Load Balancing VMware Platform Services Controller

Version 1.3.0
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1. About this Guide
This document provides a quick reference guide on how to load balance multiple VMware Platform Services Controllers (PSC) using Loadbalancer.org appliances.

2. Loadbalancer.org Appliances Supported
All our products can be used for load balancing VMware PSC. For full specifications of available models please refer to https://www.loadbalancer.org/products.

Some features may not be supported in all cloud platforms due to platform specific limitations, please check with Loadbalancer.org support for further details.

3. Software Versions Supported

3.1. Loadbalancer.org Appliance
- v8.3.8 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.

3.2. VMware PSC
- vSphere v6.0 and later

4. Related Documentation
For additional information, please refer to the Administration Manual and the relevant Quick Start / Configuration Guide.

5. VMware PSC
Platform Services Controller was introduced in vSphere 6.0 as a mechanism to simplify and centralize common vSphere infrastructure services. The PSC handles vSphere single sign-on (SSO), licensing, tagging, global permissions, custom roles, and certificate management.

If the PSC is down, you cannot start any new vCenter Server sessions or any second party VMware products that depends on it. Also, vCenter Server is unable to fully restart until PSC is restored.

6. Load Balanced Ports / Services

<table>
<thead>
<tr>
<th>Port</th>
<th>Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>389</td>
<td>Active Directory</td>
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<table>
<thead>
<tr>
<th>Port</th>
<th>Uses</th>
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</thead>
<tbody>
<tr>
<td>443</td>
<td>PSC / vCenter communications</td>
</tr>
<tr>
<td>636</td>
<td>vCenter Single Sign-On LDAPS</td>
</tr>
<tr>
<td>2012</td>
<td>Control interface RPC for vCenter Single Sign-On</td>
</tr>
<tr>
<td>2014</td>
<td>RPC port for all VMCA (VMware Certificate Authority) APIs</td>
</tr>
<tr>
<td>2020</td>
<td>Authentication framework management</td>
</tr>
</tbody>
</table>

7. Appliance Configuration Overview

7.1. Operation Mode

The load balancer is configured using single-arm layer 7 SNAT mode. This mode does not require any mode specific configuration changes to the load balanced Real Servers. Source IP address persistence is used to ensure clients connect to the same PSC server for the duration of their session.

7.2. PSC Health checks

A HTTPS negotiate health-check is used to verify that each PSC Server is available.

7.3. Deployment Concept

Once the load balancer is deployed, clients connect to the Virtual Service (VIP) on the load balancer rather than directly to one of the PSC servers.

8. Deploying & Accessing the Appliance

8.1. Deployment

Deploy the Loadbalancer.org appliance as described in the relevant Quick Start / Configuration Guide.
8.2. Accessing the Appliance WebUI

The WebUI is accessed using a web browser. By default, users are authenticated using Apache authentication. Users can also be authenticated against LDAP, LDAPS, Active Directory or Radius - for more information, please refer to External Authentication.

Note
There are certain differences when accessing the WebUI for the cloud appliances. For details, please refer to the relevant Quick Start / Configuration Guide.

Note
A number of compatibility issues have been found with various versions of Microsoft Internet Explorer and Edge. The WebUI has been tested and verified using both Chrome & Firefox.

1. Using a browser, navigate to the following URL:


   Note
   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.

2. Log in to the WebUI using the following credentials:

   Username: loadbalancer
   Password: <configured-during-network-setup-wizard>

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

Once logged in, the WebUI will be displayed as shown below:
3. You'll be asked if you want to run the Setup Wizard. Click **Dismiss** if you're following a guide or want to configure the appliance manually. Click **Accept** to start the Setup Wizard.

**Note**
The Setup Wizard can only be used to configure Layer 7 services.

**Main 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
- **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
9. Appliance Configuration

9.1. Configure the Virtual Service (VIP)
Create a new VIP as described below. A multi-port VIP is used which includes all required ports.

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. VMwarePSC.
4. Set the Virtual Service IP address field to the required IP address, e.g. 192.168.1.100.
5. Set the Virtual Service Ports field to 389,443,636,2012,2014,2020, i.e. all required ports.
6. Set the Layer 7 Protocol to TCP Mode.
7. Click Update.
8. Now click Modify next to the newly created Virtual Service.
9. Under Persistence, click Advanced to show more options.
10. Set Persistence Timeout to 8h, i.e. 8 hours.
11. Under Health Checks, click Advanced to show more options.
12. Configure the health check settings as shown below:
9. Change **Health Checks** to **Negotiate HTTPS (GET)**.

10. Set **Request to Send** to `/websso/HealthStatus`.

11. Leave **Response Expected** blank.

   ![Note](image)

   Leaving this field blank will mean that all HTTP 2xx (usually HTTP 200) and HTTP 3xx responses will be considered as valid and the server will be marked as up.

12. Set **Check Port** to 443.

13. Click **Update**.

### 9.2. Define the Real (Platform Services Controller) Servers

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. PSC1.
   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 VMware PSC server(s).
9.3. Finalizing the Configuration

To apply the new settings, HAProxy must be reloaded. This can be done using the buttons 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.

10. Testing & Verification

10.1. Check Server State

Once everything is configured correctly and all load balanced Platform Services Controllers are up, the VIP should be displayed green in the System Overview of the WebUI.

10.2. Check Connectivity

Ensure that DNS points to the VIP rather than one of the PSC servers and verify that everything works as expected.

11. 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.
## 12. Document Revision History

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Change</th>
<th>Reason for Change</th>
<th>Changed By</th>
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<tr>
<td>1.1.0</td>
<td>5 November 2019</td>
<td>Styling and layout</td>
<td>General styling updates</td>
<td>AH</td>
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<td>28 August 2020</td>
<td>New title page</td>
<td>Branding update</td>
<td>AH</td>
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<td>Updated Canadian contact details</td>
<td>Change to Canadian contact details</td>
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<td></td>
<td></td>
<td>New screenshot and amended instructions for configuring health check</td>
<td>Changes to the appliance WebUI</td>
<td>RJC</td>
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<tr>
<td>1.2.0</td>
<td>1 September 2022</td>
<td>Converted the document to AsciiDoc</td>
<td>Move to new documentation system</td>
<td>AH</td>
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<td></td>
<td></td>
<td>Updated links and instructions where necessary</td>
<td>Required updates</td>
<td>AH</td>
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<td>1.2.1</td>
<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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<tr>
<td>1.2.2</td>
<td>5 January 2023</td>
<td>Added one level of section numbering</td>
<td>Housekeeping across all documentation</td>
<td>AH</td>
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<td>1.2.3</td>
<td>2 February 2023</td>
<td>Updated screenshots</td>
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<td>1.2.4</td>
<td>7 March 2023</td>
<td>Added the section 'Finalizing the Configuration' to ensure HAProx is explicitly reloaded</td>
<td>Provided clarity for reloading HAPoxy post-configuration</td>
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<td>17 March 2023</td>
<td>Improved document structure</td>
<td>Document standardization</td>
<td>RJC</td>
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<td></td>
<td></td>
<td>Changed the health check to look for a valid HTTP response from each PSC rather than specific text</td>
<td>Method is supported by all versions of PSC</td>
<td>RJC</td>
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<tr>
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<td>24 March 2023</td>
<td>New document theme</td>
<td>Branding update</td>
<td>AH</td>
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</tbody>
</table>
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.