Load Balancing Microsoft Session Host in AWS

Version 1.3.0
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1. About this Guide

This document provides a quick reference guide on how to load balance Microsoft Remote Desktop Session Host servers using the Enterprise AWS Loadbalancer.org Amazon cloud appliance.

- Microsoft Connection Broker is used, the Loadbalancer.org appliance interacts with the Routing Token to reconnect user sessions to the correct Session Host.
- The Loadbalancer.org Feedback Agent is installed on the Session Host servers to provide real time performance stats to enable optimum load distribution.

2. Software Versions Supported

2.1. Loadbalancer.org Appliance

- v8.7.0 and later

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. Microsoft Windows Server

- All versions

3. Related Documentation

For additional information, please refer to the Administration Manual, the AWS Quickstart Configuration Guide and the Microsoft Remote Desktop Services Deployment Guide.

4. Load Balanced Ports / Services

<table>
<thead>
<tr>
<th>Port</th>
<th>Use</th>
<th>Transport Layer Protocol</th>
</tr>
</thead>
<tbody>
<tr>
<td>3389</td>
<td>Remote Desktop Protocol (RDP)</td>
<td>TCP</td>
</tr>
</tbody>
</table>

5. VPC Security Group inbound rules

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

- For Management: TCP 22 (SSH), TCP 9443 (Appliance WebUI)
- For RDP services: TCP 3389 (RDP)

6. Appliance Configuration Overview

6.1. Operation Mode
The load balancer is configured using layer 7 SNAT mode. This mode does not require any mode specific configuration changes to the load balanced Real Servers.

6.2. Session Host Health-check
A connect to port health-check is used to verify that each Session Host server is available.

6.3. Deployment Concept
The diagram below shows how the system is configured.

Notes

1. The Loadbalancer.org Feedback Agent provides real time server utilization statistics based on either CPU or RAM utilization or a combination of both.

2. Connection Broker can be deployed in HA mode if required using 2 Connection Broker servers and an SQL database.

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
https://<Public DNS name>:9443

You'll receive a warning about the WebUI'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>

To change the password for the 'loadbalancer' account, 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 7 – Virtual Services and click Add a New Virtual Service.
2. Enter the following details:

   ![Layer 7 - Add a new Virtual Service](image)

3. Define the required Label (name) for the VIP, e.g. RDS-SessionHost.
4. Set the Virtual Service IP Address field to an appropriate value, e.g. 10.0.0.100.
5. Set the Virtual Service Ports field to 3389.
7. Click Update.
8. Now click Modify next to the newly created VIP.
9. Scroll to the Persistence section.
   - Change Persistence Mode to MS Session Broker.
10. Scroll to the Feedback Method section.
    - Change Feedback Method to Agent.
11. Scroll to the Other section and click [Advanced].
    - Enable (check) the Timeout checkbox and set both Client Timeout and Real Server Timeout to a suitable value, e.g. 1h (1 hour).
12. Click Update.

Define the Real (Session Host) Servers

1. Using the WebUI, navigate to: Cluster Configuration > Layer 7 – Real Servers and click Add a new Real
2. Enter the following details:

Layer 7 Add a new Real Server

<table>
<thead>
<tr>
<th>Label</th>
<th>SH1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real Server IP Address</td>
<td>10.0.0.120</td>
</tr>
<tr>
<td>Real Server Port</td>
<td>3389</td>
</tr>
<tr>
<td>Re-Encrypt to Backend</td>
<td>✔</td>
</tr>
<tr>
<td>Weight</td>
<td>100</td>
</tr>
</tbody>
</table>

3. Enter an appropriate label for the Real Server, e.g. SH1.
4. Set the Real Server IP Address field to the required address, e.g. 10.0.0.120.
5. Set the Real Server Port field to 3389.
6. Click Update.
7. Repeat the above steps to add your other Session Host server(s).

Apply the New Settings
To apply the new settings, HAProxy must be reloaded. This can be done using the button in the "Commit changes" box at the top of the screen or by using the Restart Services menu option:

1. Using the WebUI, navigate to: Maintenance > Restart Services.
2. Click Reload HAProxy.

8.2. 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 10.0.0.100.

8.3. Session Host Server Configuration
Configure Server Settings
To configure the Session Host Servers, please refer to the section "Load balancing Session Hosts when deployed with Connection Broker" in the Microsoft Remote Desktop Services Deployment Guide.

Install The Feedback Agent
The Loadbalancer.org Windows Feedback Agent can be downloaded here. To install and configure the Feedback Agent, please refer to the section "Server Feedback Agent" in the Microsoft Remote Desktop Services Deployment Guide.
9. Testing

The load balanced Session Host Servers should now be accessible using the EIP address or corresponding public DNS name. Connect to this address from the Microsoft RDP client (mstsc.exe) or equivalent.

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. Load Balancer Configuration

11.1. Deploy the Loadbalancer.org AWS Appliance

1. Deploy an AWS Loadbalancer.org appliance as detailed in the Configuration Guide - Amazon AWS.

11.2. Accessing the Appliance WebUI

In a browser, navigate to the Public DNS name or Public IP address on port 9443, i.e.

https://<Public DNS name>:9443

or

https://<Public IP address>:9443

You'll receive a warning about the certificate as it’s a self signed cert not related to an Internet based CA. Confirm you want to continue and a login prompt will be displayed. Use 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:
11.3. Configuration

The diagram below shows how the system is configured.
The Loadbalancer.org Server Feedback Agent provides real-time server utilization statistics based on either CPU or RAM utilization or a combination of both.

Connection Broker can be deployed in HA mode if required using 2 Connection Broker servers and an SQL database.

11.4. Configure the Virtual Service

1. Using the WebUI, navigate to: Cluster Configuration > Layer 7 – Virtual Services and click Add a New Virtual Service.

2. Enter the following details:

   - Define the required **Label** (name) for the VIP, e.g. **RDS-SessionHost**.
   - Set the **Virtual Service IP address** field to the required IP address, e.g. **10.0.0.100**.
5. Set the **Virtual Service Ports** field to **3389**.

6. Change **Layer 7 Protocol** to **TCP Mode**.

7. Click **Update**.

8. Now click **Modify** next to the newly created VIP.

9. Change **Persistence Mode** to **MS Session Broker**.

10. Change **Feedback Method** to **Agent**.

11. In the **Other** section, click **Advanced** to show more options.

12. Enable (check) the **Timeout** checkbox and set both **Client Timeout** and **Real Server Timeout** to a suitable value, e.g. **1h** (1 hour).

13. Click **Update**.

### 11.5. Define the Real (Session Host) Servers

Real Servers, i.e. the Session Host servers are now defined.

1. Using the WebUI, navigate to: **Cluster Configuration > Layer 7 – Real Servers** and click **Add a new Real Server** next to the newly created VIP.

2. Enter the following details:

   ![Layer 7 Add a new Real Server](image)

   3. Enter an appropriate label for the Real Server, e.g. **SH1**.

   4. Set the **Real Server IP Address** field to the required address, e.g. **10.0.0.120**.

   5. Set the **Real Server Port** field to **3389**.

   6. Click **Update**.

   7. Repeat the above steps to add your other Session Host server(s).

### 11.6. Apply the New Settings

1. Once the configuration is complete, use the **Reload HAProxy** button at the top of the screen to commit the changes.
11.7. 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 **10.0.0.150**.

12. Session Host Server Configuration

12.1. Configure Server Settings

To configure the Session Host Servers, please refer to the section "Load balancing Session Hosts when deployed with Connection Broker" in the Microsoft Remote Desktop Services Deployment Guide.

12.2. Install The Feedback Agent

The Loadbalancer.org Windows Feedback Agent can be downloaded [here](#). To install and configure the Feedback Agent, please refer to the section "Server Feedback Agent" in the Microsoft Remote Desktop Services Deployment Guide.

13. Testing

The load balanced Session Host Servers should now be accessible using the EIP address or corresponding public DNS name. Connect to this address from the Microsoft RDP client (mstsc.exe) or equivalent.

14. 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.
## 15. Document Revision History

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<th>Date</th>
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<td>Styling and layout</td>
<td>General styling updates</td>
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<td>New title page</td>
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<td>Amended instructions for setting timeout options</td>
<td>Changes to the appliance WebUI</td>
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<td>1.2.0</td>
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<td>Converted the document to Asciidoc</td>
<td>Move to new documentation system</td>
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<td>28 September 2022</td>
<td>Updated layer 7 VIP and RIP creation screenshots</td>
<td>Reflect changes in the web user interface</td>
<td>AH</td>
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<td>1.2.2</td>
<td>5 January 2023</td>
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<td>Housekeeping across all documentation</td>
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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.