LOADBALANCER

QUICK GUIDE

Load Balancing FreePBX/Asterisk in AWS

Version 1.3.0

Table of Contents

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

- V8.9.1 and later

> **Note** The screenshots used throughout this document aim to track the latest Loadbalancer.org software version. If you're using an older version, or the very latest, the screenshots presented here may not match your 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

> **Note** You'll receive a warning about the WebUI's SSL 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.

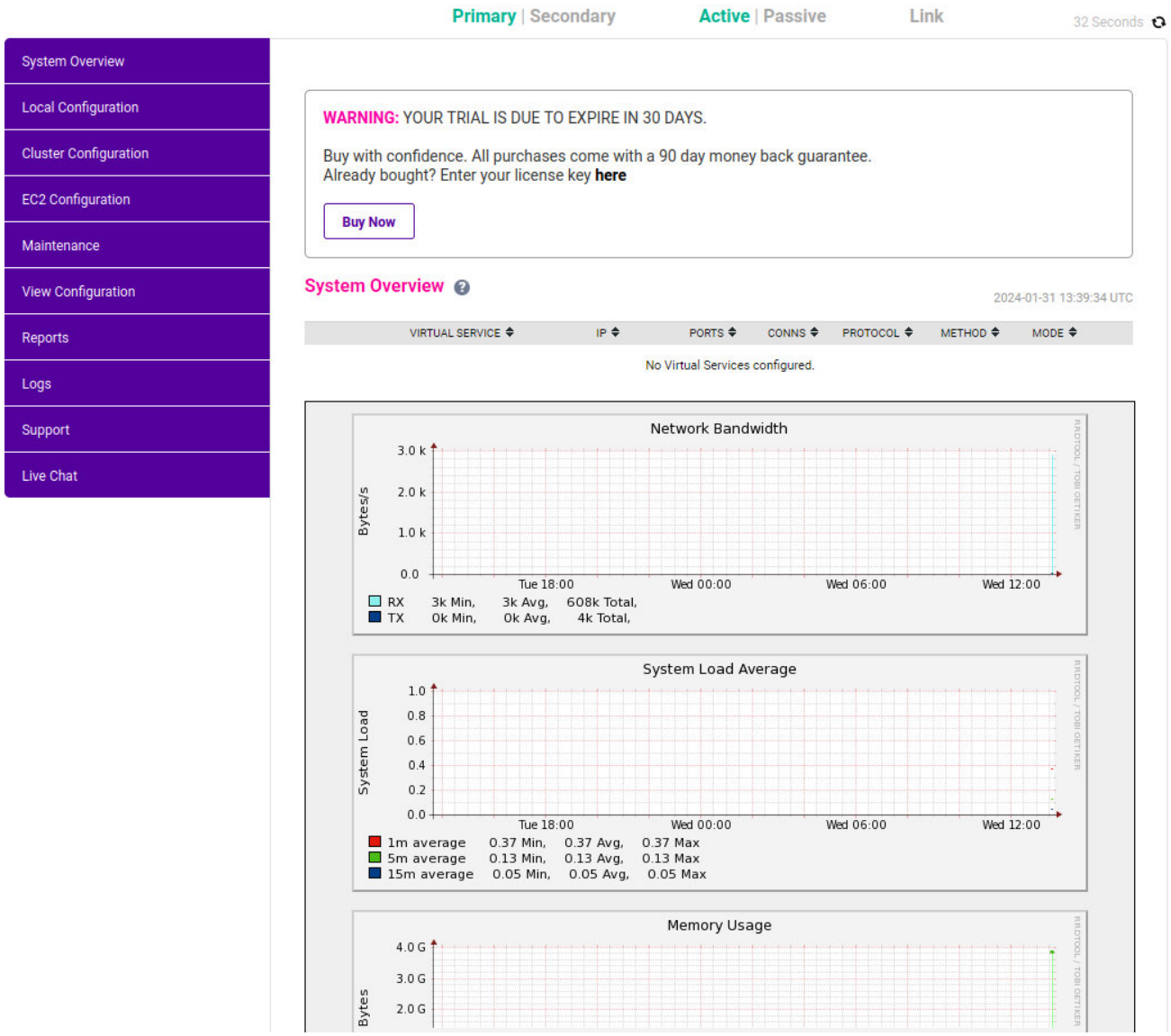
> **Note** If you need to change the port, IP address or protocol that the WebUI listens on, please refer to Service Socket Addresses.

Log in to the WebUI using the following default credentials:

Username: loadbalancer
Password: <EC2 Instance-ID>

> **Note** To change the password, use the WebUI option: ***Maintenance > Passwords***.

Once logged in, the WebUI is displayed:



WebUI Menu Options

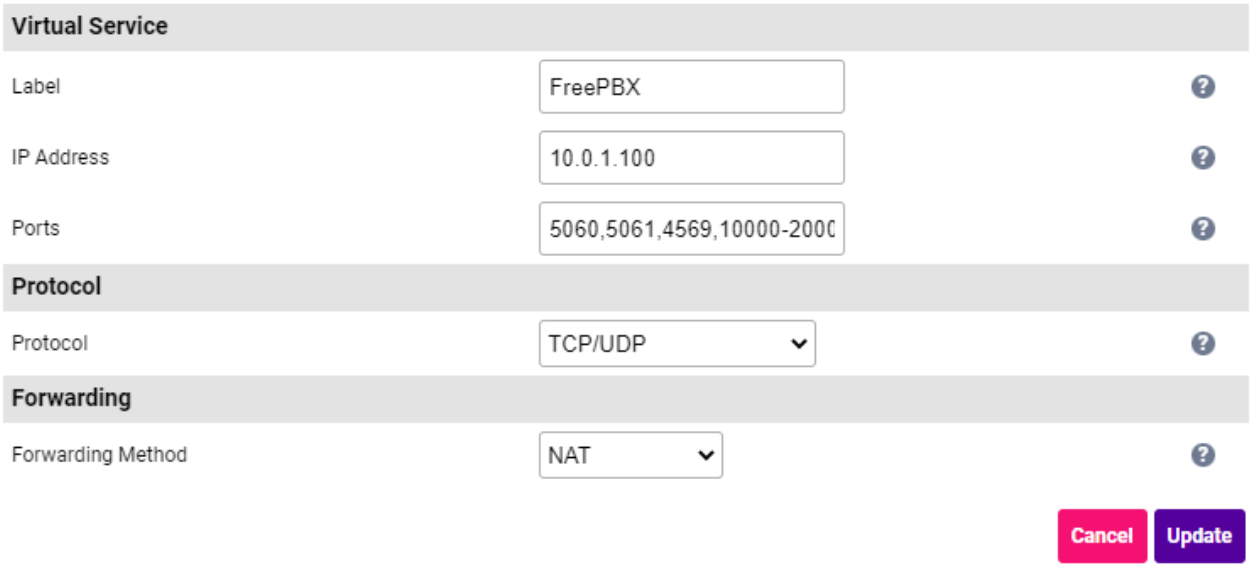
System Overview - Displays a graphical summary of all VIPs, RIPs and key appliance statistics
Local Configuration - Configure local host settings such as IP address, DNS, system time etc.
Cluster Configuration - Configure load balanced services such as VIPs & RIPs
EC2 Configuration - Configure AWS specific 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

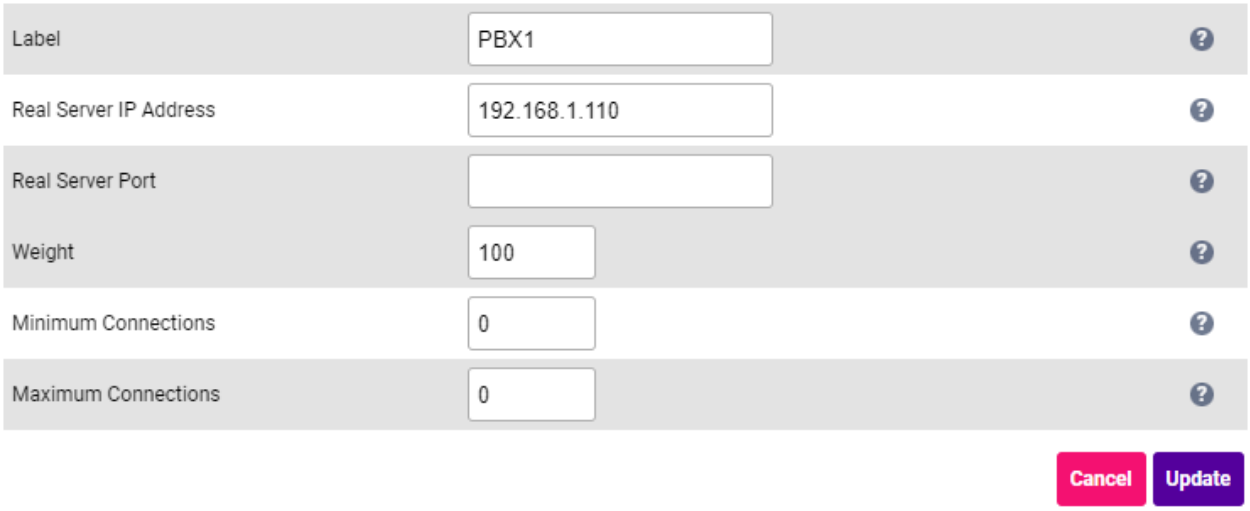
1. Using the WebUI, navigate to: *Cluster Configuration > Layer 4 – Virtual Services* and click **Add a New Virtual Service**.
2. Enter the following details:



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	AH
1.1.1	2 June 2020	New title page Updated Canadian contact details	Branding update Change to Canadian contact details	AH
1.2.0	1 September 2022	Converted the document to AsciiDoc Updated links and instructions where necessary	Move to new documentation system Required updates	AH
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	AH
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	AH

LOADBALANCER

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.