Load Balancing Oracle Application Server
Version 1.5.0
## Table of Contents

1. About this Guide .................................................................................................................. 3
2. Loadbalancer.org Appliances Supported ........................................................................... 3
3. Software Versions Supported
   3.1. Loadbalancer.org Appliance ......................................................................................... 3
   3.2. Oracle HTTP Server ....................................................................................................... 3
4. Related Documentation ......................................................................................................... 3
5. Oracle HTTP Server .............................................................................................................. 3
6. Load Balanced Ports / Services ............................................................................................ 3
7. Appliance Configuration Overview
   7.1. Operation Mode ............................................................................................................... 4
   7.2. SSL Termination ............................................................................................................. 4
   7.3. OHS Health checks ......................................................................................................... 4
   7.4. Deployment Concept ..................................................................................................... 4
8. Deploying & Accessing the Appliance
   8.1. Deployment ..................................................................................................................... 4
   8.2. Accessing the WebUI
      Main Menu Options ............................................................................................................ 6
9. Configuration Steps ............................................................................................................... 7
   9.1. Appliance Configuration
      Upload the SSL Certificate ................................................................................................. 7
      Configure the Virtual Service (VIP) ................................................................................... 7
      Define the Real Servers (RIPs) ......................................................................................... 8
      Configure SSL Termination ............................................................................................... 9
   9.2. Oracle HTTP Server Configuration .............................................................................. 10
10. Finalizing the Configuration .............................................................................................. 10
11. Testing & Verification ........................................................................................................ 10
12. Loadbalancer.org Technical Support
   12.1. Document Revision History ....................................................................................... 11
1. About this Guide

This guide provides a quick reference for setting up Oracle HTTP Server (OHS) load balancing using Loadbalancer.org appliances.

2. Loadbalancer.org Appliances Supported

All our products can be used with OHS. 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

   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. Oracle HTTP Server

- v12 and later

4. Related Documentation

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

5. Oracle HTTP Server

Oracle HTTP Server is the web server component for Oracle Fusion Middleware. It provides a listener for Oracle WebLogic Server and the framework for hosting static pages, dynamic pages, and applications over the Web.

6. Load Balanced Ports / Services

By default Oracle HTTP Server listens on TCP port 7777 and HTTPS is disabled.

<table>
<thead>
<tr>
<th>Port</th>
<th>Protocol</th>
</tr>
</thead>
<tbody>
<tr>
<td>7777</td>
<td>HTTP</td>
</tr>
</tbody>
</table>

   The Virtual Service on the load balancer is configured to listen on port 80 and uses port 7777.
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. HTTP cookie persistence is used to ensure clients connect to the same OHS for the duration of their session.

7.2. SSL Termination
SSL Termination is configured on the load balancer. This provides a corresponding HTTPS Virtual Service on port 443. Decrypted traffic is then load balanced and forwarded to the HTTP servers on port 7777.

7.3. OHS Health checks
A HTTP negotiate health-check is used to verify that each Oracle HTTP Server is available.

7.4. 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 Oracle HTTP 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 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.

---

**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. Configuration Steps

9.1. Appliance Configuration

Upload the SSL Certificate
Certificates in either PEM or PFX format can be uploaded.

To upload an SSL certificate:

1. Using the WebUI, navigate to Cluster Configuration > SSL Certificate and click Add a new SSL Certificate.
2. Select the option Upload prepared PEM/PFX file.
3. Enter the following details:

- Label: Cert-OHS
- File to upload: Choose File, Cert-OHS.pfx
- PFX File Password: **********

4. Specify an appropriate Label, e.g. Cert-OHS.
5. Click Choose File.
6. Browse to and select the relevant PEM or PFX file.
7. For PFX files specify the password if required.
8. Click Upload Certificate.

Configure the Virtual Service (VIP)

1. Using the WebUI, navigate to Cluster Configuration > Layer 7 – Virtual Service and click Add a New Virtual Service.
2. Enter the following details:
3. Enter an appropriate label for the VIP, e.g. OHS-HTTP.

4. Set the Virtual Service IP address field to the required IP address, e.g. 192.168.10.10.

5. Set the Virtual Service Ports field to 80.

6. Click Update.

7. Click Modify next to the newly created VIP.

8. Scroll to the Health Checks section and click [Advanced]

   - Set Health Checks to Negotiate HTTP (GET).
   - Leave Request to Send blank.
   - Leave Response Expected blank.

   **Note** Leaving Response Expected 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.

   - Set Check Port to 7777.

9. Scroll to the Other section and click [Advanced]

   - Enable (check) the Timeout check box and set the Client Timeout and Real Server Timeout to 30m.

10. Click Update.

**Define the Real Servers (RIPs)**

The Real Servers (i.e. the Oracle HTTP servers) must now be associated with the VIP.

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:
3. Enter an appropriate label for the RIP, e.g. OHS1.
4. Change the **Real Server IP Address** field to the required IP address, e.g. **192.168.10.20**.
5. Change the **Real Server Port** field to **7777**.
6. Click **Update**.
7. Repeat the above steps to add your other OHS Server(s).

**Configure SSL Termination**

1. Using the WebUI, navigate to **Cluster Configuration > SSL Termination** and click **Add a new Virtual Service**.
2. Enter the following details:

   - **Label**: SSL_OHS-HTTP
   - **Associated Virtual Service**: OHS-HTTP
   - **Virtual Service Port**: 443
   - **SSL Operation Mode**: High Security
   - **SSL Certificate**: cert-ohs
   - **Source IP Address**: 
   - **Enable Proxy Protocol**: 
   - **Bind Proxy Protocol to L7 VIP**: OHS-HTTP

3. Using the **Associated Virtual Service** drop-down, select the Virtual Service created above, e.g. **OHS-HTTP**.

**Note**
Once the VIP is selected, the **Label** field will be auto-populated with **SSL-OHS-HTTP**. This can be changed if preferred.
4. Ensure that the Virtual Service Port is set to 443.
6. Select the SSL Certificate uploaded previously.
7. Click Update.

9.2. Oracle HTTP Server Configuration
Follow the steps in the section "Terminating SSL at the Load Balancer" in this Oracle article.

10. Finalizing the Configuration
To apply the new settings, HAProxy and STunnel 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.
3. Click Reload STunnel.

11. Testing & Verification
Verify that users can connect to the Virtual Service using both HTTP and HTTPS and can access the load balanced Oracle HTTP Servers.

12. 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.
# 12.1. Document Revision History

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Change</th>
<th>Reason for Change</th>
<th>Changed By</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.3.0</td>
<td>5 November 2019</td>
<td>Styling and layout</td>
<td>General styling updates</td>
<td>AH</td>
</tr>
<tr>
<td>1.3.1</td>
<td>28 August 2020</td>
<td>New title page</td>
<td>Branding update</td>
<td>AH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Updated Canadian contact details</td>
<td>Change to Canadian contact details</td>
<td>AH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Amended instructions for configuring the persistence timeout</td>
<td>Changes to the appliance WebUI</td>
<td>AH</td>
</tr>
<tr>
<td>1.4.0</td>
<td>1 September 2022</td>
<td>Converted the document to AsciiDoc</td>
<td>Move to new documentation system</td>
<td>AH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Updated links and instructions where necessary</td>
<td>Required updates</td>
<td>AH</td>
</tr>
<tr>
<td>1.4.1</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>
</tr>
<tr>
<td>1.4.2</td>
<td>5 January 2023</td>
<td>Added one level of section numbering</td>
<td>Housekeeping across all documentation</td>
<td>AH</td>
</tr>
<tr>
<td>1.4.3</td>
<td>2 February 2023</td>
<td>Updated screenshots</td>
<td>Branding update</td>
<td>AH</td>
</tr>
<tr>
<td>1.4.4</td>
<td>8 March 2023</td>
<td>Changed the configuration to utilize SSL termination on the load balancer</td>
<td>Oracle recommended method</td>
<td>RJC</td>
</tr>
<tr>
<td>1.4.5</td>
<td>14 March 2023</td>
<td>Improved document structure</td>
<td>Document standardization</td>
<td>RJC</td>
</tr>
<tr>
<td>1.5.0</td>
<td>24 March 2023</td>
<td>New document theme</td>
<td>Branding update</td>
<td>AH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Modified diagram colours</td>
<td></td>
<td></td>
</tr>
</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.

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