



XEN Fully Virtualized

Installation Guide

UPDATED: 16 March 2021



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1 Introduction

The Kemp Virtual LoadMaster is a version of the Kemp LoadMaster that runs as a virtual machine within a hypervisor and can provide all the features and functions of a hardware-based LoadMaster.

This document describes the installation of the Virtual LoadMaster (VLM) within a Xen, fully-virtualized environment.

The VLM has been tested with Xen.org versions 3.1, 4.0 and 4.1.

There are several versions of the Xen software and not all are officially supported by Kemp:

- Kemp supports the version available from xenproject.org (note that the URL xen.org redirects to this website)
- Kemp does not support the version available from xenserver.org

When deploying the LoadMaster, ensure you are using the version of Xen available from xenproject.org.

There are several different versions of the VLM available. Full details of the currently supported versions are available on our website: www.kemptechnologies.com.

The Xen virtual machine guest environment for the VLM, at minimum, must include:

- 2 x virtual processors
- 2 GB RAM
- 16 GB virtual hard disk capacity (sparse where possible)

Full virtualization provides total abstraction of the underlying physical system. No modification of the guest OS or application is required. The guest OS or applications do not realize they are in a virtual environment.

In tests, the Xen para-virtualized VLM had much better performance levels than the Xen fully-virtualized VLM

There may be maximum configuration limits imposed by Xen such as maximum RAM per VM, Virtual NICs per VM etc. For further details regarding the configuration limits imposed by Xen, please refer to the relevant Xen documentation.

A wide variety of Linux distributions can be used as the Dom0 operating system. For a full list of the compatible Linux distributions, please refer to www.xen.org.

Kemp LoadMaster has been tested with the following Dom0 operating systems and versions of Xen.org.

Dom0 OS	Xen.org Version
OpenSUSE 12.1	3.1
OpenSUSE 11.4	4.0.2
Debian 6.0	4.1
CentOS 6.3	4.1

If you have any issues with the Virtual LoadMaster when using a different combination of Xen.org versions and Linux distributions as the Dom0, then please contact Kemp Support.

1.1 Related Firmware Version

Published with LMOS version 7.2.48.4 LTS. This document has not required substantial changes since 7.2.48.4 LTS. However, the content is in sync with the latest LoadMaster LTS firmware.

2 Installing Virtual LoadMaster (VLM) on a Xen Environment

The following instructions describe how to install a Virtual LoadMaster on a Xen environment.

2.1 Download the Xen, Fully-Virtualized, Files

The VLM is packaged within a .tar.gz file for ease of deployment. This file can be freely downloaded from Kemp for a 30 day evaluation period. To download the VLM please follow the instructions below:

1. Go to <http://www.Kemptechnologies.com/try>.
2. Click the **Download Now** button.
3. Within the **Select your hypervisor** section, select the option for **Xen**.
4. Select your country from the drop-down list provided.
5. Read the End User License Agreement.
6. To proceed with the download, ensure the **I agree to the End User License Agreement terms** check box is ticked.
7. Click the **Download** button.
8. Unzip the contents of the file to an accessible location within the Xen environment. The .zip file contains the following files, where x.x-xx denotes the release number:
 - **Installation_Guide-KVM.pdf**
 - **Installation_Guide-XEN_Fully_Virtualized.pdf**
 - **LoadMaster-VLM-7.2.36.2.14271.RELEASE-Linux-KVM-XEN.tar.gz**: a zip file containing the disk image
 - **LoadMaster-VLM-7.2.36.2.14271.RELEASE-Linux-KVM-XEN.tar.gz.checksum.xml**
 - **LoadMaster-VLM-7.2.36.2.14271.RELEASE-Linux-KVM-XEN.tar.gz.md5**
 - **LoadMaster-VLM-7.2.36.2.14271.RELEASE-Linux-KVM-XEN.tar.gz.sha**

2.2 Deploy the LoadMaster

Kemp recommends using Virtual Machine Manager to deploy the LoadMaster. The steps below were documented using Virtual Machine Manager:

1. Click the Create a new virtual machine button.
2. Enter a **Name** for the Virtual Machine.

The name cannot contain any spaces.

3. Select **Import existing disk image**.
4. Click **Forward**.
5. Click **Browse**.
6. Browse to and select the disk file.
7. Select **Linux** as the **OS type**.
8. In the **Version** drop-down list, scroll to the bottom and click **Show all OS options**.
9. Click the **Version** drop-down list again. Scroll to the bottom and select **Generic 2.6.25 or later with virtio**.
10. Click **Forward**.
11. Click **Virtualization Method**.
12. Select **Full Virtualization or HVM**.
13. Click **Apply**.
14. Enter a minimum of **2048** MB in the **Memory** text box.
15. Enter a minimum of **2** in the **CPUs** text box.
16. Click **Forward**.
17. Tick the **Customize configuration before install** check box.
18. Expand the **Advanced options** section.
19. Make any amendments to this section, as needed.
20. Click **Finish**.
21. Click the **Disk** option on the left.

22. Expand the **Advanced Options** section.
23. Select **Virtio** as the **Disk bus**.
24. Click the **NIC** option on the left.
25. Click **Yes** to apply the changes.
26. Select **virtio** as the **Device model**.
27. Change any other settings as needed.
28. Click **Apply**.
29. Click **Begin Installation**.

2.3 Check the Virtual Machine Settings

Please verify that the Virtual Machine settings are configured with the recommended values:

- 2 x virtual processors
- 2 GB RAM
- 16 GB virtual hard disk capacity (sparse where possible)

2.4 LoadMaster IP Address

```
#
# Your LoadMaster has finished booting.
# UUID: bed15b0f-cd9a-4517-b95e-a11d080b3d89
# Serial Number: 1050976
# IP address of LoadMaster is 10.154.11.170
#
# Point your browser at https://10.154.11.170 to configure your LoadMaster.
#
#####
```

On initial deployment, DHCPv4 and DHCPv6 both run to attempt to obtain an IP address. If the LoadMaster obtains an IP address using DHCP, take note of it because this is how you will access the LoadMaster.

If the LoadMaster does not obtain an IP address using DHCP the static IP address of **192.168.1.101** is assigned and the LoadMaster must be manually configured using the console.

Refer to the **Configuring the LoadMaster Using the Console** section for instructions on how to manually set the IP address.

2.5 License and Configure the LoadMaster

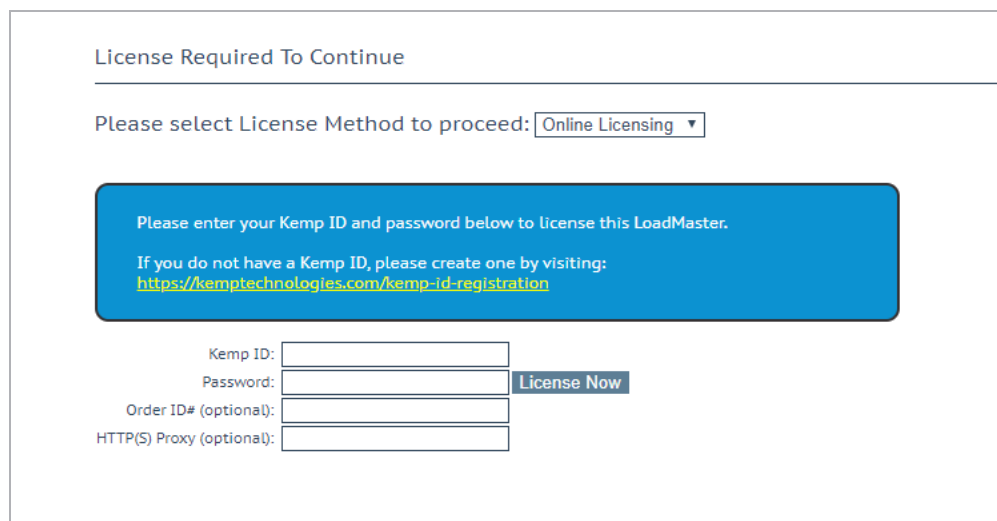
The LoadMaster must now be configured to operate within the network configuration.

1. In an internet browser, enter the IP address that was previously noted.

Ensure to enter **https://** before the IP address.

2. A warning may appear regarding website security certificates. Please click the continue/ignore option.
3. The LoadMaster End User License Agreement screen appears.

Please read the license agreement and, if you are willing to accept the conditions therein, click on the **Agree** button to proceed.



License Required To Continue

Please select License Method to proceed:

Please enter your Kemp ID and password below to license this LoadMaster.
If you do not have a Kemp ID, please create one by visiting:
<https://kemptechnologies.com/kemp-id-registration>

Kemp ID:

Password:

Order ID# (optional):

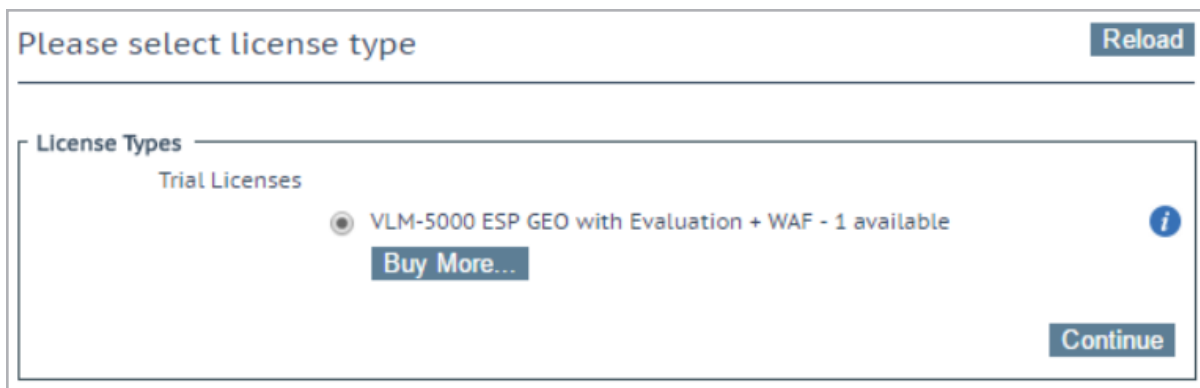
HTTP(S) Proxy (optional):

4. If using the **Online** licensing method, fill out the fields and click **License Now**.

If you are starting with a trial license, there is no need to enter an Order ID. If you are starting with a permanent license, enter the Kemp **Order ID#** if this was provided to you.

If using the **Offline Licensing** method, select **Offline Licensing**, obtain the license text, paste it into the **License** field and click **Apply License**.

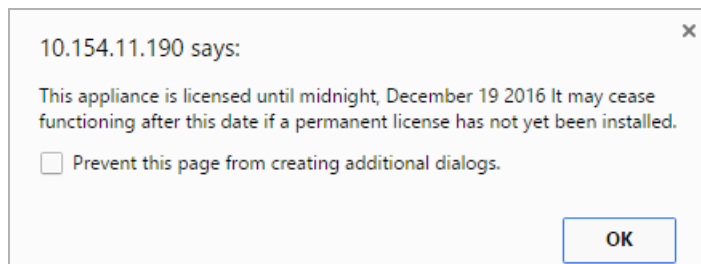
For detailed instructions on how to register for a Kemp ID and license the LoadMaster, refer to the **Licensing, Feature Description** on the [Kemp Documentation Page](#).



5. If you entered an **Order ID**, a screen appears that provides a list of available licenses for that order ID, in addition to any licenses registered for the Kemp ID based on the LoadMaster platform type. Select the license type you want to apply to this LoadMaster.

If the license type you want is not displayed, please contact your Kemp representative.

6. Click **Continue**.
7. The login screen appears, enter the **bal** user name and the password.
8. In the screen informing you that the password has changed, press the **Continue** button.
9. If your machine has shipped with a temporary license you should get a warning informing you that a temporary license has been installed on your machine and for how long the license is valid.



10. Click **OK**.
11. You should now connect to the **Home** screen of the LoadMaster.

12. Go to **System Configuration > Network Setup** in the main menu.
13. Click the **eth0** menu option within the **Interfaces** section.

Network Interface 0

Interface Address (address[/prefix])	<input type="text"/>	Set Address	
Link Status	Speed: 10000Mb/s, Full Duplex	Automatic ▾	Force Link
	MTU: <input type="text" value="1500"/>	Set MTU	
Additional addresses (address[/prefix])	<input type="text"/>	Add Address	

VLAN Configuration
Interface Bonding

14. In the **Network Interface 0** screen, enter the IP address of the eth0 interface, the network facing interface of the LoadMaster, in the **Interface Address** input field.
15. Click the **Set Address** button.
16. Click the **eth1** menu option within the **Interfaces** section.
17. In the **Network Interface 1** screen, enter the IP address of the eth1 interface, the farm-side interface of the LoadMaster, in the **Interface Address** input field.
18. Click on the **Set Address** button.

This interface is optional, depending on the network configuration.

19. Click on the **Local DNS Configuration > Hostname Configuration** menu option.

Set Hostname

Hostname
Set Hostname

20. In the **Hostname configuration** screen, enter the hostname into the **Current Hostname** input field.
21. Click the **Set Hostname** button.
22. Click the **Local DNS Configuration > DNS Configuration** menu option.



DNS Servers	
DNS NameServer (IP Address)	Operation
10.154.75.25	Delete
Add Nameserver	
IP Address <input type="text"/>	Add
Add Search Domain	
Domain <input type="text"/>	Add

23. In the **DNS configuration** screen, enter the IP address(es) of the DNS Server(s) which is used to resolve names locally on the LoadMaster into the **DNS NameServer** input field.
24. Click the **Add** button.
25. Enter the domain name that is to be prepended to requests to the DNS nameserver into the **DNS NameServer** input field.
26. Click the **Add** button.
27. Click the **System Configuration > Network Setup > Default Gateway** menu option.

The IPv4 default gateway must be on the 10.154.0.0/16 network	
IPv4 Default Gateway Address <input type="text" value="10.154.0.1"/>	Set IPv4 Default Gateway

28. In the **DNS configuration** screen, enter the IP address of the default gateway into the **IPv4 Default Gateway Address** input field.
 If you have an IPv6 Default Gateway, please enter the value in the **IPv6 Default Gateway Address** input field.
29. Click the **Set IPv4 Default Gateway** button.

The LoadMaster is now fully installed and ready to be used. For further information on how to configure and implement the Virtual LoadMaster, please refer to the LoadMaster documentation which can be downloaded from the <http://kemptechnologies.com/documentation> page.

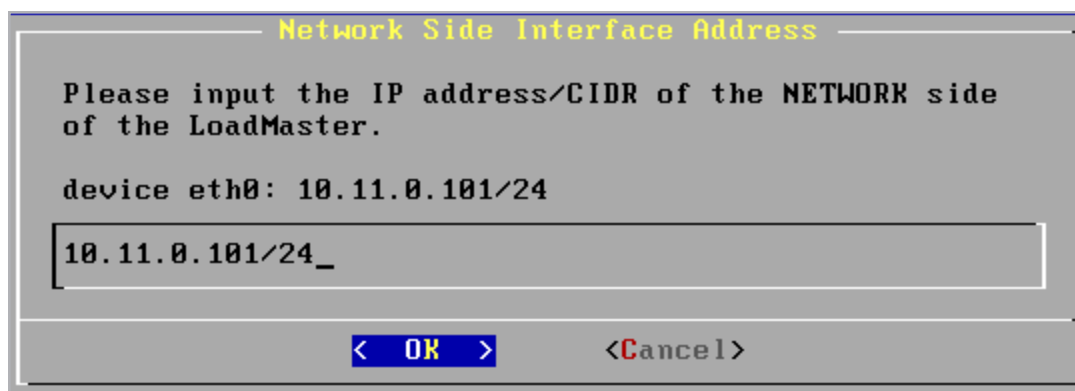
3 Troubleshooting and Notes

3.1 Configuring the LoadMaster Using the Console

If the LoadMaster does not automatically obtain an IP address using DHCP, or if you would prefer to configure the LoadMaster using the console, then the following configuration steps must be completed before starting the LoadMaster.

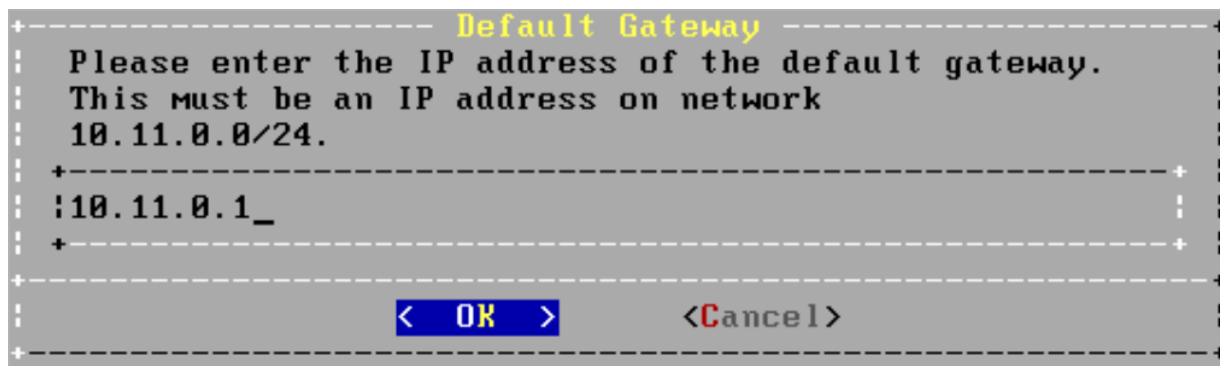
1. Login into the LoadMaster using the console with the following settings:

- lb100 login: bal
- Password: 1fourall

A screenshot of a terminal window showing a configuration dialog box titled "Network Side Interface Address". The text inside the dialog reads: "Please input the IP address/CIDR of the NETWORK side of the LoadMaster." Below this, it shows "device eth0: 10.11.0.101/24" and a text input field containing "10.11.0.101/24_". At the bottom, there are two buttons: "< OK >" and "<Cancel>".

```
Network Side Interface Address
Please input the IP address/CIDR of the NETWORK side
of the LoadMaster.
device eth0: 10.11.0.101/24
10.11.0.101/24_
< OK >      <Cancel>
```

2. Enter the IP address of the eth0 interface, the network facing interface of the LoadMaster, in the input field within the **Network Side Interface Address** dialog box.
3. Press OK.

A screenshot of a terminal window showing a configuration dialog box titled "Default Gateway". The text inside the dialog reads: "Please enter the IP address of the default gateway. This must be an IP address on network 10.11.0.0/24." Below this, it shows "10.11.0.1_". At the bottom, there are two buttons: "< OK >" and "<Cancel>".

```
Default Gateway
Please enter the IP address of the default gateway.
This must be an IP address on network
10.11.0.0/24.
10.11.0.1_
< OK >      <Cancel>
```

4. Enter the IP address of the default gateway in the input field of the **Default Gateway** dialog box.
5. Press **OK**.
6. Once these are set, a prompt will appear asking to connect to the web interface at the newly configured IP address. In an internet browser enter the IP address of the eth0 entered in Step 2.

Ensure to enter **https://** before the IP address.

7. A warning may appear regarding website security certificates. Please click the continue/ignore option.
8. The LoadMaster End User License Agreement screen appears.
9. Please read the license agreement and, if willing to accept the conditions therein, click on the **Agree** button to proceed.
10. If the machine has shipped with a temporary license, a warning will appear informing that a temporary license has been installed on the machine and for how long the license is valid.
11. Click **OK**.
12. The home screen of the LoadMaster should appear.

The LoadMaster is now fully installed and ready to be used. For further information on how to configure and implement the Virtual LoadMaster, please refer to the LoadMaster documentation which can be found here: <https://kemptechnologies.com/documentation>.

3.2 Factory Reset

If you perform a factory reset on your VLM, all configuration data, including the VLM's IP address is deleted. During the subsequent reboot the VLM attempts to obtain an IP address using DHCP. If the VLM is on a different subnet to the DHCP server then an IP address will not be obtained and the IP address is set to the default 192.168.1.101.

The VLM may not be accessible using this address. If this is the case then you must run through the quick setup using the console as described in the **Configuring the LoadMaster Using the Console** section.

3.3 Items of Note

The following are some items to note when using LoadMaster in a Xen environment.

- A filename may not match the running DomU name. Do an XM list to get the DomU name.
- Xen VM's can be administered "locally" by either emulated serial, using xm console OR emulated VGA using VNC
- Usually the customer will have a bridge for networking, /dev/br0 or br1, etc. A VM will not start unless their networking is perfect.
- Xen logs are located in:
 - /var/log/xen/qemu-dm-LoadMaster_VLM.log
 - /var/log/xen/xend.log

4 References

Unless otherwise specified, the below documents can be found at <http://kemptechnologies.com/documentation>.

Licensing, Feature Description

Last Updated Date

This document was last updated on 16 March 2021.