



Load Balancing Epicor ERP 10

Version 1.0.0

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1. About this Brief

This brief outlines the steps required to configure a load balanced Epicor ERP 10 environment utilizing Loadbalancer.org appliances. It covers the configuration of the load balancers and also any Epicor ERP 10 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 Epicor ERP 10. 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

- V8.6.1 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.

4. Epicor ERP Software Versions Supported

- Epicor ERP – version 10

5. Epicor ERP 10

Epicor ERP 10 enables business users to handle a combination of scheduling obligations remotely from a single area of the system. Easy-to-use visual tools permit resource optimization, capability-based scheduling, change management, and more.

6. Load Balancing Epicor ERP 10

Note

It's highly recommended that you have a working Epicor ERP 10 environment first before implementing the load balancer.

Persistence (aka Server Affinity)

Epicor ERP 10 requires source IP address-based persistence in order to load balancer connections correctly.

Virtual Service (VIP) Requirements

To provide load balancing and HA for Epicor ERP 10, a single VIP is required:

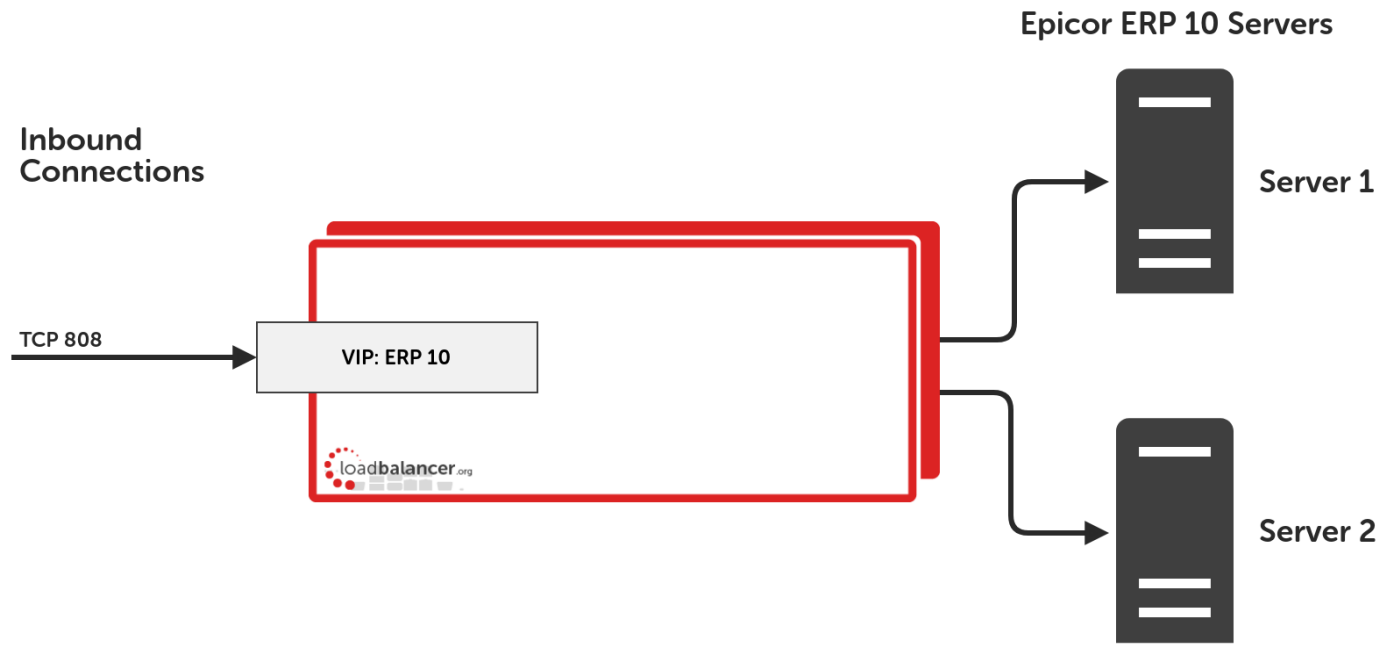
- ERP 10

Port Requirements

The following table shows the port that is load balanced:

Port	Protocols	Use
808	TCP	ERP 10 application traffic

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 the section [Configuring HA - Adding a Secondary Appliance](#) in the appendix for more details on configuring a clustered pair.

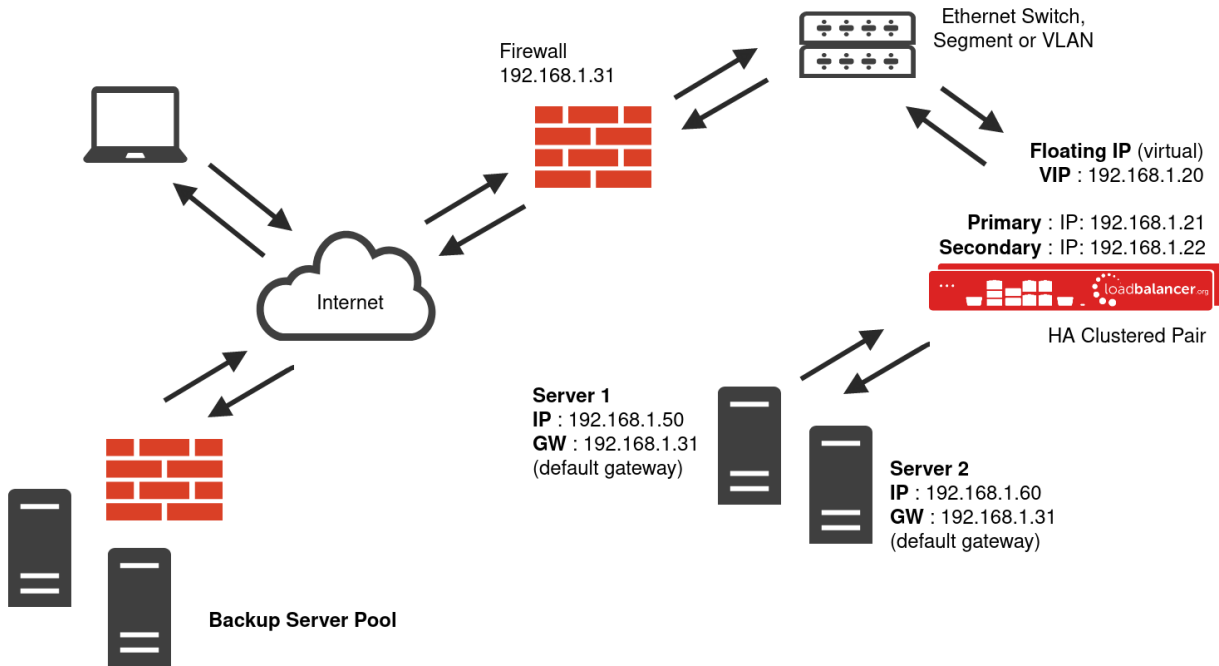
8. Load Balancer Deployment Methods

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 Epicor ERP 10, using layer 7 SNAT mode is recommended. This mode is described below and is used for the configurations presented in this guide. For configuring using layer 7 SNAT mode please refer to the section [Appliance Configuration for Epicor ERP 10 – Using Layer 7 SNAT Mode](#).

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 additional 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.

9. Loadbalancer.org Appliance – the Basics

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 [The Virtual Appliance - Hypervisor Deployment](#) 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.

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.

Accessing the WebUI

The WebUI is accessed using a web browser. By default, user authentication is based on local Apache .htaccess files. User administration tasks such as adding users and changing passwords can be performed using the WebUI menu option: *Maintenance > Passwords*.

Note A number of compatibility issues have been found with various versions of Internet Explorer and Edge. The WebUI has been tested and verified using both Chrome & Firefox.

Note If required, users can also be authenticated against LDAP, LDAPS, Active Directory or Radius. For more information please refer to [External Authentication](#).

1. Using a browser, access the WebUI using the following URL:

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

2. Log in to the WebUI:

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:

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

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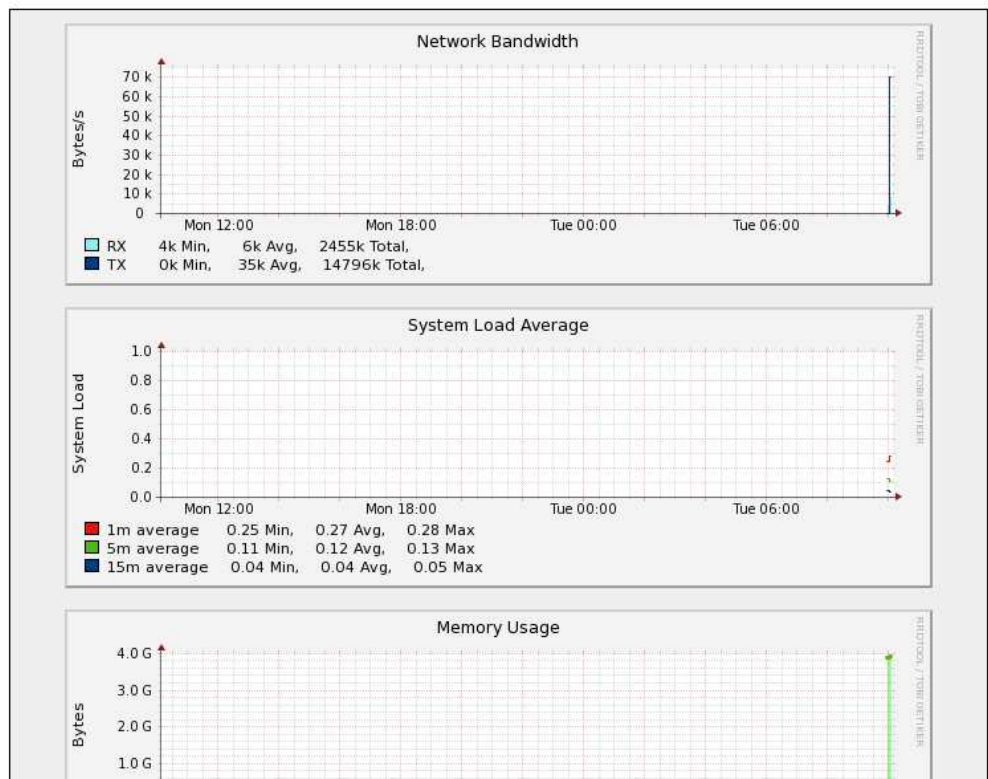
System Overview

2022-06-14 10:07:30 UTC

Would you like to run the Setup Wizard?

VIRTUAL SERVICE IP PORTS CONNS PROTOCOL METHOD MODE

No Virtual Services configured.



Note

The WebUI for the VA is shown, the hardware and cloud appliances are very similar. The yellow licensing related message is platform & model dependent.

3. You'll be asked if you want to run the Setup Wizard. If you click **Accept** the Layer 7 Virtual Service configuration wizard will start. If you want to configure the appliance manually, simply click **Dismiss**.

Main Menu Options

System Overview - Displays a graphical summary of all VIPs, RIPs and key appliance statistics

Local Configuration - Configure local host settings such as IP address, DNS, system time etc.

Cluster Configuration - Configure load balanced services such as VIPs & RIPs

Maintenance - Perform maintenance tasks such as service restarts and taking backups

View Configuration - Display the saved appliance configuration settings

Reports - View various appliance reports & graphs

Logs - View various appliance logs

Support - Create a support download, contact the support team & access useful links

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

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 Epicor ERP 10 – Using Layer 7 SNAT Mode

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. **ERP 10 VIP**.
3. Set the *Virtual Service IP Address* field to the required IP address, e.g. **192.168.1.155**.
4. Set the *Ports* field to **808**.
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="ERP 10 VIP"/>	?
IP Address	<input type="text" value="192.168.1.155"/>	?
Ports	<input type="text" value="808"/>	?
Protocol		
Layer 7 Protocol	<input type="text" value="TCP Mode"/>	?

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. **ERP 10 Srv 1**.
3. Set the *Real Server IP Address* field to the required IP address, e.g. **192.168.1.215**.
4. Click **Update**.
5. Repeat these steps to add additional servers as required.

Layer 7 Add a new Real Server - ERP_10_VIP

Label	<input type="text" value="ERP 10 Srv 1"/>	?
Real Server IP Address	<input type="text" value="192.168.1.215"/>	?
Real Server Port	<input type="text"/>	?
Re-Encrypt to Backend	<input type="checkbox"/>	?
Enable Redirect	<input type="checkbox"/>	?
Weight	<input type="text" value="100"/>	?

11. Testing & Verification

Note | For additional general guidance please also refer to [Testing Load Balanced Services](#).

Using System Overview

The System Overview can be viewed in the WebUI. It shows a graphical view of all VIPs & RIPs (i.e. the ERP 10 servers) and shows the state/health of each server as well as the state of the cluster as a whole. The example below shows that the virtual service and both ERP 10 servers are healthy and available to accept connections:

System Overview ? 2022-07-21 12:37:29 UTC

VIRTUAL SERVICE	IP	PORTS	CONNS	PROTOCOL	METHOD	MODE	
↑ ERP_10_VIP	192.168.1.155	808	0	TCP	Layer 7	Proxy	
<i>REAL SERVER</i>							
	<i>IP</i>	<i>PORTS</i>	<i>WEIGHT</i>	<i>CONNS</i>			
↑ ERP_10_Srv_1	192.168.1.216	808	100	0	Drain	Halt	
↑ ERP_10_Srv_2	192.168.1.215	808	100	0	Drain	Halt	

12. 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.

13. Further Documentation

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

14. Conclusion

Loadbalancer.org appliances provide a very cost effective solution for highly available load balanced Epicor ERP 10 environments.

15. Appendix

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 should be configured first, 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

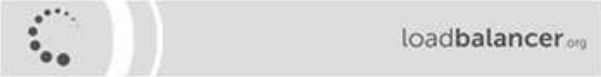
Important

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

To add a Secondary node - i.e. create a highly available clustered pair:

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



Local IP address


IP address of new peer

Password for *loadbalancer* user on peer

Add new node

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

CREATE A CLUSTERED PAIR




Local IP address

IP address of new peer

Password for *loadbalancer* user on peer

Attempting to pair..



configuring

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

High Availability Configuration - primary

The screenshot displays a configuration interface for a High Availability (HA) setup. It features two appliance entries, each with a circular icon containing a letter (P for Primary and S for Secondary), an IP address, and the domain 'loadbalancer.org'. To the right of these entries is a prominent red button labeled 'Break Clustered Pair'.

Appliance Type	IP Address	Domain
Primary (P)	192.168.110.40	loadbalancer.org
Secondary (S)	192.168.110.41	loadbalancer.org

7. 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 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	21 July 2022	Initial version		MT, 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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