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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 relevant Administration Manual:

- v7 Administration Manual
- v8 Administration Manual

2. Loadbalancer.org Appliances Supported
All our products can be used for load balancing Hyland OnBase. The complete list of models is shown below:

<table>
<thead>
<tr>
<th>Discontinued Models</th>
<th>Current Models *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enterprise R16</td>
<td>Enterprise R20</td>
</tr>
<tr>
<td>Enterprise VA R16</td>
<td>Enterprise MAX</td>
</tr>
<tr>
<td>Enterprise VA</td>
<td>Enterprise 10G</td>
</tr>
<tr>
<td>Enterprise R320</td>
<td>Enterprise 40G</td>
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<tr>
<td></td>
<td>Enterprise Ultra</td>
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<tr>
<td></td>
<td>Enterprise VA MAX</td>
</tr>
<tr>
<td></td>
<td>Enterprise AWS **</td>
</tr>
<tr>
<td></td>
<td>Enterprise AZURE **</td>
</tr>
</tbody>
</table>

* For full specifications of these models please refer to: [http://www.loadbalancer.org/products/hardware](http://www.loadbalancer.org/products/hardware)

** Some features may not be supported, please check with Loadbalancer.org support

3. Loadbalancer.org Software Versions Supported

- V7.6.4 and later

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
The load balancer is deployed at Layer 7. 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 section 1 in the appendix on page 12 for more details on configuring a clustered pair.
Virtual Appliance Download & Deployment
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 and XEN and has been optimized for each Hypervisor. By default, the VA is allocated 1 CPU, 2GB of RAM and has an 8GB 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 the Administration Manual and the ReadMe.txt text file included in the VA download for more detailed information on deploying the VA using various Hypervisors.

Initial Network Configuration
The IP address, subnet mask, default gateway and DNS settings can be configured in several ways as detailed below:

Method 1 - Using the Network Setup Wizard at the console
After boot up, follow the instructions on the console to configure the IP address, subnet mask, default gateway and DNS settings.

Method 2 - Using the WebUI
Using a browser, connect to the WebUI on the default IP address/port: https://192.168.2.21:9443
To set the IP address & subnet mask, use: Local Configuration > Network Interface Configuration
To set the default gateway, use: Local Configuration > Routing
To configure DNS settings, use: Local Configuration > Hostname & DNS

Accessing the Web User Interface (WebUI)
The WebUI can be accessed via HTTPS at the following URL: https://192.168.2.21:9443/lbadmin
* Note the port number → 9443
(replace 192.168.2.21 with the IP address of your load balancer if it’s been changed from the default)
Login using the following credentials:

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

Once logged in, the WebUI will be displayed as shown below:

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 slave unit is covered in section 1 of the appendix on page 12.
8. Appliance Configuration for Hyland OnBase

Web Servers

Configuring VIP 1 – HTTP Virtual Service

Configuring the Virtual Service (VIP)
1. Using the web user interface, navigate to Cluster Configuration > Layer 7 – Virtual Services and click on Add a new Virtual Service
2. Enter an appropriate name for the VIP in the Label field, 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. Click Modify next to the newly created Synapse-Cluster VIP
8. Ensure Persistence Mode is set to HTTP Cookie
9. Enable (check) the Timeout checkbox and set the Client Timeout & Server Timeout to 20m
10. Set Persistence Timeout to 60 (the units are minutes, so this value equals 1 hour)
11. Click Update

Defining The Real Servers (RIPs)
1. Using the web user interface, 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 name for the server in the Label field, 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
5. Click **Update**

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

**Configuring SSL Termination**

**Uploading Certificates**

Certificate in either PEM or PFX format can be uploaded to the load balancer.

**To upload a Certificate:**

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

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

3. Enter a suitable **Label** (name) 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**, if successful, a message similar to the following will be displayed:

**To configure the SSL VIP:**

1. Using the WebUI, navigate to: Cluster Configuration > SSL Termination and click **Add a new Virtual Service**
2. Enter a suitable Label (name) for the VIP, e.g. SSL
3. Set Associated Virtual Service to the appropriate VIP, e.g. WebServers
4. Leave Virtual Service Port set to 443
5. Leave SSL operation Mode set to High Security
6. Select the required certificate from the SSL Certificate drop-down.
7. Click Update

Application Servers
Repeat the steps starting on page 8 to configure the load balancer for the Application Servers, changing IP’s and names as required.

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
2. Using the WebUI, navigate to: Maintenance > Restart Services and click Restart STunnel

9. Testing & Verification

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

1 – Clustered Pair Configuration – Adding a Slave Unit

If you initially configured just the master unit and now need to add a slave - our recommended procedure, please refer to the relevant section below for more details:

Note: A number of settings are not replicated as part of the master/slave pairing process and therefore must be manually configured on the slave appliance. These are listed below:

- Hostname & DNS settings
- Network settings including IP addresses, bonding configuration and VLANs
- Routing configuration including default gateways and static routes
- Date & time settings
- Physical – Advanced Configuration settings including Internet Proxy IP address & port, Firewall table size, SMTP relay and Syslog server
- SNMP settings
- Graphing settings
- Firewall Script & Firewall Lockdown Script settings
- Software updates

Version 7:

Please refer to Chapter 8 – Appliance Clustering for HA in the v7 Administration Manual.

Version 8:

To add a slave node – i.e. create a highly available clustered pair:

- Deploy a second appliance that will be the slave and configure initial network settings
- Using the WebUI, navigate to: Cluster Configuration > High-Availability Configuration
• Specify the IP address and the loadbalancer users password (the default is 'loadbalancer') for the slave (peer) appliance as shown above

• Click Add new node

• The pairing process now commences as shown below:

• Once complete, the following will be displayed:

• 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 master appliance will also automatically restart heartbeat on the slave appliance.

Note: Please refer to chapter 9 – Appliance Clustering for HA in the Administration Manual for more detailed information on configuring HA with 2 appliances.
14. Document Revision History

<table>
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<tr>
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<th>Date</th>
<th>Change</th>
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<th>Changed By</th>
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<tr>
<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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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.

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