



Load Balancing Oracle Application Server

Quick Reference Guide

v1.2.1

About this Guide

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

Oracle HTTP Server

Oracle HTTP Server is at the heart of Oracle Application Server and is based on Apache.

PORTS

By default Oracle HTTP Server listens on HTTP port 7777 and HTTPS is disabled. When HTTPS is enabled the default port is 4443.

HTTPD.CONF & SSL.CONF CONFIGURATION FILES

It's important to note that 'Port' should be set to be the port that is being used by the load balancer (80/443) and 'Listen' should be set to the port that Oracle HTTP Server is actually listening on (7777/4443). By doing this, redirects or other URLs generated by Oracle HTTP Server point to the load balancer rather than directly to the Oracle HTTP Server.

For more details please refer to the following Oracle link:

http://docs.oracle.com/cd/B14099_19/web.1012/b14007/netconf.htm

To enable HTTPS please refer to the following Oracle link:

http://docs.oracle.com/cd/B14099_19/web.1012/b14008/ssl.htm

Load Balancer Setup

The load balancer is configured to listen on ports 80/443 and using port translation forward requests to 7777/4443. This way the Oracle HTTP Servers can be left at their default values and clients can connect on standard HTTP/HTTPS ports.

If clients are configured to connect to the default OHS ports (7777/4443) rather than the standard HTTP/HTTPS ports (80/443) then the VIPs should be configured to listen on these ports rather than on ports 80 & 443.

PORT LIST

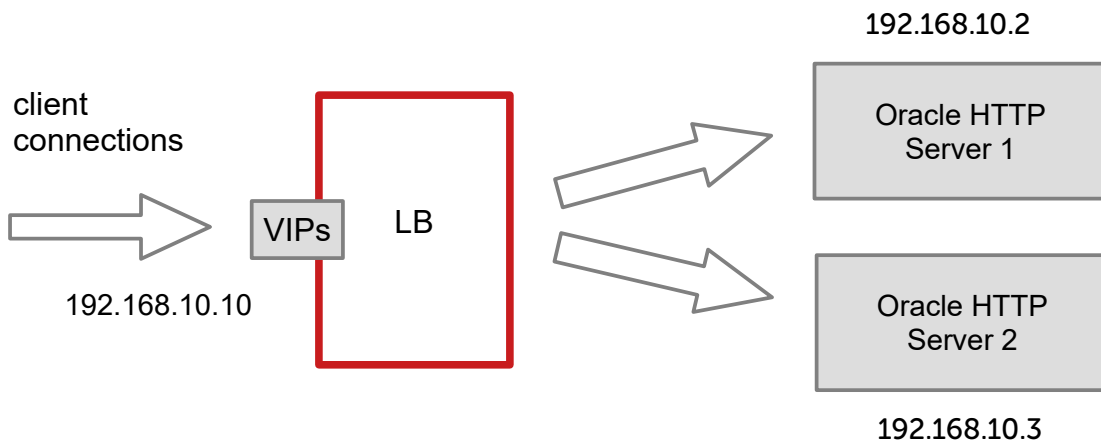
Client Connection Port	Default OHS Port	Upper level Protocol	Lower level Protocol	Comment
80*	7777	HTTP	TCP	
443*	4443	HTTPS	TCP	Applies if HTTPS is enabled on the OHS servers

* applies only if clients will connect on standard HTTP/HTTPS ports rather than the default OHS ports.

OPERATING MODE

The load balancer is configured in single-arm layer 7 SNAT mode. Source IP persistence is enabled to ensure clients connect to the same HTTP server for the duration of their session.

SETUP DIAGRAM



VIPs = Virtual IP Addresses

Load Balancer Configuration Steps

Note:

The steps and screen shots are specific to v8.2.2 although they can also be used as a guideline for other versions of the appliance.

STEP1 - CONFIGURE GENERAL SETTINGS

DEFAULT PORTS

By default the load balancer uses port 7777 for the layer 7 statistics page. This must be changed to a different port to avoid conflicting with Oracle requirements. To do this follow the steps below:

1. Using the WebUI, navigate to: *Cluster Configuration > Layer 7 – Advanced Configuration*

HAProxy Statistics Page	Password	<input type="text"/>	?
	Port	8777	?
	Advanced Stats	<input type="checkbox"/>	?
	Enable SSL	<input type="checkbox"/>	?

2. Change *Statistics Port* from the default value of 7777 to an appropriate value, e.g. **8777** as shown above
3. Click the **Update** button to save the settings

TIMEOUTS

To ensure that client connections remain open during periods of inactivity, the Client Timeout and Real Server Timeout values should be changed from their default values of 43 seconds and 45 seconds respectively to 30mins. To do this follow the steps below:

1. Using the WebUI, navigate to: *Cluster Configuration > Layer 7 – Advanced Configuration*

LAYER 7 - ADVANCED CONFIGURATION			
Lock HAProxy Configuration (Deprecated)	<input type="checkbox"/>		?
Logging	Off	▼	?
Redispatch	<input checked="" type="checkbox"/>		?
Connection Timeout	4000	ms	?
Client Timeout	1800000	ms	?
Real Server Timeout	1800000	ms	?

2. Change *Client Timeout* to **1800000** as shown above (i.e. 30 minutes)
3. Change *Real Server Timeout* to **1800000** as shown above (i.e. 30 minutes)
4. Click the **Update** button to save the settings

STEP2 - CREATE THE HTTP VIRTUAL SERVICE & DEFINE REAL SERVERS

CREATE THE VIRTUAL SERVICE (VIP)

Create a new VIP as described below – this is the IP address that clients will connect to:

1. Using the WebUI, navigate to: *Cluster Configuration > Layer 7 – Virtual Service* and click **Add a New Virtual Service**
2. Enter the following details:

LAYER 7 - ADD A NEW VIRTUAL SERVICE

Label	<input type="text" value="OracleAS-http"/>	?
Virtual Service	IP Address <input type="text" value="192.168.10.10"/>	?
	Ports <input type="text" value="80"/>	?
Layer 7 Protocol	<input type="text" value="HTTP Mode"/>	?
Manual Configuration	<input type="checkbox"/>	?

Cancel **Update**

3. Enter an appropriate label for the VIP, e.g. **OracleAS-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** (set to port **7777** if default OHS ports are used)
6. Click **Update**
7. Click **Modify** next to the newly created VIP
8. Change *Persistence Mode* to **Source IP**
9. Leave *Persistence Timeout* set to **30** (i.e. 30 minutes)
10. Click **Update**

DEFINE THE REAL SERVERS (RIPS)

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:

Label	<input type="text" value="OHS1"/>	?
Real Server IP Address	<input type="text" value="192.168.10.2"/>	?
Real Server Port	<input type="text" value="7777"/>	?
Re-Encrypt to Backend	<input type="checkbox"/>	?
Weight	<input type="text" value="100"/>	?

Cancel **Update**

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. **192.168.10.2**
5. Change the *Real Server Port* field to **7777**
6. Click **Update**
7. Repeat the above steps to add your other OHS Server(s)

STEP3 - CREATE THE HTTPS VIRTUAL SERVICE & DEFINE REAL SERVERS

Note:

This VIP is only required if HTTPS has been enabled on the Oracle Servers

CREATE THE VIRTUAL SERVICE (VIP)

Create a new VIP as described below – this is the IP address that clients will connect to:






1. Using the WebUI, navigate to: *Cluster Configuration > Layer 7 – Virtual Service* and click **Add a New Virtual Service**
2. Enter the following details:

Label	<input type="text" value="OracleAS-https"/>	?	
Virtual Service	IP Address	<input type="text" value="192.168.10.10"/>	?
	Ports	<input type="text" value="443"/>	?
Layer 7 Protocol	<input type="text" value="TCP Mode"/>	▼	?
Manual Configuration	<input type="checkbox"/>		?
<input type="button" value="Cancel"/> <input type="button" value="Update"/>			

3. Enter an appropriate label for the VIP, e.g. **OracleAS-https**
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 **443** (set to 4443 if default OHS ports are used)
6. Change *Layer 7 Protocol* to **TCP Mode**
7. Click **Update**
8. Click **Modify** next to the newly created VIP
9. Ensure *Persistence Mode* is set to **Source IP**
10. Leave *Persistence Timeout* set to 30 (i.e. 30 minutes)
11. Click **Update**

DEFINE THE REAL SERVERS (RIPS)

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:

Label	<input type="text" value="OHS1"/>	
Real Server IP Address	<input type="text" value="192.168.10.2"/>	
Real Server Port	<input type="text" value="4443"/>	
Re-Encrypt to Backend	<input type="checkbox"/>	
Weight	<input type="text" value="100"/>	

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. **192.168.10.2**
5. Change the *Real Server Port* field to **4443**
6. Click **Update**
7. Repeat the above steps to add your other OHS Server(s)

STEP4 - FINALIZING THE CONFIGURATION

To apply the new settings, HAProxy must be restarted as follows:

1. Using the WebUI, navigate to: *Maintenance > Restart Services* and click **Restart HAProxy**

STEP5 – TESTING & VERIFICATION

Now test the load balancer by connecting clients to the VIP address (192.168.10.10 in this example configuration) instead of connecting users directly to the Oracle HTTP Servers.

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.