 Management Console, allocate a new Elastic IP address.
- 2. Now associate this address with the VIP, in this case 10.0.1.100.

Configure Routing Rules

Add a default route to the FreePBX subnet's routing table, set the target to be the load balancer instance:

- Under the VPC Management Console, select Route Tables.
- Select the route table that relates to the private subnet.
- · Select the Routes tab, and click Edit routes.
- Click Add Route.
- set the destination to **0.0.0.0/0**.
- In the Target drop-down select **Instance**, then select the load balancer.
- Click Save Changes.

Configure the Source/Dest. Check

Disable the Source/Destination Check for the load balancer instance.

8.3. Free-PBX Server Configuration



Configure the External IP address

Using the PBX GUI, navigate to: Settings > Asterisk SIP Settings and set the External Address to the EIP associated with VIP.

Configuring Users

When configuring extensions, ensure that NAT is set to Yes.

9. Testing

You should now be able to configure your soft client to register against the PBX EIP **sip:extn@EIP** and make calls across extensions.

10. Loadbalancer.org Technical Support

If you have any questions regarding the appliance or would like assistance designing your deployment, please don't hesitate to contact our support team: support@loadbalancer.org.

11. Document Revision History

| Version | Date | Change | Reason for Change | Changed By |
|---------|------------------|--|---|------------|
| 1.1.0 | 4 November 2019 | Styling and layout | General styling updates | АН |
| 1.1.1 | 2 June 2020 | New title page Updated Canadian contact details | Branding update Change to Canadian contact details | АН |
| 1.2.0 | 1 September 2022 | Converted the document to AsciiDoc Updated links and instructions where necessary | Move to new documentation system Required updates | АН |
| 1.2.1 | 5 January 2023 | Added one level of section numbering | Housekeeping across all documentation | AH |
| 1.2.2 | 2 February 2023 | Updated screenshots | Branding update | АН |
| 1.2.3 | 21 March 2023 | Improved document structure Updated various configuration steps | Document standardization Product feature updates | RJC |
| 1.3.0 | 24 March 2023 | New document theme Modified diagram colours | Branding update | АН |



Visit us: www.loadbalancer.org

Phone us: +44 (0)330 380 1064

Phone us: +1 833 274 2566

Email us: info@loadbalancer.org

Follow us: @loadbalancer.org

About Loadbalancer.org

Loadbalancer.org's mission is to ensure that its clients' businesses are never interrupted. The load balancer experts ask the right questions to get to the heart of what matters, bringing a depth of understanding to each deployment. Experience enables Loadbalancer.org engineers to design less complex, unbreakable solutions and to provide exceptional personalized support.

