Load Balancing Splunk Smartfile

v1.0.0

Deployment Guide
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1. About this Guide
This guide details the steps required to configure a load balanced Splunk Smartfile environment utilizing Loadbalancer.org appliances. It covers the configuration of the load balancers and also any Splunk Smartfile 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:

• v8 Administration Manual

2. Loadbalancer.org Appliances Supported
All our products can be used with Splunk Smartfile. 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

• V8.5.1 and later

4. Splunk Smartfile Software Versions Supported

• Splunk Smartfile – all versions

5. Splunk Smartfile
Splunk Smartfile is a simple solution for handling big data. It makes it easy to collect, correlate, and analyse data in real-time, and provides functionality for alerting, graphing, and producing metrics for reporting, compliance, and analytics.

Adding a load balancer to a Splunk Smartfile deployment makes the service both highly available and scalable.

Note: This document specifically covers Splunk Smartfile, not Splunk Smartstore. If working with a Smartstore deployment, please contact us for further information.
6. Load Balancing Splunk Smartfile

Note: It's highly recommended that you have a working Splunk Smartfile environment first before implementing the load balancer.

Persistence (aka Server Affinity)
Splunk Smartfile does not require session affinity at the load balancing layer for its HTTPS service.
Session affinity is required for the syslog service.

Virtual Service (VIP) Requirements
To provide load balancing and HA for Smartfile, the following VIPs are required:

- HTTPS (for all HTTPS based services)
- Syslog (UDP-based)

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>443</td>
<td>TCP/HTTPS</td>
<td>Encrypted HTTP traffic to Splunk servers</td>
</tr>
<tr>
<td>514</td>
<td>UDP/syslog</td>
<td>UDP-based syslog traffic</td>
</tr>
</tbody>
</table>

TLS/SSL Termination
It is possible to terminate TLS connections on the load balancer for Splunk's HTTPS traffic, however this is not recommended in the interests of performance and scalability. TLS termination should continue to be performed on the back end Smartfile servers themselves.

In a corner case where TLS termination is required for some reason, please refer to the section SSL Termination in our full Administration Manual for details on how to configure this.
7. 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 14 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 on the following page:
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 14.
9. Appliance Configuration for Splunk Smartfile

Configuring VIP 1 – 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. **Splunk_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

7. Click **Modify** next to the newly created VIP
8. Set **Persistence Mode** to **None**
9. In the **Health Checks** section click **Advanced** to show more options
10. Set **Health Checks** to **Negotiate HTTPS (HEAD)**
11. Set **Check Port** to **8000**
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. Splunk_Node_1
3. Set the Real Server IP Address field to the required IP address, e.g. 192.168.85.200
4. Click Update
5. Repeat these steps to add additional Splunk nodes as real servers as required

Configuring VIP 2 – Syslog

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. Splunk_syslog
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 **514**
5. Set the *Protocol* to **UDP**
6. Set the *Forwarding Method* to **SNAT**
7. Click **Update** to create the virtual service

8. Click **Modify** next to the newly created VIP
9. Ensure that the *Persistence Enable* checkbox is checked and that the *Timeout* is set to **60**
10. Set the *Health Checks Check Type* to **ping server**
11. 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. **Splunk_Node_1**
3. Set the *Real Server IP Address* field to the required IP address, e.g. **192.168.85.200**
4. Click **Update**
5. Repeat these steps to add additional Splunk nodes as real servers 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 **Reload HAProxy**

10. Testing & Verification

Using the Load Balanced Smartfile Service
The best way to test the load balancer configuration is to test using the load balanced Smartfile service. Pass traffic to the Splunk virtual service, using the virtual IP address, and ensure that it works as intended.
Test halting or powering off different Splunk nodes and ensure that the load balanced Smartfile service is still available.

Using System Overview
The System Overview can be viewed in the WebUI. It shows a graphical view of all VIPs & RIPS (i.e. the Splunk nodes) and shows the state/health of each server as well as the state of the each cluster as a whole. The example below shows that all Splunk nodes are healthy and available to accept connections.
11. 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.

12. Further Documentation

13. Conclusion
Loadbalancer.org appliances provide a very cost effective solution for highly available load balanced Splunk Smartfile environments.
14. 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

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:

![Create a Clustered Pair](image)

• Once complete, the following will be displayed:

![High Availability Configuration - Master](image)

• 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.
## 15. Document Revision History

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<th>Reason for Change</th>
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<td>1 March 2021</td>
<td>Initial version</td>
<td></td>
<td>OW, 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.