



Load Balancing Nuance AutoStore

v1.1.1

Deployment Guide

Contents

1. About this Guide.....	4
2. Loadbalancer.org Appliances Supported.....	4
3. Loadbalancer.org Software Versions Supported.....	4
4. Nuance AutoStore Software Versions Supported.....	4
5. Nuance AutoStore.....	5
6. Load Balancing Nuance AutoStore.....	5
<i>Load Balancing & HA Requirements</i>	5
<i>Persistence (aka Server Affinity)</i>	5
<i>Virtual Service (VIP) Requirements</i>	6
<i>Port Requirements</i>	6
Xerox EIP Connect.....	6
Konica Minolta.....	6
Ricoh ESA.....	6
Ricoh SOP.....	6
Other Vendors.....	6
7. Deployment Concept.....	7
8. Load Balancer Deployment Methods.....	7
<i>Layer 4 DR Mode</i>	7
<i>Layer 4 NAT Mode</i>	8
<i>Our Recommendation</i>	10
9. Configuring Nuance AutoStore for Load Balancing.....	10
<i>Device Registration Service Configuration</i>	10
<i>Layer 4 DR Mode – Solving the ARP Problem</i>	11
10. Loadbalancer.org Appliance – the Basics.....	12
<i>Virtual Appliance Download & Deployment</i>	12
<i>Initial Network Configuration</i>	12
<i>Accessing the Web User Interface (WebUI)</i>	13
<i>HA Clustered Pair Configuration</i>	14
11. Appliance Configuration for Nuance AutoStore – Using Layer 4 DR Mode.....	15
<i>Configuring the Virtual Service (VIP)</i>	15
<i>Defining the Real Servers (RIPs)</i>	16
12. Appliance Configuration for Nuance AutoStore – Using Layer 4 NAT Mode.....	17
<i>Configuring the Virtual Service (VIP)</i>	17
<i>Defining the Real Servers (RIPs)</i>	18
13. Testing & Verification.....	19
<i>Testing Using a Multi-function Device</i>	19
<i>Using System Overview</i>	19
14. Technical Support.....	19
15. Further Documentation.....	19
16. Conclusion.....	19
17. Appendix.....	20
1 – Solving the ARP Problem.....	20
2 – Clustered Pair Configuration – Adding a Slave Unit.....	25

18. Document Revision History..... 28

1. About this Guide

This guide details the steps required to configure a load balanced Nuance AutoStore environment utilizing Loadbalancer.org appliances. It covers the configuration of the load balancers and also any Nuance AutoStore 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 Nuance AutoStore. The complete list of models is shown below:

Discontinued Models	Current Models *
Enterprise R16	Enterprise R20
Enterprise VA R16	Enterprise MAX
Enterprise VA	Enterprise 10G
Enterprise R320	Enterprise 40G
	Enterprise Ultra
	Enterprise VA R20
	Enterprise VA MAX
	Enterprise AWS **
	Enterprise AZURE **
	Enterprise GCP **

* For full specifications of these models please refer to: <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. Nuance AutoStore Software Versions Supported

- Nuance AutoStore – version 7.0

5. Nuance AutoStore

AutoStore is a server based middle-tier application that captures, processes, and routes paper and electronic documents in a business environment. It lowers costs and improves operational efficiency for organizations of all sizes by automating document handling processes.

AutoStore provides a flexible component-based server for capturing electronic and paper documents. Some of AutoStore's capabilities include:

- 'Capture components' to capture documents from scanners and multifunction devices, fax, email, smartphones and tablets, XML data streams, PC desktops, office applications, and network and FTP locations
- 'Process components' to support functionalities to detect, read, extract, store, convert, classify, and index content in captured documents
- 'Route components' to deliver documents to virtually any destination such as fax, email, network folders, PCs, and document management systems

6. Load Balancing Nuance AutoStore

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

Load Balancing & HA Requirements

In order to be successfully load balanced, a Nuance AutoStore deployment must feature the following components:

- Wide Area Network (WAN)
- Local Area Network (LAN)
- Firewall
- SQL Server
- Web Server
- Active Directory
- File Share

It is likely that a fully functional AutoStore deployment will already feature all of these components.

Persistence (aka Server Affinity)

MFDs from some vendors require source IP address persistence to be used for the AutoStore servers. This ensures that a particular client will connect to the same AutoStore server for the duration of the session.

MFDs from some vendors do not require session affinity at the load balancing layer.

Specific persistence settings for some of the most common vendors are described in the application configuration instructions later in this guide.

Virtual Service (VIP) Requirements

To provide load balancing and HA for AutoStore, a single VIP is required. The traffic that is load balanced and the ports that are used vary between vendors. Specific settings for some of the most common vendors are described in the application configuration instructions later in this guide.

Port Requirements

The following tables show the ports that are load balanced for four of the most common vendors:

Xerox EIP Connect

Port	Protocols	Use
3241	TCP	Capture server port

Konica Minolta

Port	Protocols	Use
3348	TCP/HTTP	AutoStore Web Server
13351	TCP/HTTP	OpenAPI Application
13353	TCP/HTTPS	OpenAPI Authority
13391	TCP/HTTP	WebDAV Session

Ricoh ESA

Port	Protocols	Use
8084	TCP	Capture
8753	TCP	DRS

Ricoh SOP

Port	Protocols	Use
3350	TCP	Capture
8753	TCP	DRS

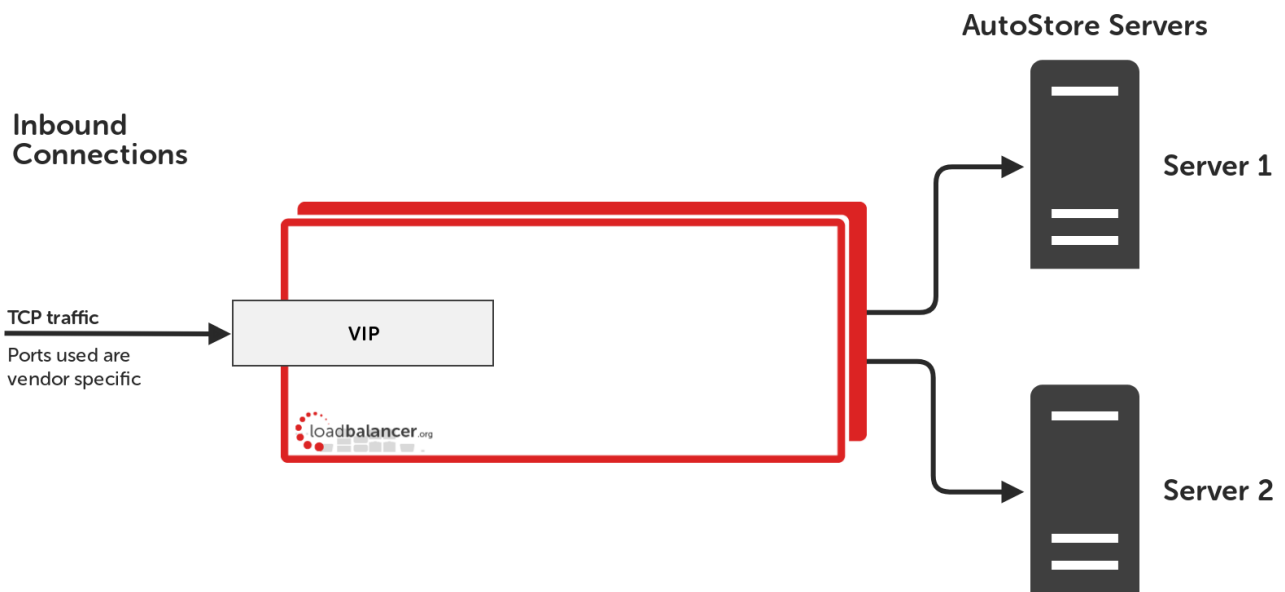
Other Vendors

If using a vendor that is not listed above, please follow the following hyperlink and refer to the port list for AutoStore provided by Nuance:

https://kofaximaging.custhelp.com/app/answers/detail/a_id/26545/~/default-ports-used-with-autostore-7-capture,-process,-and-route-components

The list includes the web application port / capture server port / web server port that should be used for a variety of vendors and services.

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 2 in the appendix on page [25](#) for more details on configuring a clustered pair.

8. Load Balancer Deployment Methods

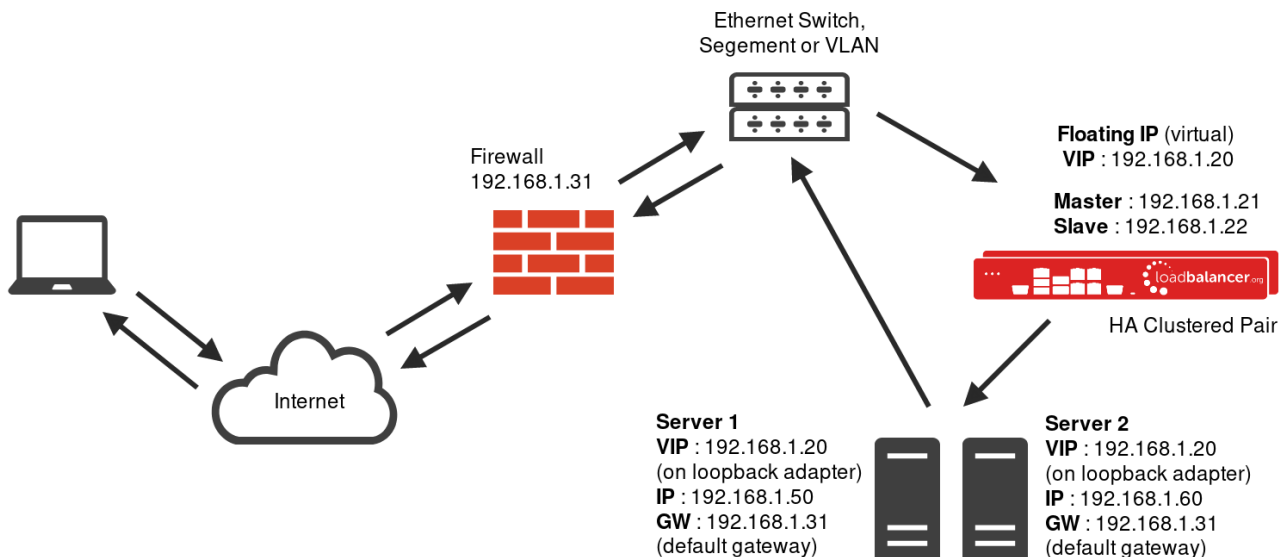
The load balancer can be deployed in either *Layer 4 DR mode* or *Layer 4 NAT mode*.

For Nuance AutoStore, layer 4 DR mode is recommended unless a two arm configuration is needed. 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 starting on page [15](#), and for configuring using layer 4 NAT mode refer to the section starting on page [17](#).

Layer 4 DR Mode

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

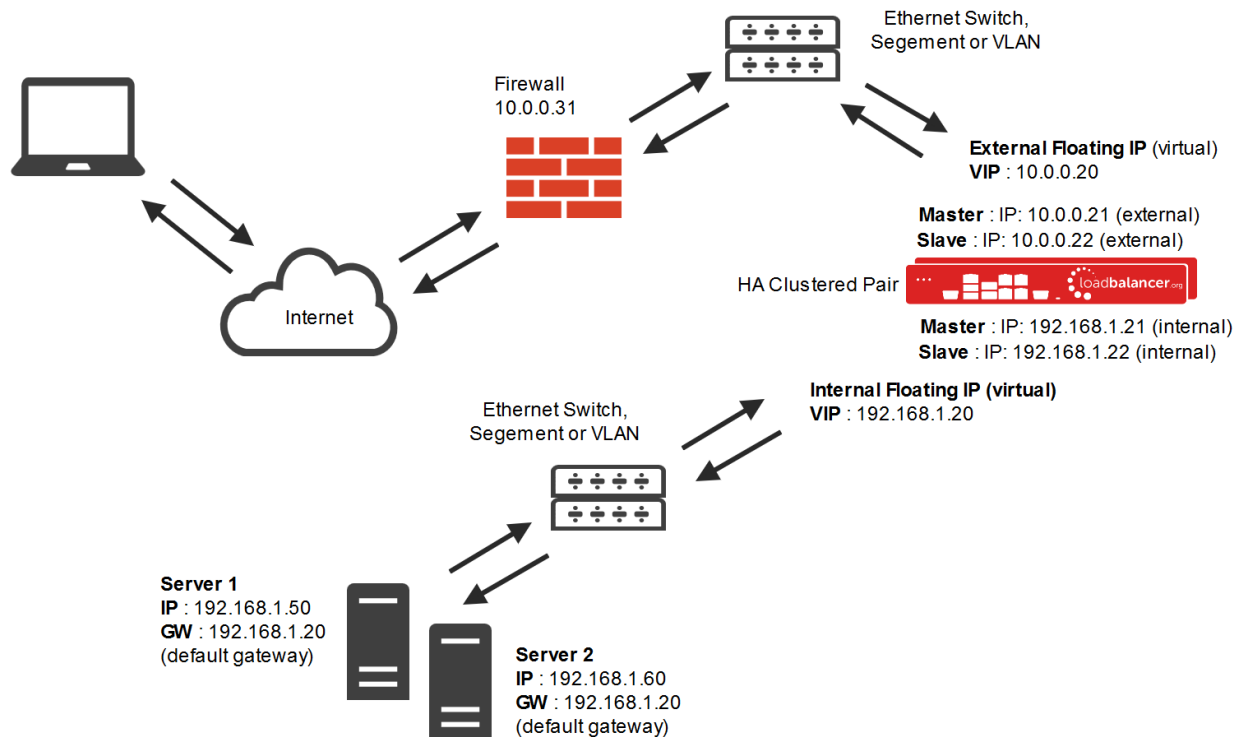
Note: Kemp, Brocade, Barracuda & A10 Networks call this Direct Server Return and F5 call it N-Path.



- 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 Servers own IP address and the VIP
- The Real Server 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**. Please refer to page [20](#) for more information
- 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 in DR mode i.e. having a different RIP port than the VIP port
- DR mode is transparent, i.e. the Real Server will see the source IP address of the client

Layer 4 NAT Mode

Layer 4 NAT mode is typically deployed in a two arm fashion although it can also support single arm. Inbound requests are received at the load balancer and translated changing the destination IP address before forwarding traffic on to the real server. Return traffic **MUST** come back through the load balancer in order for the traffic to be translated on the way back to the client. As a result, Layer 4 NAT is a less scalable technique when compared to DR because reply traffic needs to come back via the load balancer.



This mode can be deployed in a one-arm or two-arm configuration and does not require any changes to the Real Servers. However, since the load balancer is acting as a full proxy it doesn't have the same raw throughput as the layer 4 methods.

The load balancer proxies the application traffic to the servers so that the source of all traffic becomes the load balancer.

- The load balancer translates all requests from the external Virtual Service to the internal Real Servers.
- Normally eth0 is used for the internal network and eth1 is used for the external network although this is not mandatory. If the Real Servers require Internet access, Autonat should be enabled using the WebUI option: *Cluster Configuration > Layer 4 – Advanced Configuration*, the external interface should be selected.

- NAT mode can be deployed in the following ways:

2-arm (using 2 Interfaces), 2 subnets (as shown above) - One interface on the load balancer is connected to subnet1 and the second interface and Real Servers are connected to subnet2. The VIP is brought up in subnet1. The default gateway on the Real Servers is set to be an IP address in subnet2 on the load balancer. Clients can be located in subnet1 or any remote subnet provided they can route to the VIP.

2-arm (using 1 Interface), 2 subnets - same as above except that a single interface on the load balancer is allocated 2 IP addresses, one in each subnet.

1-arm (using 1 Interface), 1 subnet - Here, the VIP is brought up in the same subnet as the Real Servers. For clients located in remote networks the default gateway on the Real Servers must be set to be an IP address on the load balancer. For clients located on the same subnet, return traffic would normally be sent directly to the client bypassing the load balancer which would break NAT mode. To address this, the routing table on the Real Servers must be modified to force return traffic to go via the load balancer - For more details on 'One-Arm NAT Mode' refer to page 113 of our [administration manual](#).

- If you want Real Servers to be accessible on their own IP address for non-load balanced services, e.g. SMTP or

RDP, you will need to setup individual SNAT and DNAT firewall script rules for each Real Server or add additional VIPs for this - please refer to page 113 of our [administration manual](#) for more details.

- NAT mode is transparent, i.e. the Real Server will see the source IP address of the client.

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 it is required to use a 2-arm configuration, then layer 4 NAT mode is recommended.

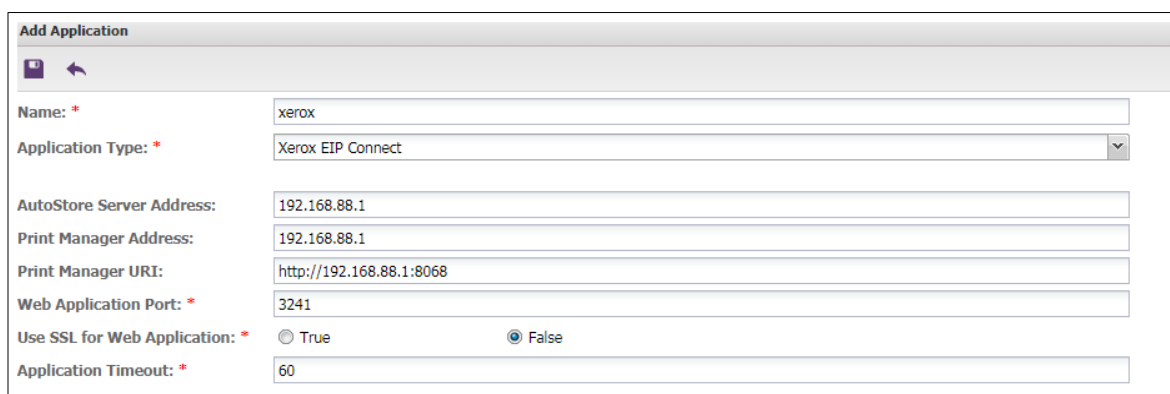
9. Configuring Nuance AutoStore for Load Balancing

Device Registration Service Configuration

Nuance AutoStore needs to be configured via the Device Registration Service (DRS) so that it is highly available and can be load balanced.

The information for the load balanced virtual service needs to be entered into the DRS in the *Add Application* section.

- Set an appropriate name, e.g. **xerox**
- Select the appropriate *Application Type* from the drop-down list, e.g. **Xerox EIP Connect**
- Set the *AutoStore Server Address* to the virtual IP (VIP) address that will be used for the AutoStore virtual service
- Set the *Print Manager Address* to the VIP used for the Output Manager backend
- Set the *Web Application Port* as needed, depending on the MFD vendor:
 - For Xerox EIP Connect, use port **3241**
 - For Konica Minolta, use port **3348**
 - For Ricoh ESA, use port **8084**
 - For Ricoh SOP, use port **3350**
 - For other vendors, refer to the 'Other Vendors' section on page [6](#)



Add Application	
Name: *	xerox
Application Type: *	Xerox EIP Connect
AutoStore Server Address:	192.168.88.1
Print Manager Address:	192.168.88.1
Print Manager URI:	http://192.168.88.1:8068
Web Application Port: *	3241
Use SSL for Web Application: *	<input type="radio"/> True <input checked="" type="radio"/> False
Application Timeout: *	60

Note: If any configuration changes are made to the AutoStore real servers they will need to be unregistered and then re-registered in the Device Registration Service for the configurations to be accepted.

Note: Multi-function devices (MFDs) should be in the same group/folder in the Device Registration Service so that they inherit the same configuration.

Layer 4 DR Mode – Solving the ARP Problem

If using layer 4 DR mode, the 'ARP problem' must be solved on each real server for DR mode to work. For detailed steps on solving the ARP problem for Windows, please refer to section 1 of the appendix on page [20](#) for more information.

For a detailed explanation of DR mode and the nature of the ARP problem, please refer to the section that covers layer 4 DR mode on page [Z](#).

10. Loadbalancer.org Appliance – the Basics

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:

- System Overview
- Local Configuration
- Cluster Configuration
- Maintenance
- View Configuration
- Reports
- Logs
- Support

SYSTEM OVERVIEW ?

2015-06-18 14:21:20 UTC

Would you like to run the Setup Wizard?

Accept

Dismiss

VIRTUAL SERVICE ⌵

IP ⌵

PORTS ⌵

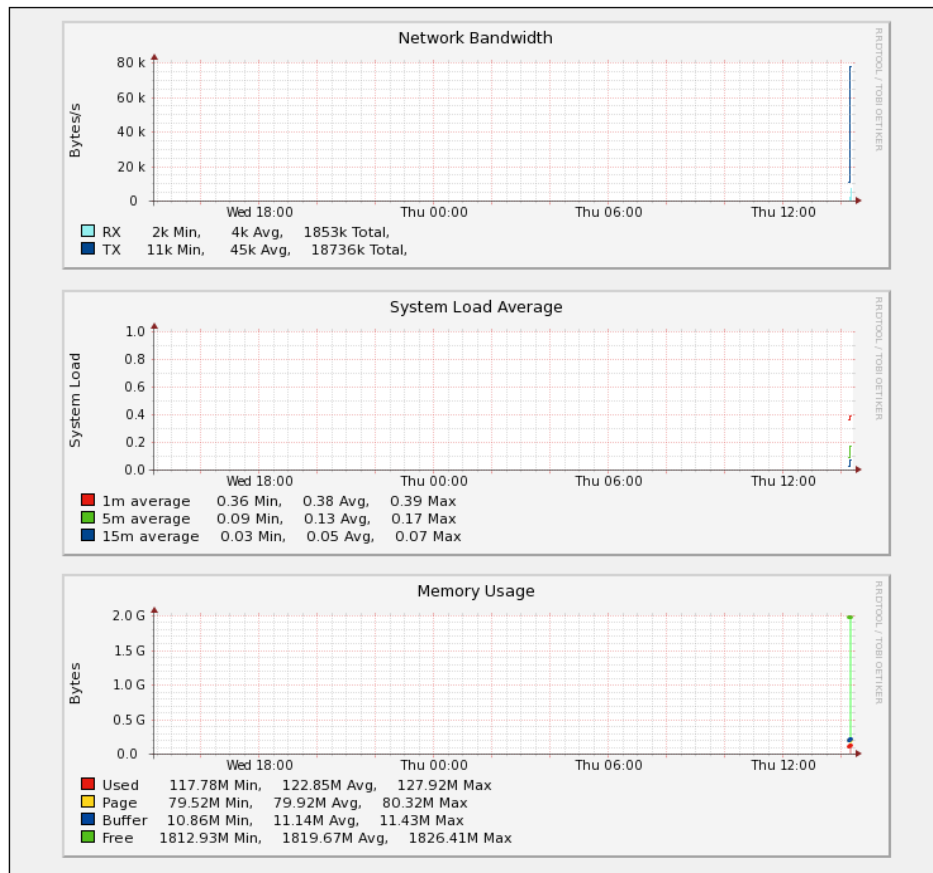
CONN'S ⌵

PROTOCOL ⌵

METHOD ⌵

MODE ⌵

No Virtual Services configured.



(shows v8.2.x)

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 2 of the appendix on page [25](#).

11. Appliance Configuration for Nuance AutoStore – Using Layer 4 DR Mode

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. **AutoStore-KonicaMinolta**
3. Set the *Virtual Service IP Address* field to the required IP address, e.g. **192.168.85.10**
4. Set the *Ports* field as needed, as a comma separated list, depending on the MFD vendor:
 - For Xerox EIP Connect, use port **3241**
 - For Konica Minolta, use ports **3348, 13351, 13353, and 13391**
 - For Ricoh ESA, use ports **8084 and 8753**
 - For Ricoh SOP, use ports **3350 and 8753**
 - For other vendors, refer to the 'Other Vendors' section on page [6](#)
5. Leave the *Protocol* set to **TCP**
6. Leave the *Forwarding Method* set to **Direct Routing**
7. Click **Update** to create the virtual service

The screenshot shows a web form titled "LAYER 4 - ADD A NEW VIRTUAL SERVICE". The form contains the following fields and values:

Field	Value
Label	AutoStore-KonicaMinolta
Virtual Service IP Address	192.168.85.10
Ports	3348,13351,13353,13391
Protocol	TCP
Forwarding Method	Direct Routing

At the bottom right of the form are two buttons: "Cancel" (red) and "Update" (green). Each input field has a small question mark icon to its right.

8. Click **Modify** next to the newly created VIP
9. Set *Balance Mode* to **Weighted Round Robin**
10. Set the persistence settings as required, depending on the MFD vendor:
 - For Xerox EIP Connect and Konica Minolta:
 - Make sure that the *Persistent* checkbox is checked
 - Set the *Timeout* value to **300** (the units are seconds)
 - For Ricoh ESA and Ricoh SOP, make sure that the *Persistent* checkbox is not selected
11. Click **Update**

LAYER 4 - MODIFY VIRTUAL SERVICE

Label	AutoStore-KonicaMinolta		?
Virtual Service	IP Address	192.168.85.10	?
	Ports	3348,13351,13353,13391	?
Protocol	TCP		?
Forwarding Method	Direct Routing		?
Balance Mode	Weighted Round Robin		?
Persistent	<input checked="" type="checkbox"/>		?
	Timeout	300 seconds	?
	Granularity		?

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. **AutoStore1**
- Set the *Real Server IP Address* field to the required IP address, e.g. **192.168.85.20**
- Click **Update**
- Repeat these steps to add additional AutoStore servers as required

LAYER 4 ADD A NEW REAL SERVER - AUTOSTORE-KONICAMINOLTA

Label	AutoStore1	?
Real Server IP Address	192.168.85.20	?
Weight	100	?
Minimum Connections	0	?
Maximum Connections	0	?

Cancel
Update

12. Appliance Configuration for Nuance AutoStore – Using Layer 4 NAT Mode

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. Enter an appropriate name for the VIP in the *Label* field, e.g. **AutoStore-RicohESA**
3. Set the *Virtual Service IP* address field to the required IP address, e.g. **192.168.85.10**
4. Set the *Virtual Service Ports* field as needed, as a comma separated list, depending on the MFD vendor:
 - For Xerox EIP Connect, use port **3241**
 - For Konica Minolta, use ports **3348, 13351, 13353, and 13391**
 - For Ricoh ESA, use ports **8084 and 8753**
 - For Ricoh SOP, use ports **3350 and 8753**
 - For other vendors, refer to the 'Other Vendors' section on page [6](#)
5. Set the *Forwarding Method* to **NAT**

The screenshot shows a web form titled "Layer 4 - Add a new Virtual Service". The form contains several sections with labels and input fields:

- Label:** A text input field containing "AutoStore-RicohESA".
- Virtual Service:** A section header.
- IP Address:** A text input field containing "192.168.85.10".
- Ports:** A text input field containing "8084,8753".
- Protocol:** A section header.
- Protocol:** A dropdown menu showing "TCP".
- Forwarding:** A section header.
- Forwarding Method:** A dropdown menu showing "NAT".

At the bottom right of the form, there are two buttons: "Cancel" (red) and "Update" (green). Each input field has a small question mark icon to its right.

6. Click **Update** to create the virtual service
7. Click **Modify** next to the newly created VIP
8. Set *Balance Mode* to **Weighted Round Robin**
9. Set the *Persistence Mode* settings as required, depending on the MFD vendor:
 - For Xerox EIP Connect and Konica Minolta:
 - Set *Persistence Mode* to **Source IP** persistence
 - Set the *Timeout* value to **300** (the units are seconds)
 - For Ricoh ESA and Ricoh SOP, set *Persistence Mode* to **None**

10. Click **Update**

Layer 4 - Modify Virtual Service

Label	AutoStore-RicohESA	?
Virtual Service		
IP Address	192.168.85.10	?
Ports	8084,8753	?
IP Protocol		
Protocol	TCP	?
Forwarding		
Forwarding Method	NAT	?
Connection Distribution Method		
Balance Mode	Weighted Round Robin	?
Persistence		
Enable	<input checked="" type="checkbox"/>	?
Timeout	300 seconds	?

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. Enter an appropriate name for the server in the *Label* field, e.g. **AutoStore1**
3. Change the *Real Server IP Address* field to the required IP address, e.g. **172.24.11.20**
4. Leave the *Real Server Port* field empty
5. Click **Update**
6. Repeat these steps to add additional AutoStore servers as required

Layer 4 Add a new Real Server - AutoStore-RicohESA

Label	AutoStore1	?
Real Server IP Address	172.24.11.20	?
Real Server Port		?
Weight	100	?
Minimum Connections	0	?
Maximum Connections	0	?

Cancel **Update**

13. Testing & Verification









Testing Using a Multi-function Device

Once all configuration is complete on the AutoStore servers, in the Device Registration Service, and on the load balancer, it is possible to test the new load balanced service using a multi-function device.

1. Authenticate at a configured multi-function device
2. Press the Nuance button and then select a scan template, for example to scan to home or scan to e-mail
3. Set the scan options as appropriate, and complete a test scan
4. AutoStore should recognise the user authenticated at the multi-function device and then route the test scan as requested. Verify that the test scan arrives at its intended destination

Using System Overview

The System Overview can be viewed in the WebUI. It shows a graphical view of all VIPs & RIPs (i.e. the AutoStore servers) 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 AutoStore servers are healthy and available to accept connections.

SYSTEM OVERVIEW ?								2018-06-21 12:53:50 UTC
VIRTUAL SERVICE ⇅		IP ⇅	PORTS ⇅	CONNS ⇅	PROTOCOL ⇅	METHOD ⇅	MODE ⇅	
	AutoStore-Xerox	192.168.85.10	3241	0	TCP	Layer 4	DR	
REAL SERVER		IP	PORTS	WEIGHT	CONNS			
	AutoStore1	192.168.85.20	3241	100	0	Drain	Halt	
	AutoStore2	192.168.85.21	3241	100	0	Drain	Halt	
	AutoStore3	192.168.85.22	3241	100	0	Drain	Halt	

14. 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

15. Further Documentation

The Administration Manual contains much more information about configuring and deploying the appliance. It's available here: <http://pdfs.loadbalancer.org/loadbalanceradministrationv8.pdf>

16. Conclusion

Loadbalancer.org appliances provide a very cost effective solution for highly available load balanced Nuance AutoStore environments.

17. Appendix

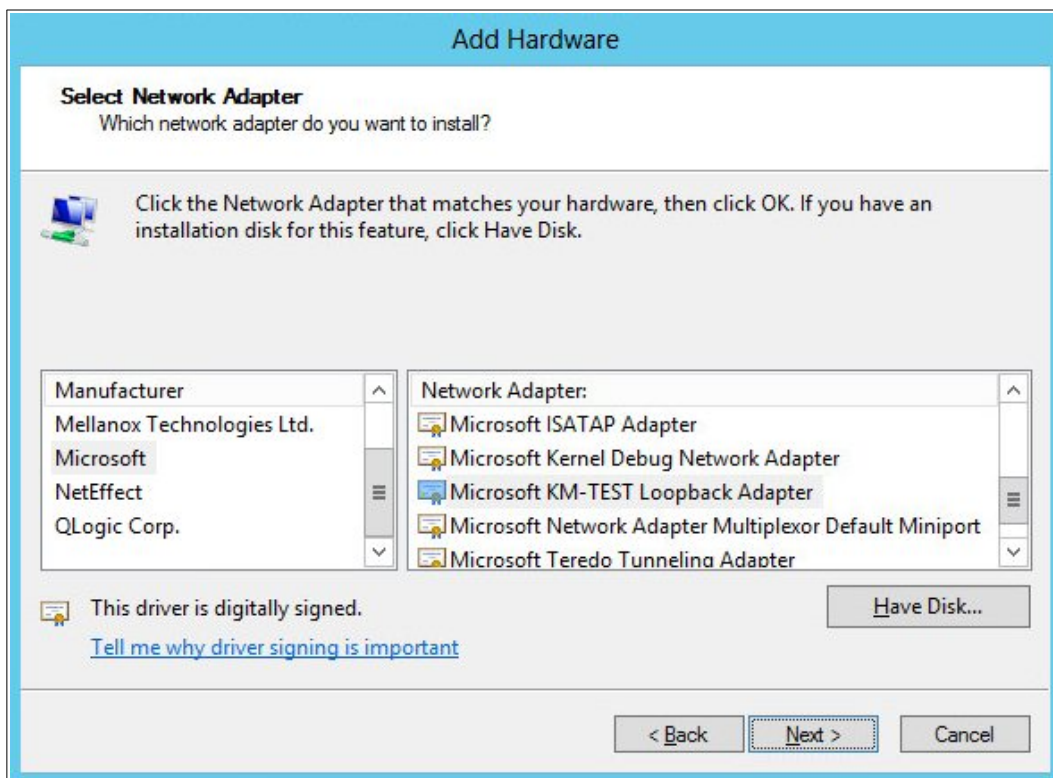
1 – Solving the ARP Problem

When using Layer 4 DR mode, the ARP problem must be solved. This involves configuring each Real Server to be able to receive traffic destined for the VIP, and ensuring that each Real Server does not respond to ARP requests for the VIP address – only the load balancer should do this.

The steps below are for Windows 2012/2016, for other versions of Windows please refer to chapter 6 in the [administration manual](#).

Step 1: Install the Microsoft Loopback Adapter

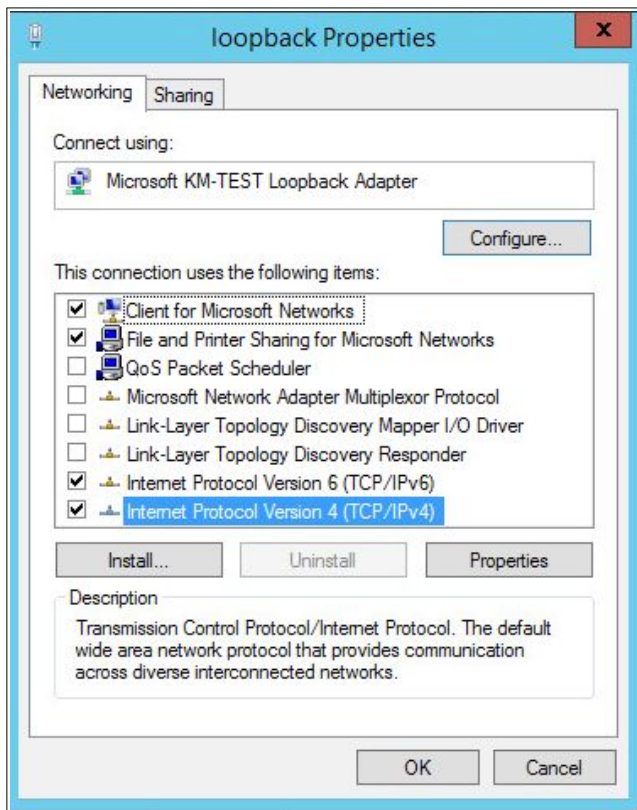
1. Click **Start**, then run **hdwwiz** to start the Hardware Installation Wizard
2. When the Wizard has started, click **Next**
3. Select **Install the hardware that I manually select from a list (Advanced)**, click **Next**
4. Select **Network adapters**, click **Next**
5. Select **Microsoft & Microsoft KM-Test Loopback Adapter**, click **Next**



6. Click **Next** to start the installation, when complete click **Finish**

Step 2: Configure the Loopback Adapter

1. Open Control Panel and click **Network and Sharing Center**
2. Click **Change adapter settings**
3. Right-click the new Loopback Adapter and select **Properties**
4. Un-check all items except **Internet Protocol Version 4 (TCP/IPv4)** and **Internet Protocol Version 6 (TCP/IPv6)** as shown below:

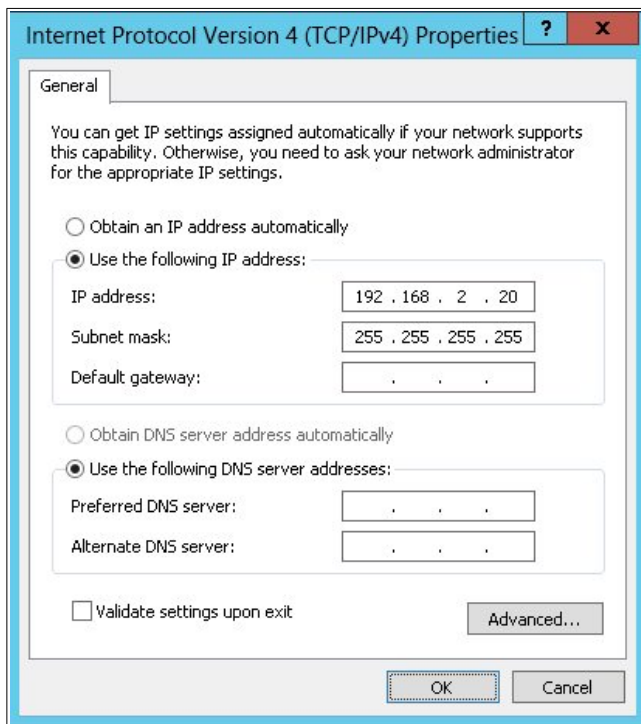


Note: Leaving both checked ensures that both IPv4 and IPv6 are supported. Select one if preferred.

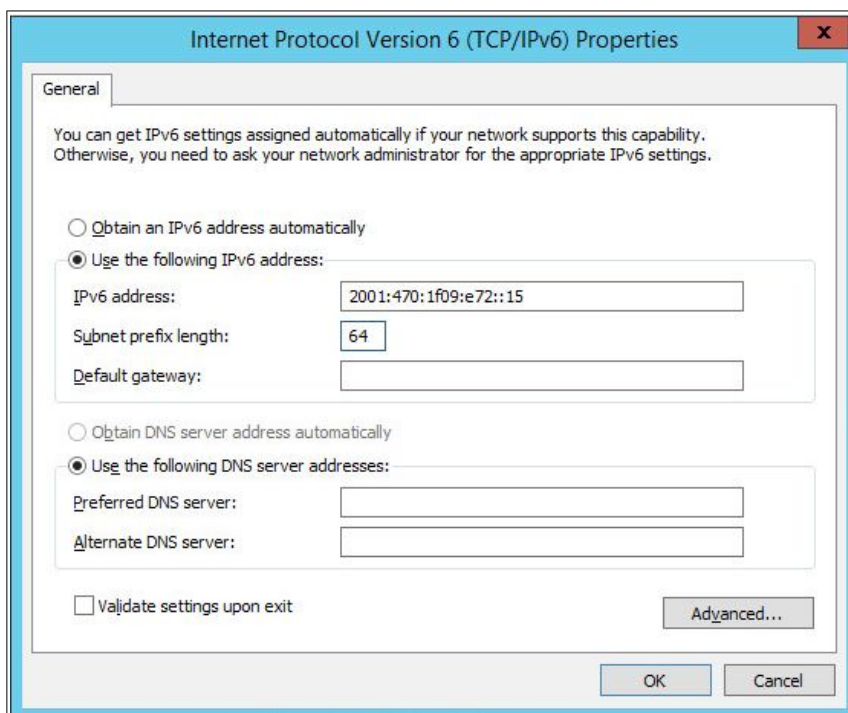
Important: When configuring the Loopback Adapter to solve the ARP Problem, the following options **must** also be checked (ticked):

Client for Microsoft Networks and File & Printer Sharing for Microsoft Networks

5. If configuring IPv4 addresses select **Internet Protocol Version (TCP/IPv4)**, click **Properties** and configure the IP address to be the same as the Virtual Service (VIP) with a subnet mask of 255.255.255.255, e.g. 192.168.2.20/255.255.255.255 as shown below:



6. If configuring IPv6 addresses select **Internet Protocol Version (TCP/IPv6)**, click **Properties** and configure the IP address to be the same as the Virtual Service (VIP) and set the *Subnet Prefix Length* to be the same as your network setting ,e.g. 2001:470:1f09:e72::15/64 as shown below:



7. Click **OK** on TCP/IP Properties, then click **Close** on Ethernet Properties to save and apply the new settings
8. Now repeat the above process on the other Windows 2012/2016 Real Servers

Step 3: Configure the strong/weak host behavior

Windows Server 2000 and Windows Server 2003 use the weak host model for sending and receiving for all IPv4 interfaces and the strong host model for sending and receiving for all IPv6 interfaces. You cannot configure this behavior. The Next Generation TCP/IP stack in Windows 2008 and later supports strong host sends and receives for both IPv4 and IPv6 by default. To ensure that Windows 2012/2016 is running in the correct mode to be able to respond to the VIP, the following commands must be run on each Real Server:

For IPv4 addresses:

```
netsh interface ipv4 set interface "net" weakhostreceive=enabled
netsh interface ipv4 set interface "loopback" weakhostreceive=enabled
netsh interface ipv4 set interface "loopback" weakhostsend=enabled
```

For these commands to work, the LAN connection NIC must be named "net" and the loopback NIC must be named "loopback" as shown below. If you prefer to leave your current NIC names, then the commands above must be modified accordingly. For example, if your network adapters are named "LAN" and "LOOPBACK", the commands required would be:

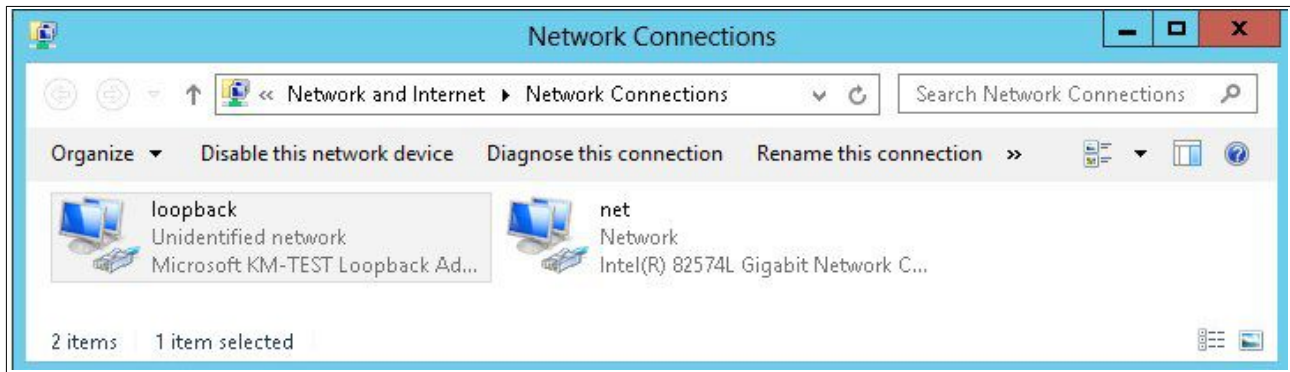
```
netsh interface ipv4 set interface "LAN" weakhostreceive=enabled
netsh interface ipv4 set interface "LOOPBACK" weakhostreceive=enabled
netsh interface ipv4 set interface "LOOPBACK" weakhostsend=enabled
```

For IPv6 addresses:

```
netsh interface ipv6 set interface "net" weakhostreceive=enabled
netsh interface ipv6 set interface "loopback" weakhostreceive=enabled
netsh interface ipv6 set interface "loopback" weakhostsend=enabled
netsh interface ipv6 set interface "loopback" dadtransmits=0
```

For these commands to work, the LAN connection NIC must be named "net" and the loopback NIC must be named "loopback" as shown below. If you prefer to leave your current NIC names, then the commands above must be modified accordingly. For example, if your network adapters are named "LAN" and "LOOPBACK", the commands required would be:

```
netsh interface ipv6 set interface "LAN" weakhostreceive=enabled
netsh interface ipv6 set interface "LOOPBACK" weakhostreceive=enabled
netsh interface ipv6 set interface "LOOPBACK" weakhostsend=enabled
netsh interface ipv6 set interface "LOOPBACK" dadtransmits=0
```



Note: The names for the NICs are case sensitive, so make sure that the name used for the interface and the name used in the commands match exactly.

1. Start Powershell or use a command window to run the appropriate netsh commands as shown in the example below:

```
Administrator: Windows PowerShell
PS C:\Users\administrator.ROBSTEST> netsh interface ipv6 set interface "net" weakhostreceive=enabled
Ok.
PS C:\Users\administrator.ROBSTEST> netsh interface ipv6 set interface "loopback" weakhostreceive=enabled
Ok.
PS C:\Users\administrator.ROBSTEST> netsh interface ipv6 set interface "loopback" weakhostsend=enabled
Ok.
PS C:\Users\administrator.ROBSTEST> netsh interface ipv6 set interface "loopback" dadtransmits=0
Ok.
PS C:\Users\administrator.ROBSTEST>
```

Note: This shows an IPv6 example, use the IPv4 commands if you're using IPv4 addresses.

2. Now repeat these 4 commands on the other Windows 2012/2016 Real Servers

Note: Solving the ARP problem for other version of Windows is similar. For full details, please refer to the [administration manual](#).

2 – 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*

loadbalancer.org

Local IP address

192.168.1.20

IP address of new peer

192.168.1.21

Password for *loadbalancer* user on peer

.....

Add new node

- 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:

192.168.1.20

loadbalancer.org

Attempting to pair..

192.168.1.21

loadbalancer.org

Local IP address

192.168.1.20

IP address of new peer

192.168.1.21

Password for *loadbalancer* user on peer

.....

configuring

- Once complete, the following will be displayed:

192.168.1.20

loadbalancer.org

192.168.1.21

loadbalancer.org

Break Clustered Pair

- 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.

18. Document Revision History

Version	Date	Change	Reason for Change	Changed By
1.0.0	21 June 2018	Initial version		AH
1.0.1	26 June 2018	Made the guide more generic by adding additional vendor options Changed the title from 'AutoStore With Xerox EIP Connect'	Required updates	AH
1.0.2	6 December 2018	Added the new "Company Contact Information" page	Required updates	AH
1.1.0	1 August 2019	Styling and layout Changed layer 7 SNAT mode deployment method to layer 4 NAT mode Updated a Nuance hyperlink to use the new Kofax location	General styling updates Required updates	AW, AH
1.1.1	8 June 2020	New title page Updated Canadian contact details	Branding update Change to Canadian contact details	AH

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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