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1. About this Guide

This guide details the steps required to configure a load balanced Hyland OnBase environment utilizing Loadbalancer.org appliances. It covers the configuration of the load balancers and also any Hyland OnBase configuration changes that are required to enable load balancing.

For more information about initial appliance deployment, network configuration and using the Web User Interface (WebUI), please also refer to the Administration Manual.

2. Loadbalancer.org Appliances Supported

All our products can be used for load balancing Hyland OnBase. 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. Loadbalancer.org Software Versions Supported

- 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.

4. Hyland OnBase Software Versions Supported

- Hyland OnBase – all versions

5. Load Balancing Hyland OnBase

Note: It’s highly recommended that you have a working Hyland OnBase environment first before implementing the load balancer.

Load Balancer Deployment Mode

Layer 7 SNAT mode is used. This enables cookie based persistence to be used.

Persistence (aka Server Affinity)

The load balancer supports several persistence methods. For Hyland OnBase, both IP or HTTP cookie persistence is supported. In this guide, cookie based persistence is used.

Timeouts

For OnBase, the layer 7 client and server timeouts are set to 20 minutes.

Virtual Service (VIP) Requirements

To provide load balancing and HA for Hyland OnBase, the following VIPs are required:

- Web Server VIP
- Application Server VIP
SSL Offloading

SSL offloading is used on the load balancer to enable HTTP cookies to be inserted.

Port Requirements

The following table shows the ports that are load balanced:

<table>
<thead>
<tr>
<th>Port</th>
<th>Protocols</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td>HTTP</td>
<td>Web &amp; Application server HTTP traffic</td>
</tr>
<tr>
<td>443</td>
<td>HTTPS</td>
<td>Web &amp; Application server HTTPS traffic</td>
</tr>
</tbody>
</table>

(*) These ports can be changed if required.

Health Checks

By default, a simple 'Connect to port' health check is used by the virtual services described in this guide.

If required, a more comprehensive HTTP or HTTPS negotiate check can be configured to provide a more robust check.

6. Deployment Concept

VIPs = Virtual IP Addresses

Note: The load balancer can be deployed as a single unit, although Loadbalancer.org recommends a clustered pair for resilience & high availability. Please refer to Configuring HA - Adding a Secondary Appliance for more details on configuring a clustered pair.

7. Loadbalancer.org Appliance – the Basics

Virtual Appliance

A fully featured, fully supported 30 day trial is available if you are conducting a PoC (Proof of Concept) deployment. The VA is currently available for VMware, Virtual Box, Hyper-V, KVM, XEN and Nutanix AHV and has been optimized for each Hypervisor. By default, the VA is allocated 2 vCPUs, 4GB of RAM and has a 20GB virtual disk. The Virtual Appliance can be downloaded here.

Note: The same download is used for the licensed product, the only difference is that a license key file (supplied by our sales team when the product is purchased) must be applied using the
Appliance's WebUI.

**Note**
Please refer to Virtual Appliance Installation and the ReadMe.txt text file included in the VA download for additional information on deploying the VA using the various Hypervisors.

**Note**
The VA has 4 network adapters. For VMware only the first adapter (eth0) is connected by default. For HyperV, KVM, XEN and Nutanix AHV all adapters are disconnected by default. Use the network configuration screen within the Hypervisor to connect the required adapters.

**Initial Network Configuration**

After boot up, follow the instructions on the appliance console to configure the management IP address, subnet mask, default gateway, DNS Server and other network settings.

**Important**
Be sure to set a secure password for the load balancer, when prompted during the setup routine.

**Accessing the WebUI**

The WebUI is accessed using a web browser. By default, user authentication is based on local Apache .htaccess files. User administration tasks such as adding users and changing passwords can be performed using the WebUI menu option: Maintenance > Passwords.

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

**Note**
If required, users can also be authenticated against LDAP, LDAPS, Active Directory or Radius. For more information please refer to External Authentication.

1. Using a browser, access the WebUI using the following URL:


2. Log in to the WebUI:

   **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:
The WebUI for the VA is shown, the hardware and cloud appliances are very similar. The yellow licensing related message is platform & model dependent.

3. You’ll be asked if you want to run the Setup Wizard. If you click Accept the Layer 7 Virtual Service configuration wizard will start. If you want to configure the appliance manually, simple click Dismiss.

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
HA Clustered Pair Configuration

Loadbalancer.org recommend that load balancer appliances are deployed in pairs for high availability. In this guide a single unit is deployed first, adding a secondary unit is covered in Configuring HA - Adding a Secondary Appliance.

8. Appliance Configuration for Hyland OnBase

Web Servers

Configuring VIP 1 – HTTP Virtual Service

Configuring the Virtual Service (VIP)

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

2. Enter an appropriate Label (name) for the VIP, e.g. WebServers.

3. Set the Virtual Service IP address field to the required IP address, e.g. 192.168.10.100.

4. Set the Virtual Service Ports field to 80.

5. Set the Layer 7 Protocol to HTTP Mode.

6. Click Update to create the virtual service.

7. Now click Modify next to the newly created VIP.

8. Under Persistence, click [Advanced] to show more options.

9. Ensure Persistence Mode is set to HTTP Cookie.

10. Set Cookie Max Idle Duration to 60m (60 minutes).

11. Under Other, click [Advanced] to show more options.

12. Enable (check) the Timeout checkbox and set the Client Timeout and Server Timeout to 20m.

13. Click Update.

Defining the Real Servers (RIPs)

1. Using WebUI, navigate to Cluster Configuration > Layer 7 – Real Servers and click on Add a new Real Server next to the newly created WebServers VIP.
2. Enter an appropriate Label for the server, e.g. **Web1**.

3. Change the *Real Server IP Address* field to the required IP address, e.g. **192.168.10.120**.

4. Set the *Real Server Port* field to **80**.

   ![Server Configuration Table]

   - **Label**: Web1
   - **Real Server IP Address**: 192.168.10.120
   - **Real Server Port**: 80
   - **Re-Encrypt to Backend**: 
   - **Weight**: 100

5. Click **Update**.

6. Repeat these steps to add additional Web servers as required.

### Configuring SSL Termination

**Upload the Certificate**

*Note* A certificate in either PEM or PFX format can be uploaded to the load balancer.

1. Using the WebUI, navigate to: *Cluster Configuration > SSL Certificates*.

2. Click **Add a new SSL Certificate** and select **Upload prepared PEM/PFX file**.

   ![Certificate Upload]

   - **Label**: Cert1
   - **File to upload**: Choose File

3. Enter a suitable *Label* for the certificate, e.g. **Cert1**.

4. Browse to and select the certificate file to upload (PEM or PFX format).

5. Enter the password if applicable.

6. Click **Upload Certificate**.

**Configure the SSL VIP**

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

2. Set the *Associated Virtual Service* to the appropriate VIP, e.g. **WebServers**.

   *Note* Once the VIP is selected, the Label field will be auto-populated with **SSL-WebServers**. This
3. Leave *Virtual Service Port* set to **443**.

4. Leave *SSL operation Mode* set to **High Security**.

5. Select the required certificate from the *SSL Certificate* drop-down, e.g. *Cert1*.

6. Click **Update**.

### Application Servers

Repeat the steps in *Web Servers* to configure the load balancer for the Application Servers. Change IPs and names as required.

### Finalizing the Configuration

To apply the new settings, HAProxy and STunnel must both be reloaded. This can be done using the buttons in the blue 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**.

### 9. Testing & Verification

**Note** For additional guidance on diagnosing and resolving any issues you may have, please also refer to *Diagnostics & Troubleshooting*.

### Using System Overview

The System Overview can be viewed in the WebUI. It shows a graphical view of all VIPs & RIPs (i.e. the Hyland OnBase servers) and shows the state/health of each server as well as the state of the cluster as a whole. This can be used to ensure all servers are up and available.
10. Technical Support
For more details about configuring the appliance and assistance with designing your deployment please don’t hesitate to contact the support team using the following email address: support@loadbalancer.org.

11. Further Documentation

12. Conclusion
Loadbalancer.org appliances provide a very cost effective solution for highly available load balanced Hyland OnBase environments.
13. Appendix

Configuring HA - Adding a Secondary Appliance

Our recommended configuration is to use a clustered HA pair of load balancers to provide a highly available and resilient load balancing solution.

We recommend that the Primary appliance should be configured first, then the Secondary should be added. Once the Primary and Secondary are paired, all load balanced services configured on the Primary are automatically replicated to the Secondary over the network using SSH/SCP.

Note

For Enterprise Azure, the HA pair should be configured first. In Azure, when creating a VIP using an HA pair, 2 private IPs must be specified – one for the VIP when it’s active on the Primary and one for the VIP when it’s active on the Secondary. Configuring the HA pair first, enables both IPs to be specified when the VIP is created.

The clustered HA pair uses Heartbeat to determine the state of the other appliance. Should the active device (normally the Primary) suffer a failure, the passive device (normally the Secondary) will take over.

Non-Replicated Settings

A number of settings are not replicated as part of the Primary/Secondary pairing process and therefore must be manually configured on the Secondary appliance. These are listed by WebUI menu option in the table below:

<table>
<thead>
<tr>
<th>WebUI Main Menu Option</th>
<th>Sub Menu Option</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>Local Configuration</td>
<td>Hostname &amp; DNS</td>
<td>Hostname and DNS settings</td>
</tr>
<tr>
<td>Local Configuration</td>
<td>Network Interface Configuration</td>
<td>All network settings including IP address(es), bonding configuration and VLANs</td>
</tr>
<tr>
<td>Local Configuration</td>
<td>Routing</td>
<td>Routing configuration including default gateways and static routes</td>
</tr>
<tr>
<td>Local Configuration</td>
<td>System Date &amp; time</td>
<td>All time and date related settings</td>
</tr>
<tr>
<td>Local Configuration</td>
<td>Physical – Advanced Configuration</td>
<td>Various settings including Internet Proxy, Management Gateway, Firewall connection tracking table size, NIC offloading, SMTP relay, logging and Syslog Server</td>
</tr>
<tr>
<td>Local Configuration</td>
<td>Security</td>
<td>Appliance security settings</td>
</tr>
<tr>
<td>Local Configuration</td>
<td>SNMP Configuration</td>
<td>Appliance SNMP settings</td>
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<tr>
<td>Local Configuration</td>
<td>Graphing</td>
<td>Appliance graphing settings</td>
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<td>Local Configuration</td>
<td>License Key</td>
<td>Appliance licensing</td>
</tr>
<tr>
<td>Maintenance</td>
<td>Software Updates</td>
<td>Appliance software update management</td>
</tr>
<tr>
<td>Maintenance</td>
<td>Firewall Script</td>
<td>Appliance firewall (iptables) configuration</td>
</tr>
<tr>
<td>Maintenance</td>
<td>Firewall Lockdown Wizard</td>
<td>Appliance management lockdown settings</td>
</tr>
</tbody>
</table>

Important

Make sure that if these settings/updates have been configured on the Primary appliance, they’re also configured on the Secondary appliance.

To add a Secondary node - i.e. create a highly available clustered pair:
If you have already run the firewall lockdown wizard on either appliance, you’ll need to ensure that it is temporarily disabled on both appliances whilst performing the pairing process.

1. Deploy a second appliance that will be the Secondary and configure initial network settings.

2. Using the WebUI on the Primary appliance, navigate to: \textit{Cluster Configuration > High-Availability Configuration}.

3. Specify the IP address and the loadbalancer user’s password for the Secondary (peer) appliance as shown above.

4. Click \textit{Add new node}.

5. The pairing process now commences as shown below:

6. Once complete, the following will be displayed on the Primary appliance:
7. To finalize the configuration, restart heartbeat and any other services as prompted in the blue message box at the top of the screen.

**Note**  
Clicking the **Restart Heartbeat** button on the Primary appliance will also automatically restart heartbeat on the Secondary appliance.

**Note**  
For more details on configuring HA with 2 appliances, please refer to [Appliance Clustering for HA](#).

**Note**  
For details on testing and verifying HA, please refer to [Clustered Pair Diagnostics](#).
## 14. Document Revision History

<table>
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<td>1.1.0</td>
<td>9 September 2019</td>
<td>Styling and layout</td>
<td>General styling updates</td>
<td>AH</td>
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<tr>
<td>1.1.1</td>
<td>28 August 2020</td>
<td>New title page</td>
<td>Branding update</td>
<td>AH</td>
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<td></td>
<td>Updated Canadian contact details</td>
<td>Change to Canadian contact details</td>
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<td></td>
<td></td>
<td>Amended instructions for setting persistence and timeout options</td>
<td>Changes to the appliance WebUI</td>
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<tr>
<td>1.2.0</td>
<td>1 December 2021</td>
<td>Converted the document to AsciiDoc</td>
<td>Move to new documentation system</td>
<td>AH, RJC, ZAC</td>
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<tr>
<td>1.2.1</td>
<td>22 April 2022</td>
<td>Updated SSL related content to reflect latest software version</td>
<td>New software release</td>
<td>RJC</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.

<table>
<thead>
<tr>
<th>United Kingdom</th>
<th>Canada</th>
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