



Load Balancing Microsoft OCS 2007

Deployment Guide
v1.5.2

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1. About this Guide

This guide details the steps required to configure a load balanced Microsoft OCS 2007 R2 environment utilizing Loadbalancer.org appliances. It covers the configuration of the load balancers and also any Microsoft OCS 2007 R2 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 with Microsoft OCS. 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 Ultra
	Enterprise VA R20
	Enterprise VA MAX
	Enterprise AWS
	Enterprise AZURE **

* 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. Microsoft OCS 2007 Software Versions Supported

- OCS 2007 R2 and later

5. Microsoft Office Communications Server

Office Communications Server 2007 R2 is the Microsoft platform for presence, instant messaging, conferencing, and enterprise voice.

6. Load Balancing OCS 2007

THE BASICS

A hardware load balancer is required in an Enterprise pool with more than one Enterprise Edition server. A load balancer is not required for a Standard Edition server or a single Enterprise Edition Front End Server. A load balancer is required, for arrays of Office Communications Server 2007 R2 Edge Servers. The load balancer performs the critical role of delivering scalability and high availability across multiple servers connected to a centralized database on the Office Communications Server 2007 R2, Back-End Database. Microsoft recommends that full NAT mode (SNAT) should be used, this can be achieved with our appliances using HAProxy.

PORT REQUIREMENTS

The following table shows the ports that must be load balanced.

Port	Use
5060	SIP communication over TCP
5061	SIP communication over TLS
135	To move users from a pool and other remote DCOM-based operations
443	HTTPS traffic to the pool URLs
444	Communication between the focus (Office Communications Server 2007 R2 component that manages conference state) and the conferencing servers
5065	SIP listening requests for Application Sharing
5069	Monitoring Server
5071	SIP listening requests for Response Group Service
5072	SIP listening requests for Conferencing Attendant
5073	SIP listening requests for Conferencing Announcement Server
5074	SIP listening requests for Outside Voice Control
8404	TLS (remoting over MTLs) listening for inter-server communications for Response Group Service

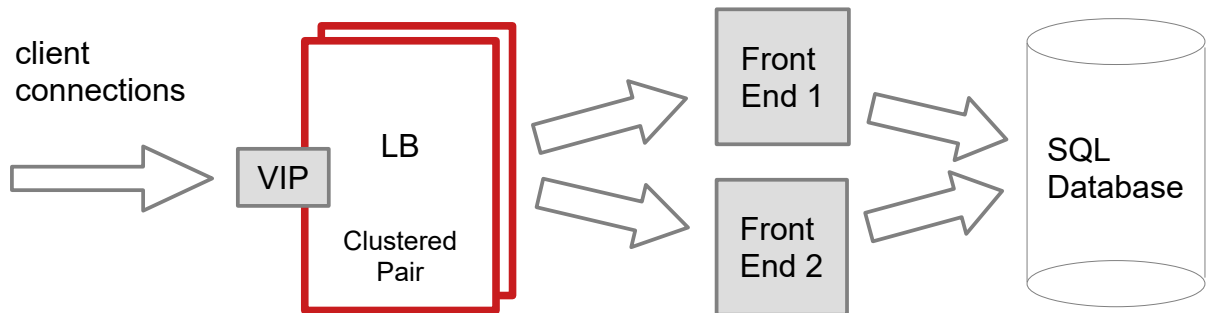
Please refer to [http://technet.microsoft.com/en-us/library/dd572362\(office.13\).aspx](http://technet.microsoft.com/en-us/library/dd572362(office.13).aspx) for more details.

LOAD BALANCER DEPLOYMENT

The following diagram provides a simply illustration to indicate how the load balancer is deployed with multiple Front-end servers.

Clients connect to the Virtual Service (VIP) on the load balancer rather than connecting directly to one of the Front End servers. These connections are then load balanced across the Front-end servers to distribute the load according to the load balancing algorithm selected.

The load balancer is deployed before the front-end servers to provide load balancing and fail-over functionality.



VIPs = Virtual IP Addresses

Note:

The load balancer can be deployed as a single unit, although Loadbalancer.org recommends a clustered pair for resilience & high availability. Please refer to section 1 in the appendix on page [12](#) for more details on configuring a clustered pair.

LOAD BALANCER DEPLOYMENT MODE

Layer 7 SNAT mode (HAProxy) is recommended for OCS and is used for the configuration presented in this guide. This mode offers good performance and is simple to configure since it requires no configuration changes to the OCS servers.

Layer 4 DR mode, NAT mode and SNAT mode can also be used if preferred. For DR mode you'll need to solve the ARP problem on each OCS server (please see the [Administration Manual](#) and search for "DR mode considerations"), for NAT mode the default gateway of the OCS servers must be the load balancer.

7. 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: **http://192.168.2.21:9080**

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*

Method 3 - Using Linux commands

At the console, set the initial IP address using the following command:

```
ip addr add <IP address>/<mask> dev eth0
```

At the console, set the initial default gateway using the following command:

```
route add default gw <IP address> <interface>
```

At the console, set the DNS server using the following command:

```
echo nameserver <IP address> >> /etc/resolv.conf
```

Note:

If method 3 is used, you must also configure these settings using the WebUI, otherwise the settings will be lost after a reboot

ACCESSING THE WEB USER INTERFACE (WEBUI)

The WebUI can be accessed via HTTP at the following URL: **http://192.168.2.21:9080/lbadmin**

* *Note the port number → 9080*

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:

loadbalancer.org Enterprise VA MAX

Master | Slave Active | Passive Link 5 Seconds ↻

SYSTEM OVERVIEW ⓘ 2015-06-18 14:21:20 UTC

Would you like to run the Setup Wizard?

Accept Dismiss

VIRTUAL SERVICE ▾ IP ▾ PORTS ▾ CONNS ▾ PROTOCOL ▾ METHOD ▾ MODE ▾

No Virtual Services configured.

Network Bandwidth

Bytes/s

80 k
60 k
40 k
20 k
0

Wed 18:00 Thu 00:00 Thu 06:00 Thu 12:00

RX 2k Min, 4k Avg, 1853k Total,
TX 11k Min, 45k Avg, 18736k Total.

System Load Average

System Load

1.0
0.8
0.6
0.4
0.2
0.0

Wed 18:00 Thu 00:00 Thu 06:00 Thu 12:00

1m average 0.36 Min, 0.38 Avg, 0.39 Max
5m average 0.09 Min, 0.13 Avg, 0.17 Max
15m average 0.03 Min, 0.05 Avg, 0.07 Max

Memory Usage

Bytes

2.0 G
1.5 G
1.0 G
0.5 G
0.0

Wed 18:00 Thu 00:00 Thu 06:00 Thu 12:00

Used 117.78M Min, 122.85M Avg, 127.92M Max
Page 79.52M Min, 79.92M Avg, 80.32M Max
Buffer 10.86M Min, 11.14M Avg, 11.43M Max
Free 1812.93M Min, 1819.67M Avg, 1826.41M Max

HA CLUSTERED PAIR CONFIGURATION

Loadbalancer.org recommend that load balancer appliances are deployed in pairs for high availability. In this guide a single unit is deployed first, adding a secondary slave unit is covered in section 1 of the Appendix on page [12](#).

8. Appliance Configuration for OCS 2007 R2

Note:

It's highly recommended that you have a working OCS 2007 environment first before implementing the load balancer.

STEP 1 – CONFIGURE LAYER 7 GLOBAL SETTINGS

To configure the TCP timeouts required by OCS, HAProxy's client and server timeouts must be changed from their default values of 43 seconds and 45 seconds respectively to 30 minutes. To do this follow the steps below:

- Using the WebUI, navigate to: *Configuration > Layer 7 – Advanced Configuration*

Lock HAProxy Configuration (Deprecated)	<input type="checkbox"/>	?
Logging	<input type="checkbox"/>	?
Log Only Errors	<input type="checkbox"/>	?
Redispatch	<input checked="" type="checkbox"/>	?
Connection Timeout	<input type="text" value="4000"/> ms	?
Client Timeout	<input type="text" value="1800000"/> ms	?
Real Server Timeout	<input type="text" value="1800000"/> ms	?

- Change *Client Timeout* to **1800000** as shown above (i.e. 1800000 ms which is 30 minutes)
*Note: You can also enter **30m** rather than 1800000*
- Change *Real Server Timeout* to **1800000** as shown above (i.e. 1800000 ms which is 30 minutes)
*Note: You can also enter **30m** rather than 1800000*
- Click the **Update** button to save the settings

STEP 2 – CONFIGURE LOAD BALANCED SERVICES

VIRTUAL SERVICE (VIP) CONFIGURATION

- Using the WebUI, navigate to: *Cluster Configuration > Layer 7 – Virtual Service* and click **Add a New Virtual Service**
- Enter the following details:

Label	<input type="text" value="OCS-Front-End"/>	?
Virtual Service	IP Address <input type="text" value="192.168.10.30"/>	?
	Ports <input type="text" value="5060,5061,135,443,444,506!"/>	?
Layer 7 Protocol	<input type="text" value="TCP Mode"/>	?
Manual Configuration	<input type="checkbox"/>	?
<input type="button" value="Cancel"/> <input type="button" value="Update"/>		

3. Enter an appropriate label for the VIP, e.g. **OCS-Front-End**
4. Set the *Virtual Service IP address* field to the required IP address, e.g. **192.168.10.30**
5. Set the *Virtual Service Ports* field to **5060,5061,135,443,444,5065,5069,5071,5072,5073,5074,8404**
6. Change *Layer 7 Protocol* to **TCP Mode**
7. Click **Update**
8. Now click **Modify** next to the newly created VIP
9. Ensure *Persistence Mode* is set to **Source IP**
10. Set the *Check Port* field to **5061**
11. Click **Update**

REAL SERVER (RIP) CONFIGURATION

Real Servers (RIPs) must now be defined for the Virtual Service just created. The number of RIPs defined depends on the number of Front End Servers in your deployment, the test deployment used for this guide has 2 Front End servers so the VIP requires 2 RIPs to be configured.

1. Using the WebUI, navigate to: *Cluster Configuration > Layer 7 – Real Servers* and click **Add a new Real Server** next to the newly created VIP
2. Enter the following details:

Label	<input type="text" value="FE-1"/>	?
Real Server IP Address	<input type="text" value="192.168.10.31"/>	?
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"/>		

3. Enter an appropriate label for the RIP, e.g. **FE-1**
4. Change the *Real Server IP Address* field to the required IP address, e.g. **192.168.10.31**
5. Leave the *Real Server Port* field blank
6. Click **Update**
7. Repeat the above steps to add your other Front End Server(s)

STEP 3 – FINALIZING THE CONFIGURATION

To apply the new settings HAProxy must be restarted as follows:

1. Using the WebUI, navigate to: *Maintenance > Restart Services* and click **Restart HAProxy**

9. Technical Support

If you have any questions regarding the appliance or would like assistance designing your deployment, please don't hesitate to contact our support team: support@loadbalancer.org.

10. 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>

11. Conclusion

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

12. Appendix

1 – CLUSTERED PAIR CONFIGURATION – ADDING A SLAVE UNIT

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

Note:

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

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

Version 7:

Please refer to **Chapter 8 – Appliance Clustering for HA** in the [v7 Administration Manual](#).

Version 8:

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

- Deploy a second appliance that will be the slave and configure initial network settings
- Using the WebUI, navigate to: *Cluster Configuration > High-Availability Configuration*

CREATE A CLUSTERED PAIR

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:

- Once complete, the following will be displayed:

- To finalize the configuration, restart heartbeat and any other services as prompted in the blue message box at the top of the screen

Note:

Clicking the **Restart Heartbeat** button on the master appliance will also automatically restart heartbeat on the slave appliance.

Note:

Please refer to chapter 9 – Appliance Clustering for HA in the [Administration Manual](#) for more detailed information on configuring HA with 2 appliances.

2 - COMPANY CONTACT INFORMATION

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