

# Load Balancing Hyland OnBase

Version 1.3.0



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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 available or fully supported in all cloud platforms due to platform specific limitations. For more details, please refer to the "Main Differences to our Standard (Non-Cloud) Product" section in the appropriate cloud platform [Quick Start Guide](#) or check with Loadbalancer.org support.

## 3. Software Versions Supported

### 3.1. Loadbalancer.org Appliance

- V8.9.1 and later

#### Note

The screenshots used throughout this document aim to track the latest Loadbalancer.org software version. If you're using an older version, or the very latest, the screenshots presented here may not match your WebUI exactly.

### 3.2. Hyland OnBase

- All versions

## 4. Load Balancing Hyland OnBase

#### Note

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

### 4.1. Load Balancer Deployment Mode

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

### 4.2. 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.



## 4.3. Timeouts

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

## 4.4. Virtual Service (VIP) Requirements

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

- Web Server VIP
- Application Server VIP

## 4.5. SSL Offloading

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

## 4.6. Port Requirements

The following table shows the ports that are load balanced:

| Port | Protocols | Use                                    |
|------|-----------|--|
| 80   | HTTP      | Web & Application server HTTP traffic  |
| 443  | HTTPS     | Web & Application server HTTPS traffic |

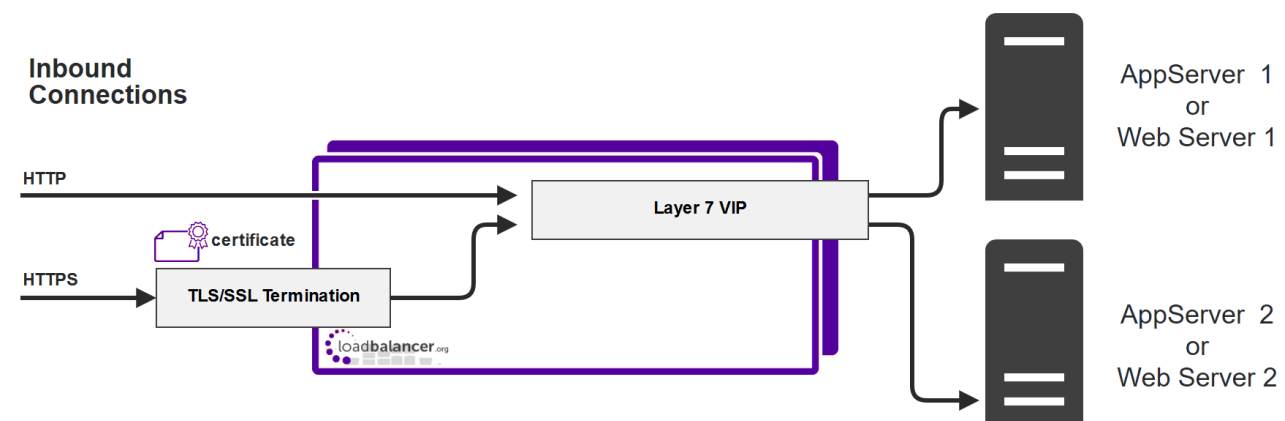
(\*) These ports can be changed if required.

## 4.7. 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.

# 5. Deployment Concept



VIP = Virtual IP Address

### 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.

## 6. Loadbalancer.org Appliance – the Basics

### 6.1. 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.

### 6.2. Initial Network Configuration

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

### Important

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

### 6.3. 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](#).

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

**`https://<IP-address-configured-during-the-network-setup-wizard>:9443/lbadmin/`**





#### Note

You'll receive a warning about the WebUI's SSL 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](#).



#### Note

If you need to change the port, IP address or protocol that the WebUI listens on, please refer to [Service Socket Addresses](#).

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:

Primary | Secondary Active | Passive Link 15 Seconds

System Overview

Local Configuration

Cluster Configuration

Maintenance

View Configuration

Reports

Logs

Support

Live Chat

**WARNING:** YOUR TRIAL IS DUE TO EXPIRE IN 30 DAYS.

Buy with confidence. All purchases come with a 90 day money back guarantee. Already bought? Enter your license key [here](#)

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**System Overview** ? 2024-03-15 16:27:21 UTC

Would you like to run the Setup Wizard?

[Accept](#) [Dismiss](#)

VIRTUAL SERVICE IP PORTS CONNS PROTOCOL METHOD MODE

No Virtual Services configured.

**Network Bandwidth**

Bytes/s

Thu 18:00 Fri 00:00 Fri 06:00 Fri 12:00

RX 3k Min, 4k Avg, 32675k Total, 6k Min, 7k Avg, 56693k Total

**System Load Average**

System Load

Thu 18:00 Fri 00:00 Fri 06:00 Fri 12:00

1m average 0.00 Min, 0.12 Avg, 0.60 Max  
5m average 0.00 Min, 0.06 Avg, 0.21 Max  
15m average 0.00 Min, 0.02 Avg, 0.08 Max

Memory Usage

3. You'll be asked if you want to run the Setup Wizard which can be used to configure layer 7 services. Click **Dismiss** if you're following a guide or want to configure the appliance manually or click **Accept** to start the 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

**Live Chat** - Start a live chat session with one of our Support Engineers

## 6.4. Appliance Software Update

To ensure that the appliance(s) are running the latest software version, we recommend a software update check is performed.

### Determining the Current Software Version

The software version is displayed at the bottom of the WebUI as shown in the example below:

Copyright © Loadbalancer.org Inc. 2002 – 2024  
ENTERPRISE VA Max - v8.11.1

English ▼

### Checking for Updates using Online Update

#### Note

By default, the appliance periodically contacts the Loadbalancer.org update server and checks for updates. An update check can also be manually triggered as detailed below.

1. Using the WebUI, navigate to: **Maintenance > Software Update**.
2. Select **Online Update**.
3. If the latest version is already installed, a message similar to the following will be displayed:

**Information:** Version v8.11.1 is the current release. No updates are available

4. If an update is available, you'll be presented with a list of new features, improvements, bug fixes and security related updates.
5. Click **Online Update** to start the update process.

#### Note

Do not navigate away whilst the update is ongoing, this may cause the update to fail.

6. Once complete (the update can take several minutes depending on download speed and upgrade version) the following message will be displayed:

**Information:** Update completed successfully.

7. If services need to be reloaded/restarted or the appliance needs a full restart, you'll be prompted accordingly.

### Using Offline Update

If the load balancer does not have access to the Internet, offline update can be used.





## Note

Please contact [support@loadbalancer.org](mailto:support@loadbalancer.org) to check if an update is available and obtain the latest offline update files.

To perform an offline update:

1. Using the WebUI, navigate to: **Maintenance > Software Update**.
2. Select **Offline Update**.
3. The following screen will be displayed:

### Software Update

#### Offline Update

The following steps will lead you through offline update.

1. Contact **Loadbalancer.org support** to obtain the offline update archive and checksum.
2. Save the archive and checksum to your local machine.
3. Select the archive and checksum files in the upload form below.
4. Click *Upload and Install* to begin the update process.

Archive:  No file chosen

Checksum:  No file chosen

4. Select the *Archive* and *Checksum* files.
5. Click **Upload and Install**.
6. If services need to be reloaded/restarted or the appliance needs a full restart, you'll be prompted accordingly.

## 6.5. Ports Used by the Appliance

By default, the appliance uses the following TCP & UDP ports:

| Protocol  | Port   | Purpose   |
|-----------|--------|---|
| TCP       | 22 *   | SSH   |
| TCP & UDP | 53 *   | DNS / GSLB  |
| TCP & UDP | 123    | NTP   |
| TCP & UDP | 161 *  | SNMP  |
| UDP       | 6694   | Heartbeat between Primary & Secondary appliances in HA mode |
| TCP       | 7778   | HAProxy persistence table replication                       |
| TCP       | 9000 * | Gateway service (Centralized/Portal Management)             |
| TCP       | 9080 * | WebUI - HTTP (disabled by default)                          |
| TCP       | 9081 * | Nginx fallback page   |



| Protocol | Port    | Purpose   |
|----------|---------|---|
| TCP      | 9443 *  | WebUI - HTTPS                                   |
| TCP      | 25565 * | Shuttle service (Centralized/Portal Management) |

### Note

The ports used for SSH, GSLB, SNMP, the WebUI, the fallback page, the gateway service and the shuttle service can be changed if required. For more information, please refer to [Service Socket Addresses](#).

## 6.6. 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](#).

# 7. Appliance Configuration for Hyland OnBase

## 7.1. 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**.

#### Layer 7 - Add a new Virtual Service

| Virtual Service  |   | [Advanced +]  |
|------------------|---|---|
| Label            | <input type="text" value="WebServers"/>     | ?   |
| IP Address       | <input type="text" value="192.168.10.100"/> | ?   |
| Ports            | <input type="text" value="80"/>             | ?   |
| Protocol         |   |   |
| Layer 7 Protocol | <input type="text" value="HTTP Mode"/>      | ?   |
|                  |   | <input type="button" value="Cancel"/> <input type="button" value="Update"/> |

6. Click **Update** to create the virtual service.
7. Now click **Modify** next to the newly created VIP.



- Under *Persistence*, click **[Advanced]** to show more options.
- Ensure *Persistence Mode* is set to **HTTP Cookie**.
- Set *Cookie Max Idle Duration* to **60m** (60 minutes).
- Under *Other*, click **[Advanced]** to show more options.
- Enable (check) the *Timeout* checkbox and set the *Client Timeout* and *Server Timeout* to **20m**.
- Click **Update**.

## Defining the Real Servers (RIPs)

- 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.
- Enter an appropriate *Label* for the server, e.g. **Web1**.
- Change the *Real Server IP Address* field to the required IP address, e.g. **192.168.10.120**.
- Set the *Real Server Port* field to **80**.

### Layer 7 Add a new Real Server

|                        |   |   |
|------------------------|---|---|
| Label                  | <input type="text" value="Web1"/>           | ? |
| Real Server IP Address | <input type="text" value="192.168.10.120"/> | ? |
| Real Server Port       | <input type="text" value="80"/>             | ? |
| Re-Encrypt to Backend  | <input type="checkbox"/>                    | ? |
| Enable Redirect        | <input type="checkbox"/>                    | ? |
| Weight                 | <input type="text" value="100"/>            | ? |

Cancel
Update

- Click **Update**.
- 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.

- Using the WebUI, navigate to: *Cluster Configuration > SSL Certificates*.
- Click **Add a new SSL Certificate** and select *Upload prepared PEM/PFX file*.

I would like to:

☒ Upload prepared PEM/PFX file

☐ Create a new SSL Certificate Signing Request (CSR) ?

☐ Create a new Self-Signed SSL Certificate.

Label:  ?

File to upload:  No file chosen ?

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 can be changed if preferred.

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**.

Label:  ?

Associated Virtual Service:  ?

Virtual Service Port:  ?

SSL Operation Mode:  ?

SSL Certificate:  ?

Source IP Address:  ?

Enable Proxy Protocol: ☒ ?

Bind Proxy Protocol to L7 VIP:  ?

6. Click **Update**.

## 7.2. Application Servers

Repeat the steps in [Web Servers](#) to configure the load balancer for the Application Servers. Change IPs and names as required.

## 7.3. Finalizing the Configuration

To apply the new settings, HAProxy and STunnel must both 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**.

## 8. Testing & Verification

### Note

For additional guidance on diagnosing and resolving any issues you may have, please also refer to [Diagnostics & Troubleshooting](#).

### 8.1. 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.

## 9. 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](mailto:support@loadbalancer.org).

## 10. Further Documentation

For additional information, please refer to the [Administration Manual](#).



# 11. Appendix

## 11.1. 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 is fully configured first, then the Secondary appliance can be added to create an HA pair. Once the HA pair is configured, load balanced services must be configured and modified on the Primary appliance. The Secondary appliance will be automatically kept in sync.

### Note

For Enterprise Azure, the HA pair should be configured first. For more information, please refer to the Azure Quick Start/Configuration Guide available in the [documentation library](#)

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:

| WebUI Main Menu Option | Sub Menu Option                   | Description   |
|------------------------|-----------------------------------|---|
| Local Configuration    | Hostname & DNS                    | Hostname and DNS settings                               |
| Local Configuration    | Network Interface Configuration   | Interface IP addresses, bonding configuration and VLANs |
| Local Configuration    | Routing                           | Default gateways and static routes                      |
| Local Configuration    | System Date & time                | Time and date related settings                          |
| Local Configuration    | Physical – Advanced Configuration | Various appliance settings                              |
| Local Configuration    | Portal Management                 | Portal management settings                              |
| Local Configuration    | Security                          | Security settings                                       |
| Local Configuration    | SNMP Configuration                | SNMP settings   |
| Local Configuration    | Graphing                          | Graphing settings                                       |
| Local Configuration    | License Key                       | Appliance licensing                                     |
| Maintenance            | Backup & Restore                  | Local XML backups                                       |
| Maintenance            | Software Updates                  | Appliance software updates                              |
| Maintenance            | Fallback Page                     | Fallback page configuration                             |
| Maintenance            | Firewall Script                   | Firewall (iptables) configuration                       |
| Maintenance            | Firewall Lockdown Wizard          | Appliance management lockdown settings                  |



### Important

Make sure that where any of the above have been configured on the Primary appliance, they're also configured on the Secondary.


## Configuring the HA Clustered Pair

### Note

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: **Cluster Configuration > High-Availability Configuration**.

### Create a Clustered Pair

 **LOADBALANCER**

**Local IP address**


**IP address of new peer**

**Password for *loadbalancer* user on peer**

**Add new node**


3. Specify the IP address and the *loadbalancer* user's password for the Secondary (peer) appliance as shown in the example above.
4. Click **Add new node**.
5. The pairing process now commences as shown below:

### Create a Clustered Pair

 **LOADBALANCER** **Primary**

IP: 192.168.110.40

Attempting to pair..

 **LOADBALANCER** **Secondary**

IP: 192.168.110.41

**Local IP address**


**IP address of new peer**


**Password for *loadbalancer* user on peer**

configuring

6. Once complete, the following will be displayed on the Primary appliance:


## High Availability Configuration - primary


 **LOADBALANCER**



Primary

IP: 192.168.110.40

 **LOADBALANCER**



Secondary

IP: 192.168.110.41

Break Clustered Pair

- To finalize the configuration, restart heartbeat and any other services as prompted in the "Commit changes" 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](#).



## 12. Document Revision History

| Version | Date              | Change  | Reason for Change   | Changed By   |
|---------|-------------------|---|---|--------------|
| 1.1.0   | 9 September 2019  | Styling and layout  | General styling updates   | AH           |
| 1.1.1   | 28 August 2020    | New title page<br><br>Updated Canadian contact details<br><br>Amended instructions for setting persistence and timeout options  | Branding update<br><br>Change to Canadian contact details<br><br>Changes to the appliance WebUI | AH           |
| 1.2.0   | 1 December 2021   | Converted the document to AsciiDoc  | Move to new documentation system  | AH, RJC, ZAC |
| 1.2.1   | 22 April 2022     | Updated SSL related content to reflect latest software version  | New software release  | RJC          |
| 1.2.2   | 28 September 2022 | Updated layer 7 VIP and RIP creation screenshots  | Reflect changes in the web user interface   | AH           |
| 1.2.3   | 5 January 2023    | Combined software version information into one section<br><br>Added one level of section numbering<br><br>Added software update instructions<br><br>Added table of ports used by the appliance<br><br>Reworded 'Further Documentation' section<br><br>Removed references to the colour of certain UI elements | Housekeeping across all documentation   | AH           |
| 1.2.4   | 2 February 2023   | Updated screenshots   | Branding update   | AH           |
| 1.2.5   | 7 March 2023      | Removed conclusion section  | Updates across all documentation  | AH           |
| 1.3.0   | 24 March 2023     | New document theme<br><br>Modified diagram colours  | Branding update   | AH           |



**Visit us:** [www.loadbalancer.org](http://www.loadbalancer.org)

**Phone us:** +44 (0)330 380 1064

**Phone us:** +1 833 274 2566

**Email us:** [info@loadbalancer.org](mailto:info@loadbalancer.org)

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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.

