

Load Balancing OpenText RightFax

Version 1.2.0



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1. About this Guide

This guide details the steps required to configure a load balanced OpenText RightFax environment utilizing Loadbalancer.org appliances. It covers the configuration of the load balancers and also any OpenText RightFax 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 with OpenText RightFax. 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

- V8.5.3 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.

3.2. OpenText RightFax

- Versions 20.2.0.0 to 20.2.2.277

4. OpenText RightFax

Installed on a local area network (LAN), OpenText™ Rightfax™ lets users, applications, and systems connected to the network send and receive paperless, digital faxes. The enterprise fax server software connects to onsite analog or digital telephony, voice-over-IP telephony, or the cloud to transmit the fax securely. Integrated with email for users and back-end systems for application faxing, RightFax significantly reduces the total cost of faxing across an enterprise.

5. Load Balancing OpenText RightFax

Note

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

5.1. Persistence (aka Server Affinity)



OpenText RightFax does not require session affinity at the load balancing layer.

5.2. Virtual Service (VIP) Requirements

To provide load balancing and HA for OpenText RightFax, the following VIPs are required:

- Client Access (HTTP)
- Client Access (HTTPS)
- Network File Storage (SMB/LPD)
- Server Module Client Access
- Licensing

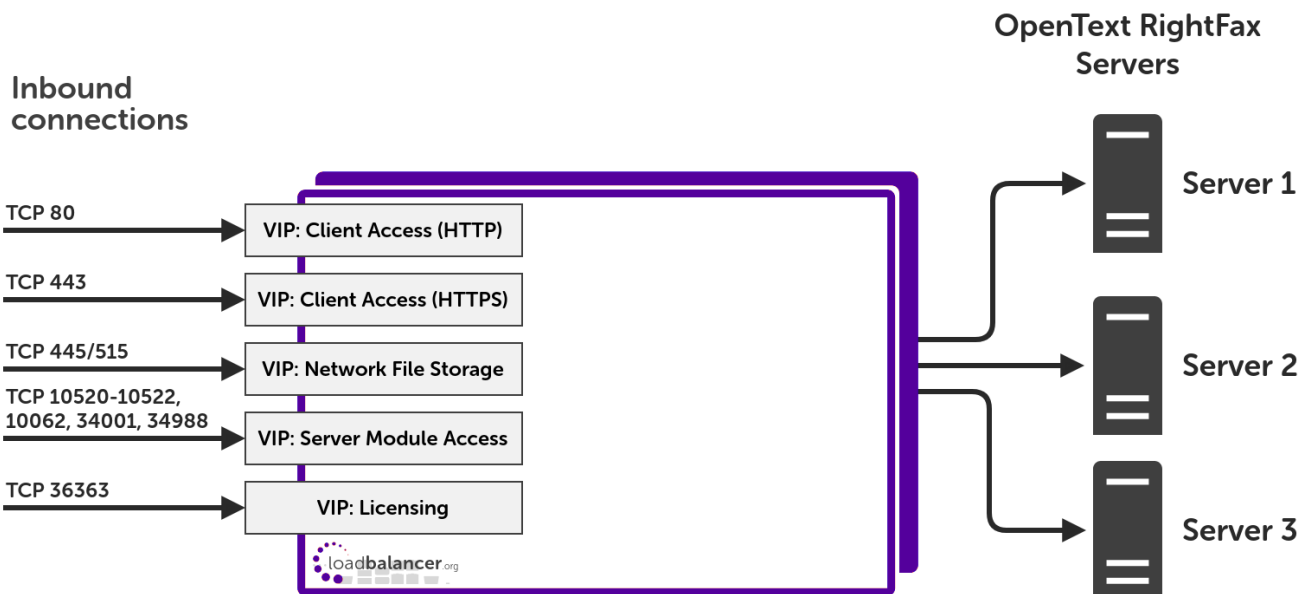
5.3. Port Requirements

The following table shows the ports that are load balanced:

Ports	Protocols	Use
80	TCP/HTTP	Provides page rendering services, auditing, reporting, HTTP transfer fallback capability for clients that cannot establish OpenText Fuel connection with the server
443	TCP/HTTPS	Provides page rendering services, auditing, reporting, HTTPS transfer fallback capability for clients that cannot establish OpenText Fuel connection with the server
445/515	TCP/SMB, TCP/LPD	Network accessible file storage for Secure MFT to store the file assets
10520-10522, 10062, 34001, 34988	TCP	Server Module (client access)
36363	TCP	Licensing

6. Deployment Concept





VIPs = **V**irtual **I**P 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 the section [Configuring HA - Adding a Secondary Appliance](#) in the appendix for more details on configuring a clustered pair.

7. Load Balancer Deployment Methods

The load balancer can be deployed in 4 fundamental ways: *Layer 4 DR mode*, *Layer 4 NAT mode*, *Layer 4 SNAT mode*, and *Layer 7 SNAT mode*.

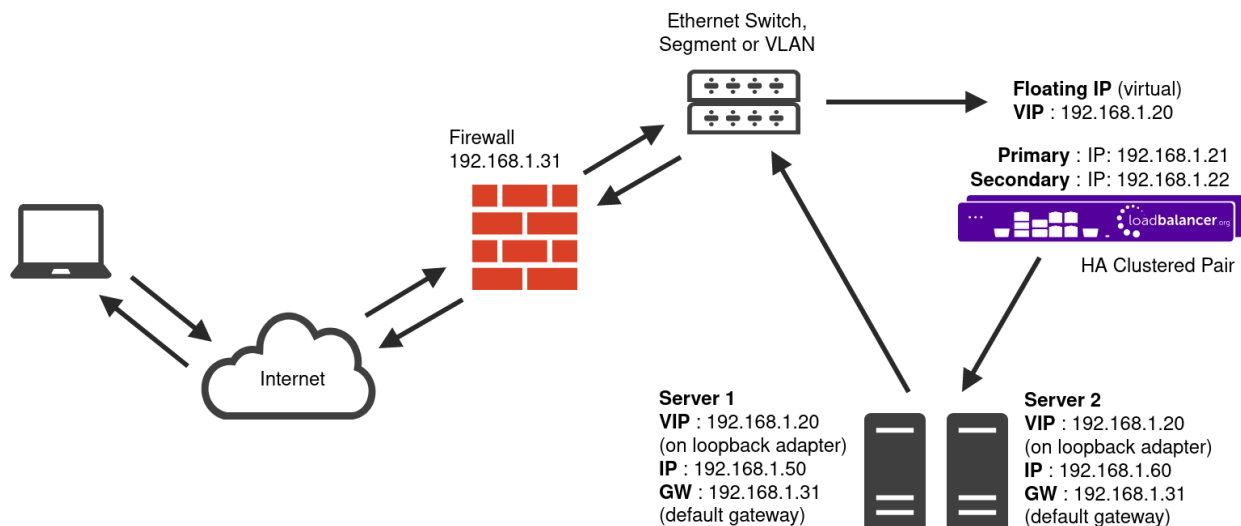
For OpenText RightFax, using layer 4 DR mode is recommended. It is also possible to use layer 7 SNAT mode, however the performance of this set up is not as great as layer 4 DR mode. These modes are described below and are used for the configurations presented in this guide. For configuring using DR mode please refer to the section [Appliance Configuration for OpenText RightFax – Using Layer 4 DR Mode](#), and for configuring using layer 7 SNAT mode refer to the section [Appliance Configuration for OpenText RightFax – Using Layer 7 SNAT Mode](#).

7.1. Layer 4 DR Mode

One-arm direct routing (DR) mode is a very high performance solution that requires little change to your existing infrastructure.

Note

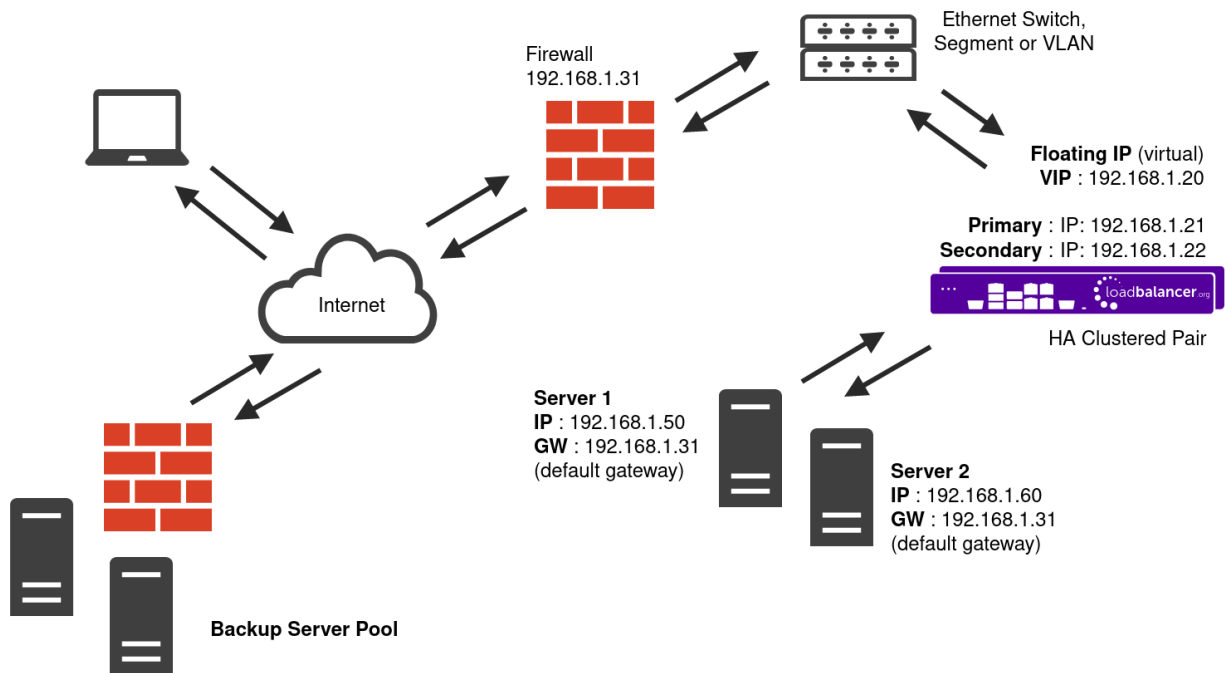
Kemp, Brocade, Barracuda & A10 Networks call this *Direct Server Return* and F5 call it *nPath*.



- DR mode works by changing the destination MAC address of the incoming packet to match the selected Real Server on the fly which is very fast.
- When the packet reaches the Real Server it expects the Real Server to own the Virtual Services IP address (VIP). This means that you need to ensure that the Real Server (and the load balanced application) respond to both the Real Server's own IP address and the VIP.
- The Real Servers should not respond to ARP requests for the VIP. Only the load balancer should do this. Configuring the Real Servers in this way is referred to as **Solving the ARP problem**. For more information please refer to [DR Mode Considerations](#).
- On average, DR mode is 8 times quicker than NAT for HTTP, 50 times quicker for Terminal Services and much, much faster for streaming media or FTP.
- The load balancer must have an Interface in the same subnet as the Real Servers to ensure layer 2 connectivity required for DR mode to work.
- The VIP can be brought up on the same subnet as the Real Servers, or on a different subnet provided that the load balancer has an interface in that subnet.
- Port translation is not possible with DR mode, e.g. VIP:80 → RIP:8080 is not supported.
- DR mode is transparent, i.e. the Real Server will see the source IP address of the client.

7.2. Layer 7 SNAT Mode

Layer 7 SNAT mode uses a proxy (HAProxy) at the application layer. Inbound requests are terminated on the load balancer and HAProxy generates a new corresponding request to the chosen Real Server. As a result, Layer 7 is typically not as fast as the Layer 4 methods. Layer 7 is typically chosen when either enhanced options such as SSL termination, cookie based persistence, URL rewriting, header insertion/deletion etc. are required, or when the network topology prohibits the use of the layer 4 methods.



- Because layer 7 SNAT mode is a full proxy, any server in the cluster can be on any accessible subnet including across the Internet or WAN.
- Layer 7 SNAT mode is not transparent by default, i.e. the Real Servers will not see the source IP address of the client, they will see the load balancer's own IP address by default, or any other local appliance IP address if preferred (e.g. the VIP address). This can be configured per layer 7 VIP. If required, the load balancer can be configured to provide the actual client IP address to the Real Servers in 2 ways. Either by inserting a header that contains the client's source IP address, or by modifying the Source Address field of the IP packets and replacing the IP address of the load balancer with the IP address of the client. For more information on these methods please refer to [Transparency at Layer 7](#).
- Layer 7 SNAT mode can be deployed using either a one-arm or two-arm configuration. For two-arm deployments, **eth0** is normally used for the internal network and **eth1** is used for the external network although this is not mandatory.
- Requires no mode-specific configuration changes to the load balanced Real Servers.
- Port translation is possible with Layer 7 SNAT mode, e.g. VIP:80 → RIP:8080 is supported.
- You should not use the same RIP:PORT combination for layer 7 SNAT mode VIPs and layer 4 SNAT mode VIPs because the required firewall rules conflict.

7.3. Our Recommendation

Where possible, we recommend that Layer 4 Direct Routing (DR) mode is used. This mode offers the best possible performance since replies go directly from the Real Servers to the client, not via the load balancer. It's also relatively simple to implement. Ultimately, the final choice does depend on your specific requirements and infrastructure.

If DR mode cannot be used, for example if the real servers are located in remote routed networks, then SNAT mode is recommended.

If the load balancer is deployed in AWS, Azure, or GCP, layer 7 SNAT mode must be used as layer 4 direct routing

is not currently possible on these platforms.

8. Configuring OpenText RightFax for Load Balancing

To enable the RightFax servers to be accessed via a shared name (e.g. `faxserver-vip`), the following steps must be completed:

8.1. Windows 2019

Host entries must be added to the local hosts file on each RightFax server. For example, if you have 2 RightFax servers: 192.168.100.20 and 192.168.100.21, add the following entries to the hosts files:

On the 192.168.100.20 server 192.168.100.20 faxserver-vip 192.168.100.20 faxserver-vip.domain.com

On the 192.168.100.21 server 192.168.100.21 faxserver-vip 192.168.100.21 faxserver-vip.domain.com

where `faxserver-vip` is the DNS name clients use to access the load balanced RightFax servers.

9. Loadbalancer.org Appliance – the Basics

9.1. 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.

9.2. Initial Network Configuration

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

Important

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



9.3. 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](#).

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:

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

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:

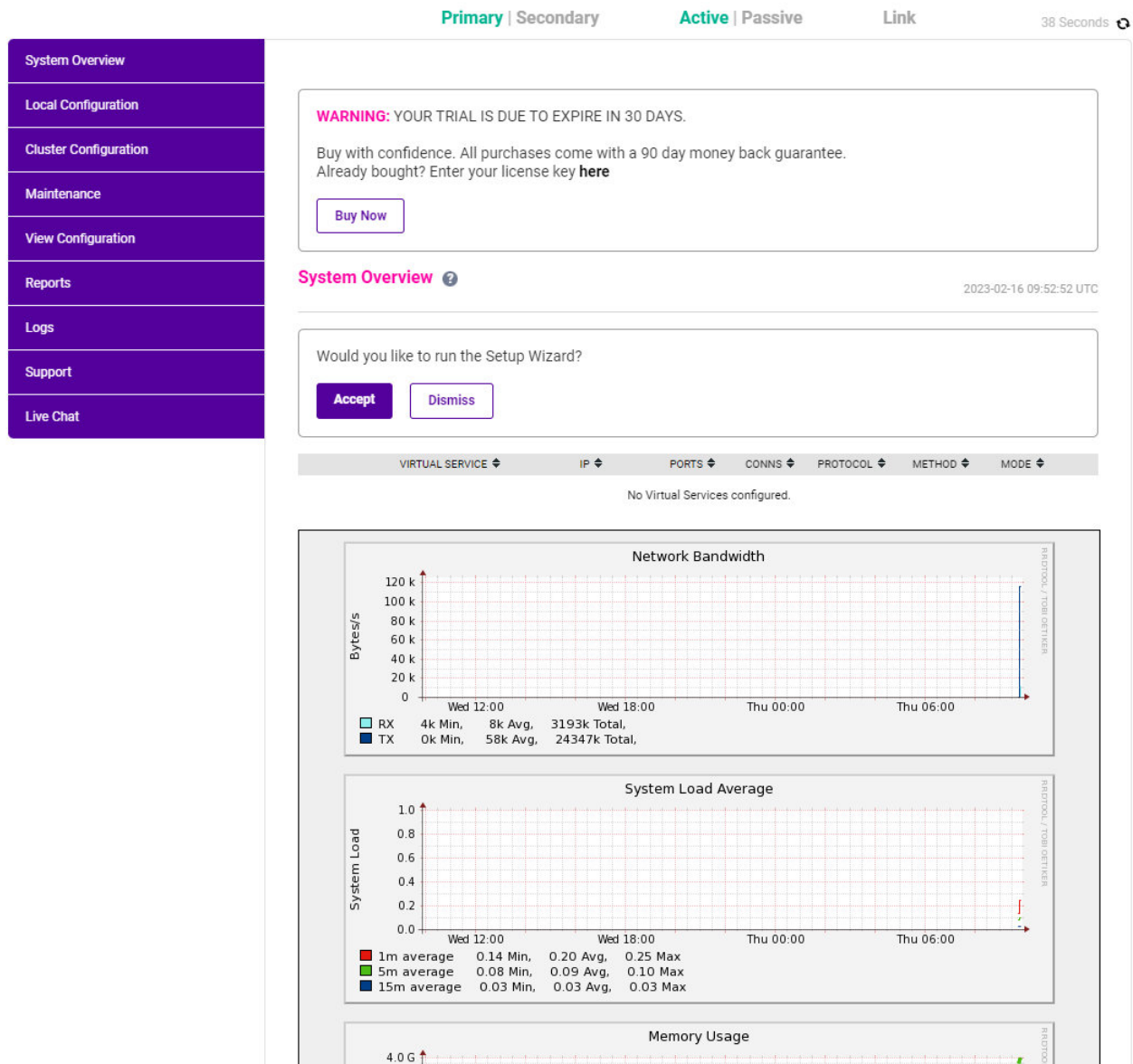
Username: loadbalancer

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.



Note

The Setup Wizard can only be used to configure Layer 7 services.

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

9.4. 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 – 2023
ENTERPRISE VA Max - v8.9.0

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 v8.9.0 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 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.

9.5. 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
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	9080	WebUI - HTTP (disabled by default)
TCP	9081	Nginx fallback page
TCP	9443	WebUI - HTTPS



9.6. 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 the section [Configuring HA - Adding a Secondary Appliance](#) of the appendix.






10. Appliance Configuration for OpenText RightFax – Using Layer 4 DR Mode

10.1. Configuring VIP 1 - Client Access (HTTP)

Configuring the Virtual Service (VIP)

1. Using the web user interface, navigate to *Cluster Configuration > Layer 4 – Virtual Services* and click on **Add a new Virtual Service**.
2. Define the *Label* for the virtual service as required, e.g. **access_http**.
3. Set the *Virtual Service IP Address* field to the required IP address, e.g. **192.168.85.140**.
4. Set the *Ports* field to **80**.
5. Leave the *Protocol* set to **TCP**.
6. Leave the *Forwarding Method* set to **Direct Routing**.
7. Click **Update** to create the virtual service.

Layer 4 - Add a new Virtual Service

Virtual Service		
Label	<input type="text" value="access_http"/>	
IP Address	<input type="text" value="192.168.85.140"/>	
Ports	<input type="text" value="80"/>	
Protocol		
Protocol	<input type="text" value="TCP"/>	
Forwarding		
Forwarding Method	<input type="text" value="Direct Routing"/>	
		<input type="button" value="Cancel"/> <input type="button" value="Update"/>

8. Click **Modify** next to the newly created VIP.
9. Ensure that the *Persistence Enable* checkbox is not checked.
10. Click **Update**.



Defining the Real Servers (RIPs)

1. Using the web user interface, navigate to *Cluster Configuration > Layer 4 – Real Servers* and click on **Add a new Real Server** next to the newly created VIP.
2. Define the *Label* for the real server as required, e.g. **rightfax_server_1**.
3. Set the *Real Server IP Address* field to the required IP address, e.g. **192.168.85.190**.
4. Click **Update**.
5. Repeat these steps to add additional RightFax servers as required.

Layer 4 Add a new Real Server - access_http

Label	<input type="text" value="rightfax_server_1"/>	?
Real Server IP Address	<input type="text" value="192.168.85.190"/>	?
Weight	<input type="text" value="100"/>	?
Minimum Connections	<input type="text" value="0"/>	?
Maximum Connections	<input type="text" value="0"/>	?

10.2. Configuring VIP 2 - Client Access (HTTPS)

Configuring the Virtual Service (VIP)

1. Using the web user interface, navigate to *Cluster Configuration > Layer 4 – Virtual Services* and click on **Add a new Virtual Service**.
2. Define the *Label* for the virtual service as required, e.g. **access_https**.
3. Set the *Virtual Service IP Address* field to the required IP address, e.g. **192.168.85.140**.
4. Set the *Ports* field to **443**.
5. Leave the *Protocol* set to **TCP**.
6. Leave the *Forwarding Method* set to **Direct Routing**.
7. Click **Update** to create the virtual service.

Layer 4 - Add a new Virtual Service

Virtual Service		
Label	<input type="text" value="access_https"/>	?
IP Address	<input type="text" value="192.168.85.140"/>	?
Ports	<input type="text" value="443"/>	?
Protocol		
Protocol	<input type="text" value="TCP"/>	?
Forwarding		
Forwarding Method	<input type="text" value="Direct Routing"/>	?
		<input type="button" value="Cancel"/> <input type="button" value="Update"/>

- Click **Modify** next to the newly created VIP.
- Ensure that the *Persistence Enable* checkbox is not checked.
- Click **Update**.

Defining the Real Servers (RIPs)

- Using the web user interface, navigate to *Cluster Configuration > Layer 4 – Real Servers* and click on **Add a new Real Server** next to the newly created VIP.
- Define the *Label* for the real server as required, e.g. **rightfax_server_1**.
- Set the *Real Server IP Address* field to the required IP address, e.g. **192.168.85.190**.
- Click **Update**.
- Repeat these steps to add additional RightFax servers as required.

Layer 4 Add a new Real Server - access_https






Label	<input type="text" value="rightfax_server_1"/>	?
Real Server IP Address	<input type="text" value="192.168.85.190"/>	?
Weight	<input type="text" value="100"/>	?
Minimum Connections	<input type="text" value="0"/>	?
Maximum Connections	<input type="text" value="0"/>	?
		<input type="button" value="Cancel"/> <input type="button" value="Update"/>

10.3. Configuring VIP 3 - Network File Storage (SMB/LPD)

Configuring the Virtual Service (VIP)

1. Using the web user interface, navigate to *Cluster Configuration > Layer 4 – Virtual Services* and click on **Add a new Virtual Service**.
2. Define the *Label* for the virtual service as required, e.g. **net_filestorage**.
3. Set the *Virtual Service IP Address* field to the required IP address, e.g. **192.168.85.140**.
4. Set the *Ports* field to **445,515**.
5. Leave the *Protocol* set to **TCP**.
6. Leave the *Forwarding Method* set to **Direct Routing**.
7. Click **Update** to create the virtual service.

Layer 4 - Add a new Virtual Service

Virtual Service		
Label	<input type="text" value="net_filestorage"/>	
IP Address	<input type="text" value="192.168.85.140"/>	
Ports	<input type="text" value="445,515"/>	
Protocol		
Protocol	<input type="text" value="TCP"/>	
Forwarding		
Forwarding Method	<input type="text" value="Direct Routing"/>	
		<input type="button" value="Cancel"/> <input type="button" value="Update"/>

8. Click **Modify** next to the newly created VIP.
9. Ensure that the *Persistence Enable* checkbox is not checked.
10. Click **Update**.

Defining the Real Servers (RIPs)

1. Using the web user interface, navigate to *Cluster Configuration > Layer 4 – Real Servers* and click on **Add a new Real Server** next to the newly created VIP.
2. Define the *Label* for the real server as required, e.g. **rightfax_server_1**.
3. Set the *Real Server IP Address* field to the required IP address, e.g. **192.168.85.190**.
4. Click **Update**.
5. Repeat these steps to add additional RightFax servers as required.

Layer 4 Add a new Real Server - net_filestorage

Label	<input type="text" value="rightfax_server_1"/>	?
Real Server IP Address	<input type="text" value="192.168.85.190"/>	?
Weight	<input type="text" value="100"/>	?
Minimum Connections	<input type="text" value="0"/>	?
Maximum Connections	<input type="text" value="0"/>	?

CancelUpdate

10.4. Configuring VIP 4 - Client Access (Server Module)

Configuring the Virtual Service (VIP)

1. Using the web user interface, navigate to *Cluster Configuration > Layer 4 – Virtual Services* and click on **Add a new Virtual Service**.
2. Define the *Label* for the virtual service as required, e.g. **access_srv_mod**.
3. Set the *Virtual Service IP Address* field to the required IP address, e.g. **192.168.85.140**.
4. Set the *Ports* field to **10520-10522,10062,34001,34988**.
5. Leave the *Protocol* set to **TCP**.
6. Leave the *Forwarding Method* set to **Direct Routing**.
7. Click **Update** to create the virtual service.

Layer 4 - Add a new Virtual Service

Virtual Service		
Label	<input type="text" value="access_srv_mod"/>	?
IP Address	<input type="text" value="192.168.85.140"/>	?
Ports	<input type="text" value="20-10522,10062,34001,34988"/>	?
Protocol		
Protocol	<input type="text" value="TCP"/>	?
Forwarding		
Forwarding Method	<input type="text" value="Direct Routing"/>	?

CancelUpdate

8. Click **Modify** next to the newly created VIP.

9. Ensure that the *Persistence Enable* checkbox is not checked.
10. Click **Update**.

Defining the Real Servers (RIPs)

1. Using the web user interface, navigate to *Cluster Configuration > Layer 4 – Real Servers* and click on **Add a new Real Server** next to the newly created VIP.
2. Define the *Label* for the real server as required, e.g. **rightfax_server_1**.
3. Set the *Real Server IP Address* field to the required IP address, e.g. **192.168.85.190**.
4. Click **Update**.
5. Repeat these steps to add additional RightFax servers as required.

Layer 4 Add a new Real Server - access_srv_mod

Label	<input type="text" value="rightfax_server_1"/>	?
Real Server IP Address	<input type="text" value="192.168.85.190"/>	?
Weight	<input type="text" value="100"/>	?
Minimum Connections	<input type="text" value="0"/>	?
Maximum Connections	<input type="text" value="0"/>	?

10.5. Configuring VIP 5 - Licensing

Configuring the Virtual Service (VIP)

1. Using the web user interface, navigate to *Cluster Configuration > Layer 4 – Virtual Services* and click on **Add a new Virtual Service**.
2. Define the *Label* for the virtual service as required, e.g. **licensing**.
3. Set the *Virtual Service IP Address* field to the required IP address, e.g. **192.168.85.140**.
4. Set the *Ports* field to **36363**.
5. Leave the *Protocol* set to **TCP**.
6. Leave the *Forwarding Method* set to **Direct Routing**.
7. Click **Update** to create the virtual service.

Layer 4 - Add a new Virtual Service

Virtual Service		
Label	<input type="text" value="licensing"/>	?
IP Address	<input type="text" value="192.168.85.140"/>	?
Ports	<input type="text" value="36363"/>	?
Protocol		
Protocol	<input type="text" value="TCP"/>	?
Forwarding		
Forwarding Method	<input type="text" value="Direct Routing"/>	?
		<input type="button" value="Cancel"/> <input type="button" value="Update"/>

- Click **Modify** next to the newly created VIP.
- Ensure that the *Persistence Enable* checkbox is not checked.
- Click **Update**.

Defining the Real Servers (RIPs)

- Using the web user interface, navigate to *Cluster Configuration > Layer 4 – Real Servers* and click on **Add a new Real Server** next to the newly created VIP.
- Define the *Label* for the real server as required, e.g. **rightfax_server_1**.
- Set the *Real Server IP Address* field to the required IP address, e.g. **192.168.85.190**.
- Click **Update**.
- Repeat these steps to add additional RightFax servers as required.

Layer 4 Add a new Real Server - licensing

Label	<input type="text" value="rightfax_server_1"/>	?
Real Server IP Address	<input type="text" value="192.168.85.190"/>	?
Weight	<input type="text" value="100"/>	?
Minimum Connections	<input type="text" value="0"/>	?
Maximum Connections	<input type="text" value="0"/>	?
		<input type="button" value="Cancel"/> <input type="button" value="Update"/>

11. Appliance Configuration for OpenText RightFax – Using Layer 7 SNAT Mode

11.1. Configuring VIP 1 - Client Access (HTTP)

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. Define the *Label* for the virtual service as required, e.g. **access_http**.
3. Set the *Virtual Service IP Address* field to the required IP address, e.g. **192.168.85.150**.
4. Set the *Ports* field to **80**.
5. Set the *Layer 7 Protocol* to **TCP Mode**.
6. Click **Update** to create the virtual service.

Layer 7 - Add a new Virtual Service

Virtual Service		[Advanced +]
Label	<input type="text" value="access_http"/>	?
IP Address	<input type="text" value="192.168.85.150"/>	?
Ports	<input type="text" value="80"/>	?
Protocol		
Layer 7 Protocol	<input type="text" value="TCP Mode"/>	?

Cancel Update

7. Click **Modify** next to the newly created VIP.
8. Set *Persistence Mode* to **None**.
9. 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 VIP.
2. Define the *Label* for the real server as required, e.g. **rightfax_server_1**.
3. Set the *Real Server IP Address* field to the required IP address, e.g. **192.168.85.190**.
4. Click **Update**.
5. Repeat these steps to add additional RightFax servers as required.

Layer 7 Add a new Real Server - access_http-1

Label	<input type="text" value="rightfax_server_1"/>	?
Real Server IP Address	<input type="text" value="192.168.85.190"/>	?
Real Server Port	<input type="text"/>	?
Re-Encrypt to Backend	<input type="checkbox"/>	?
Enable Redirect	<input type="checkbox"/>	?
Weight	<input type="text" value="100"/>	?

CancelUpdate

11.2. Configuring VIP 2 - Client Access (HTTPS)

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. Define the *Label* for the virtual service as required, e.g. **access_https**.
3. Set the *Virtual Service IP Address* field to the required IP address, e.g. **192.168.85.150**.
4. Set the *Ports* field to **443**.
5. Set the *Layer 7 Protocol* to **TCP Mode**.
6. Click **Update** to create the virtual service.

Layer 7 - Add a new Virtual Service

Virtual Service		[Advanced +]
Label	<input type="text" value="access_https"/>	?
IP Address	<input type="text" value="192.168.85.150"/>	?
Ports	<input type="text" value="443"/>	?
Protocol		
Layer 7 Protocol	<input type="text" value="TCP Mode"/>	?

CancelUpdate

7. Click **Modify** next to the newly created VIP.
8. Set *Persistence Mode* to **None**.
9. 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 VIP.
2. Define the *Label* for the real server as required, e.g. **rightfax_server_1**.
3. Set the *Real Server IP Address* field to the required IP address, e.g. **192.168.85.190**.
4. Click **Update**.
5. Repeat these steps to add additional RightFax servers as required.

Layer 7 Add a new Real Server - access_https-1

Label	<input type="text" value="rightfax_server_1"/>	?
Real Server IP Address	<input type="text" value="192.168.85.190"/>	?
Real Server Port	<input type="text"/>	?
Re-Encrypt to Backend	<input type="checkbox"/>	?
Weight	<input type="text" value="100"/>	?

11.3. Configuring VIP 3 - Network File Storage (SMB/LPD)

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. Define the *Label* for the virtual service as required, e.g. **net_filestorage**.
3. Set the *Virtual Service IP Address* field to the required IP address, e.g. **192.168.85.150**.
4. Set the *Ports* field to **445,515**.
5. Set the *Layer 7 Protocol* to **TCP Mode**.
6. Click **Update** to create the virtual service.

Layer 7 - Add a new Virtual Service

Virtual Service		[Advanced +]
Label	<input type="text" value="net_filestorage"/>	?
IP Address	<input type="text" value="192.168.85.150"/>	?
Ports	<input type="text" value="445,515"/>	?
Protocol		
Layer 7 Protocol	<input type="text" value="TCP Mode"/>	?
		<input type="button" value="Cancel"/> <input type="button" value="Update"/>

7. Click **Modify** next to the newly created VIP.
8. Set *Persistence Mode* to **None**.
9. 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 VIP.
2. Define the *Label* for the real server as required, e.g. **rightfax_server_1**.
3. Set the *Real Server IP Address* field to the required IP address, e.g. **192.168.85.190**.
4. Click **Update**.
5. Repeat these steps to add additional RightFax servers as required.

Layer 7 Add a new Real Server - net_filestorage-1

Label	<input type="text" value="rightfax_server_1"/>	?
Real Server IP Address	<input type="text" value="192.168.85.190"/>	?
Real Server Port	<input type="text"/>	?
Re-Encrypt to Backend	<input type="checkbox"/>	?
Weight	<input type="text" value="100"/>	?
		<input type="button" value="Cancel"/> <input type="button" value="Update"/>

11.4. Configuring VIP 4 - Client Access (Server Module)

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. Define the *Label* for the virtual service as required, e.g. **access_srv_mod**.
3. Set the *Virtual Service IP Address* field to the required IP address, e.g. **192.168.85.150**.
4. Set the *Ports* field to **10520-10522,10062,34001,34988**.
5. Set the *Layer 7 Protocol* to **TCP Mode**.
6. Click **Update** to create the virtual service.

Layer 7 - Add a new Virtual Service

Virtual Service		[Advanced +]
Label	<input type="text" value="access_srv_mod"/>	?
IP Address	<input type="text" value="192.168.85.150"/>	?
Ports	<input type="text" value="20-10522,10062,34001,34988"/>	?
Protocol		
Layer 7 Protocol	<input type="text" value="TCP Mode"/>	?

7. Click **Modify** next to the newly created VIP.
8. Set *Persistence Mode* to **None**.
9. 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 VIP.
2. Define the *Label* for the real server as required, e.g. **rightfax_server_1**.
3. Set the *Real Server IP Address* field to the required IP address, e.g. **192.168.85.190**.
4. Click **Update**.
5. Repeat these steps to add additional RightFax servers as required.



Layer 7 Add a new Real Server - access_srv_mod-1

Label	<input type="text" value="rightfax_server_1"/>	?
Real Server IP Address	<input type="text" value="192.168.85.190"/>	?
Real Server Port	<input type="text"/>	?
Re-Encrypt to Backend	<input type="checkbox"/>	?
Weight	<input type="text" value="100"/>	?

CancelUpdate

11.5. Configuring VIP 5 - Licensing

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. Define the *Label* for the virtual service as required, e.g. **licensing**.
3. Set the *Virtual Service IP Address* field to the required IP address, e.g. **192.168.85.150**.
4. Set the *Ports* field to **36363**.
5. Set the *Layer 7 Protocol* to **TCP Mode**.
6. Click **Update** to create the virtual service.

Layer 7 - Add a new Virtual Service

Virtual Service		[Advanced +]
Label	<input type="text" value="licensing"/>	?
IP Address	<input type="text" value="192.168.85.150"/>	?
Ports	<input type="text" value="36363"/>	?
Protocol		
Layer 7 Protocol	<input type="text" value="TCP Mode"/>	?

CancelUpdate

7. Click **Modify** next to the newly created VIP.
8. Set *Persistence Mode* to **None**.
9. 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 VIP.
2. Define the *Label* for the real server as required, e.g. **rightfax_server_1**.
3. Set the *Real Server IP Address* field to the required IP address, e.g. **192.168.85.190**.
4. Click **Update**.
5. Repeat these steps to add additional RightFax servers as required.

Layer 7 Add a new Real Server - licensing-1

Label	<input type="text" value="rightfax_server_1"/>	?
Real Server IP Address	<input type="text" value="192.168.85.190"/>	?
Real Server Port	<input type="text"/>	?
Re-Encrypt to Backend	<input type="checkbox"/>	?
Weight	<input type="text" value="100"/>	?

11.6. Finalizing the Configuration

To apply the new settings, HAProxy must be reloaded. This can be done using the button 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**.

12. Testing & Verification

Note

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

12.1. Using System Overview
















The System Overview can be viewed in the WebUI. It shows a graphical view of all VIPs & RIPs (i.e. the RightFax servers) and shows the state/health of each server as well as the state of the cluster as a whole.

The example below shows a **layer 4 DR mode** configuration load balancing a pair of RightFax servers, where both servers are healthy and available to accept connections:



	VIRTUAL SERVICE	IP	PORTS	CONNS	PROTOCOL	METHOD	MODE	
↑	access_http	192.168.85.140	80	0	TCP	Layer 4	DR	
	REAL SERVER	IP	PORTS	WEIGHT	CONNS			
↑	rightfax_server_1	192.168.85.190	80	100	0	Drain	Halt	
↑	rightfax_server_2	192.168.85.191	80	100	0	Drain	Halt	
↑	access_https	192.168.85.140	443	0	TCP	Layer 4	DR	
	REAL SERVER	IP	PORTS	WEIGHT	CONNS			
↑	rightfax_server_1	192.168.85.190	443	100	0	Drain	Halt	
↑	rightfax_server_2	192.168.85.191	443	100	0	Drain	Halt	
↑	net_filestorage	192.168.85.140	445,515	0	TCP	Layer 4	DR	
	REAL SERVER	IP	PORTS	WEIGHT	CONNS			
↑	rightfax_server_1	192.168.85.190	445,515	100	0	Drain	Halt	
↑	rightfax_server_2	192.168.85.191	445,515	100	0	Drain	Halt	
↑	access_srv_mod	192.168.85.140	10062,340..	0	TCP	Layer 4	DR	
	REAL SERVER	IP	PORTS	WEIGHT	CONNS			
↑	rightfax_server_1	192.168.85.190	10062,3400..	100	0	Drain	Halt	
↑	rightfax_server_2	192.168.85.191	10062,3400..	100	0	Drain	Halt	
↑	licensing	192.168.85.140	36363	0	TCP	Layer 4	DR	
	REAL SERVER	IP	PORTS	WEIGHT	CONNS			
↑	rightfax_server_1	192.168.85.190	36363	100	0	Drain	Halt	
↑	rightfax_server_2	192.168.85.191	36363	100	0	Drain	Halt	

The example below shows a **layer 7 SNAT mode** configuration load balancing a pair of RightFax servers, where both servers are healthy and available to accept connections:

	VIRTUAL SERVICE ↕	IP ↕	PORTS ↕	CONNS ↕	PROTOCOL ↕	METHOD ↕	MODE ↕	
↑	access_http	192.168.85.150	80	0	TCP	Layer 7	Proxy	
	REAL SERVER	IP	PORTS	WEIGHT	CONNS			
↑	rightfax_server_1	192.168.85.190	80	100	0	Drain	Halt	
↑	rightfax_server_2	192.168.85.191	80	100	0	Drain	Halt	
↑	access_https	192.168.85.150	443	0	TCP	Layer 7	Proxy	
	REAL SERVER	IP	PORTS	WEIGHT	CONNS			
↑	rightfax_server_1	192.168.85.190	443	100	0	Drain	Halt	
↑	rightfax_server_2	192.168.85.191	443	100	0	Drain	Halt	
↑	net_filestorage	192.168.85.150	445,515	0	TCP	Layer 7	Proxy	
	REAL SERVER	IP	PORTS	WEIGHT	CONNS			
↑	rightfax_server_1	192.168.85.190	445,515	100	0	Drain	Halt	
↑	rightfax_server_2	192.168.85.191	445,515	100	0	Drain	Halt	
↑	access_srv_mod	192.168.85.150	10062,340..	0	TCP	Layer 7	Proxy	
	REAL SERVER	IP	PORTS	WEIGHT	CONNS			
↑	rightfax_server_1	192.168.85.190	10062,3400..	100	0	Drain	Halt	
↑	rightfax_server_2	192.168.85.191	10062,3400..	100	0	Drain	Halt	
↑	licensing	192.168.85.150	36363	0	TCP	Layer 7	Proxy	
	REAL SERVER	IP	PORTS	WEIGHT	CONNS			
↑	rightfax_server_1	192.168.85.190	36363	100	0	Drain	Halt	
↑	rightfax_server_2	192.168.85.191	36363	100	0	Drain	Halt	

13. 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.

14. Further Documentation

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

15. Appendix

15.1. 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 configured first and 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:

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

⚠ Important

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


Adding a Secondary Appliance - Create an 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

192.168.110.40

IP address of new peer

192.168.110.41


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

192.168.110.40

IP address of new peer

192.168.110.41

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	Break Clustered Pair
IP: 192.168.110.40	Make Active
 LOADBALANCER  Secondary	
IP: 192.168.110.41	

7. 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](#).

16. Document Revision History

Version	Date	Change	Reason for Change	Changed By
1.0.0	26 August 2021	Initial version		NH, AH
1.1.0	14 January 2022	<p>Add additional required ports for the "server module access" VIP</p> <p>Add additional required VIP for "licensing"</p> <p>Update diagrams and screenshots to reflect new ports and VIPs</p>	Requested technical changes from OpenText	NH, AH
1.1.1	28 September 2022	Updated layer 7 VIP and RIP creation screenshots	Reflect changes in the web user interface	AH
1.1.2	5 January 2023	<p>Combined software version information into one section</p> <p>Added one level of section numbering</p> <p>Added software update instructions</p> <p>Added table of ports used by the appliance</p> <p>Reworded 'Further Documentation' section</p>	Housekeeping across all documentation	AH
1.1.3	2 February 2023	Updated screenshots	Branding update	AH
1.1.4	7 March 2023	<p>Added the section "Finalizing the Configuration" to ensure HAProxy is explicitly reloaded</p> <p>Removed conclusion section</p>	<p>Provided clarity for reloading HAProxy post-configuration</p> <p>Updates across all documentation</p>	AH
1.2.0	24 March 2023	<p>New document theme</p> <p>Modified diagram colours</p>	Branding update	AH



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