



# Nutanix

## Installation Guide

UPDATED: 16 March 2021



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# 1 Introduction

The Kemp Virtual LoadMaster (VLM) is a version of the Kemp LoadMaster that runs as a Virtual Machine (VM) in a hypervisor and can provide all the features and functions of a hardware-based LoadMaster.

This document describes the installation of the VLM in a Nutanix Acropolis Hypervisor Virtualization (AHV) environment. The VLM has been tested with Nutanix AHV and has been certified as **Nutanix Ready**.

Nutanix AHV is a license-free virtualization solution included with Acropolis that delivers enterprise virtualization ready for a multi-cloud world. With Acropolis and AHV, virtualization is tightly integrated into the Enterprise Cloud OS rather than being layered on as a standalone product that must be licensed, deployed, and managed separately. Common tasks such as deploying and protecting VMs are managed centrally through Nutanix Prism, rather than utilizing disparate products and policies in a piecemeal strategy.

There are several different versions of the VLM available. Full details of the currently supported versions are available on our website: [www.kemptechnologies.com](http://www.kemptechnologies.com).

The Nutanix 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)

There may be maximum configuration limits imposed by Nutanix such as maximum RAM per VM, Virtual Network Interface Controllers (NICs) per VM, and so on. For further details regarding the configuration limits imposed by Nutanix, refer to the relevant Nutanix documentation.

## 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 a VLM

The following instructions describe how to install a VLM in a Nutanix AHV environment using Prism Central.

## 2.1 Static MAC Addresses must be Configured

If you move a VLM system to a different VM, ensure that the MAC addresses of the VMs NICs stay the same. Static Media Access Control (MAC) addresses must be configured for all NICs in VMs.

For further information on configuring static MAC addresses, refer to the relevant Nutanix AHV documentation.

## 2.2 Download the KVM VLM

The VLM is packaged in a .disk file for ease of deployment. This file can be freely downloaded from Kemp for a 30-day evaluation period. To download the VLM, follow the instructions below:

1. Go to <http://www.Kemptechnologies.com/try>.
2. Click **Download Now**.
3. Log in using your Kemp ID. If you do not have one, sign up for one using the form provided.
4. In the **Select your hypervisor** section, select **KVM/XEN**.
5. Select your country from the drop-down list provided.
6. Read the End User License Agreement.
7. To proceed with the download, ensure you select the **I agree to the End User License Agreement terms** check box.
8. Click **Download**.

## 2.3 Extract the KVM Disk Image

The Linux disk image has been tar gzipped as a sparse file. You must unzip it as a sparse file to ensure proper operation. For example:

```
tar xzSf LoadMaster-VLM.7.1.34.0.12345.RELEASE.tgz:
```

## 2.4 Add Image to Nutanix AHV Using Prism Central

You must upload the Kemp LoadMaster KVM image (.disk) into the Nutanix AHV environment. The steps in this section are being executed in Nutanix Prism Central:



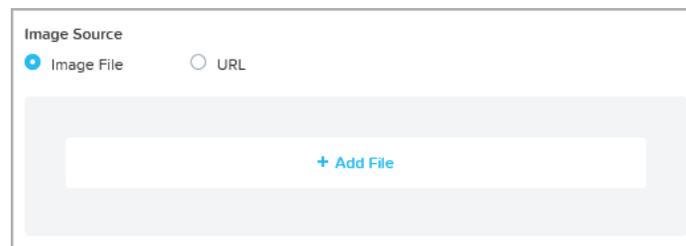
1. In the top navigation, click **Explore**.

Entities	
VIRTUAL INFRASTRUCTURE	
VMs	70
Storage Containers	10
Catalog Items	2
<b>Images</b>	<b>34</b>

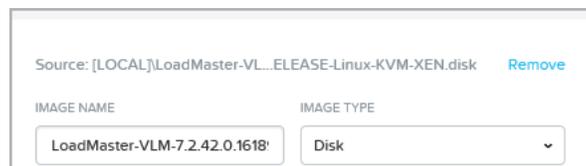
2. In the left-hand navigation, click **Images**.



3. Click **Add Image**.



4. Select **Image File** and click **+ Add File**.



5. Select the extracted LoadMaster KVM disk image and select **Disk** as the **IMAGE TYPE**.

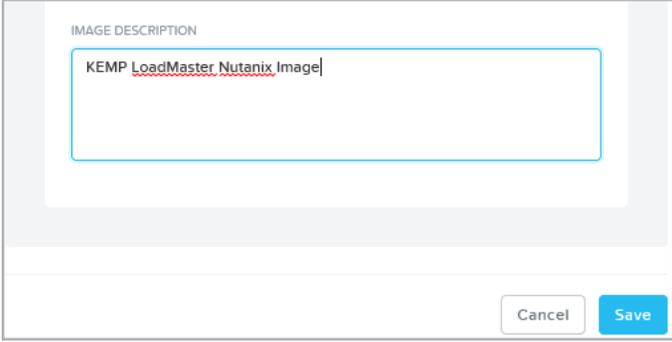


IMAGE DESCRIPTION

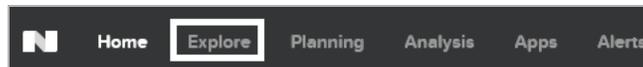
KEMP LoadMaster Nutanix Image

Cancel Save

6. Enter an **IMAGE DESCRIPTION** and click **Save**.

## 2.5 Deploy the Kemp LoadMaster from an Image Using Prism Central

When the image is uploaded, you can deploy a new LoadMaster from Prism Central.



1. In the top navigation, click **Explore**.

Entities	
VIRTUAL INFRASTRUCTURE	
<b>VMs</b>	70
Storage Containers	10
Catalog Items	2
Images	34

2. In the left-hand navigation, click **VMs**.



3. Click **Create VM**.

**General Configuration**

NAME

DESCRIPTION

TIMEZONE  
 Local ▾

Use this VM as an agent VM

4. Enter the following under **General Configuration**:

- a) **NAME** – A unique name for the LoadMaster.
- b) **DESCRIPTION** – A brief description of the LoadMaster.
- c) **TIME ZONE** – The time zone in which this is being deployed.
- d) Clear the **Use this VM as an agent VM** check box.

**Compute Details**

VCPU(S)

NUMBER OF CORES PER VCPU

MEMORY  
 GiB

5. Enter the following under **Compute Details**:

- a) **VCPU(S)** – At a minimum, you should allocate two VCPUs.
- b) **Number of Cores per VCPU** – At a minimum, you should allocate 2 cores.
- c) **Memory** – At a minimum, you should allocate 2 GB of memory.

---

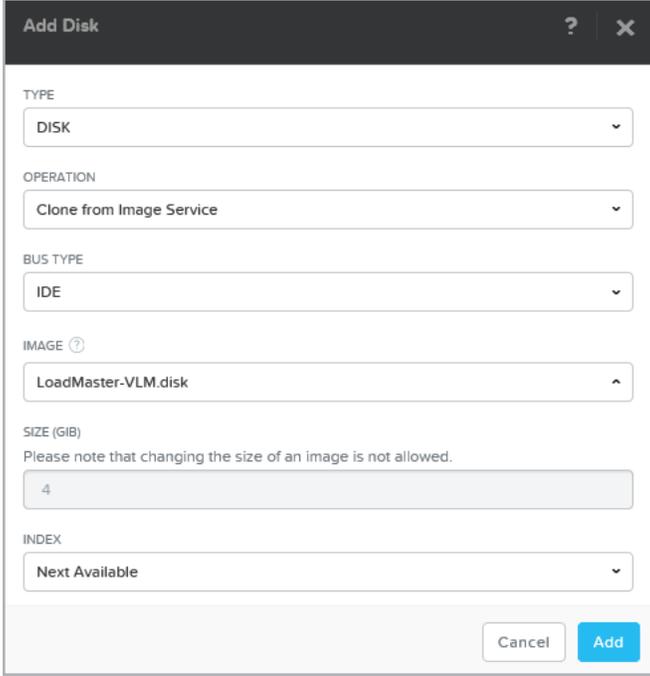
You may require more resources based on the workload (or workloads) being published through the LoadMaster.

---

**Disks** + Add New Disk

BOOT	DEVICE	TYPE	ADDRESS	PARAMETERS	
<input type="radio"/>	CD-ROM			EMPTY=true; BUS=ide	✎ · ✕

6. Under **Disks**, remove/delete the CD-ROM by clicking **x**.
7. Click **+ Add New Disk** to add the LoadMaster disk.



**Add Disk**

TYPE  
DISK

OPERATION  
Clone from Image Service

BUS TYPE  
IDE

IMAGE ?  
LoadMaster-VLM.disk

SIZE (GIB)  
Please note that changing the size of an image is not allowed.  
4

INDEX  
Next Available

Cancel Add

8. Enter the following in the **Add Disk** screen:
  - a) **TYPE** – **DISK**
  - b) **OPERATION** – **Clone from Image Service**
  - c) **BUS TYPE** – **IDE**
  - d) **IMAGE** – The name of the uploaded image
  - e) **INDEX** = **Next Available**

---

IDE must be selected for bus type. The LoadMaster only utilizes the disk for config changes and logging, therefore there is no performance impact with this setting.

---

9. Click **Add**.

**Disks** + Add New Disk

BOOT	DEVICE	TYPE	ADDRESS	PARAMETERS	
<input type="radio"/>	DISK			SIZE=16GiB; BUS=ide	✎ · ✕

**Network Adapters (NIC)**

You haven't added any NICs yet.

[Add New NIC](#)

10. Under **Network Adapters (NIC)**, click **Add New NIC**.

VLAN NAME

VLAN ID  
 vlan.0

NETWORK ADDRESS / PREFIX  
 NONE

11. Select an existing **VLAN NAME** and click **Add**.

12. (Optional) – In multi-arm configurations, you can add additional NICs.

**VM Host Affinity**

You haven't pinned the VM to any hosts yet.

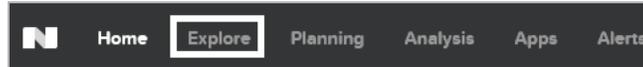
[Set Affinity](#)

13. (Optional) – Click **Set Affinity** to create an affinity between the VM and multiple hosts. Nutanix recommends you select at least two hosts in an Affinity.

14. Click **Save** to complete the deployment.

## 2.6 Start the Kemp LoadMaster

When the LoadMaster deploys, you must manually start it to complete the configuration:



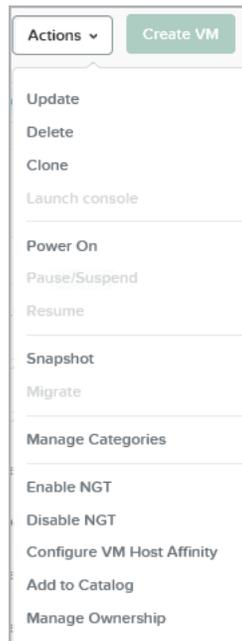
1. In the top navigation, click **Explore**.

Entities	
VIRTUAL INFRASTRUCTURE	
<b>VMs</b>	70
Storage Containers	10
Catalog Items	2
Images	34

2. In the left-hand navigation, click **VMs**.

<input checked="" type="checkbox"/>	KEMP-VLM-01	default	admin	2 GiB	-	<span style="color: red;">●</span> Off	BizDev08
-------------------------------------	-------------	---------	-------	-------	---	--	----------

3. Scroll down, find the newly deployed Kemp LoadMaster, and click the block to select it.



4. Click **Actions** and **Power On**.

## 2.7 License and Configure the LoadMaster

You must now configure the LoadMaster to operate in the network configuration.

<input checked="" type="checkbox"/>	KEMP-VLM-01	BizDev08-4	default	admin	AHV	2 GiB	10.16.5.29	<span style="color: green;">●</span> On	BizDev08
-------------------------------------	-------------	------------	---------	-------	-----	-------	------------	---	----------

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 do this.

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

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

2. A warning may appear regarding website security certificates. Click the continue/ignore option.

3. The LoadMaster End User License Agreement screen appears. Read the license agreement and, if you are willing to accept the conditions, click **Agree** to proceed.

License Required To Continue

---

Please select License Method to proceed: Online Licensing ▾

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:  License Now

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, 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, click **Continue**. If you licensed your machine 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.

9. The **Home** screen of the LoadMaster appears.

10. Go to **System Configuration > Network Setup** in the main menu.

11. Click the **eth0** menu option in the **Interfaces** section.

### Network Interface 0

Interface Address (address[/prefix])  Set Address

Link Status Speed: 10000Mb/s, Full Duplex Automatic ▾ Force Link

MTU:  Set MTU

Additional addresses (address[/prefix])  Add Address

---

VLAN Configuration Interface Bonding

12. 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** text box.

13. Click **Set Address**.

---

The **Speed** in the **Link Status** section may show as **Unknown!**. This is because it is a virtual interface and there is no maximum speed associated with it. You can see the speed (if under load) in **Statistics > Real Time Statistics** in the User Interface (UI). The speed on the UI and Application Programming Interface (API) changes depending on how much load is put through the interface.

---

14. Click the **eth1** menu option in the **Interfaces** section.

15. 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** text box.

16. Click **Set Address**.

---

This interface is optional, depending on the network configuration.

---

17. Click the **Host & DNS Configuration** menu option.

## Set Hostname

---

Hostname  Set Hostname

18. Enter the hostname into the **Hostname** text box.

19. Click **Set Hostname**.

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

20. Enter the IP address (or addresses) of the DNS Server (or servers) which is used to resolve names locally on the LoadMaster into the **IP Address** text box in the **Add Nameserver** section .

21. Click **Add**.

22. Enter the domain name that is to be prepended to requests to the DNS nameserver into the **Domain** text box.

23. Click **Add**.

24. 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"/>	<input type="button" value="Set IPv4 Default Gateway"/>

25. Enter the IP address of the default gateway into the **IPv4 Default Gateway Address** text box.

---

If you have an IPv6 Default Gateway, enter the value in the **IPv6 Default Gateway Address** text box.

---

26. Click **Set IPv4 Default Gateway**.

The LoadMaster is now fully installed and ready to use. For further information on how to configure and implement the VLM, refer to the LoadMaster documentation which you can access here: <http://kemptechnologies.com/documentation>.

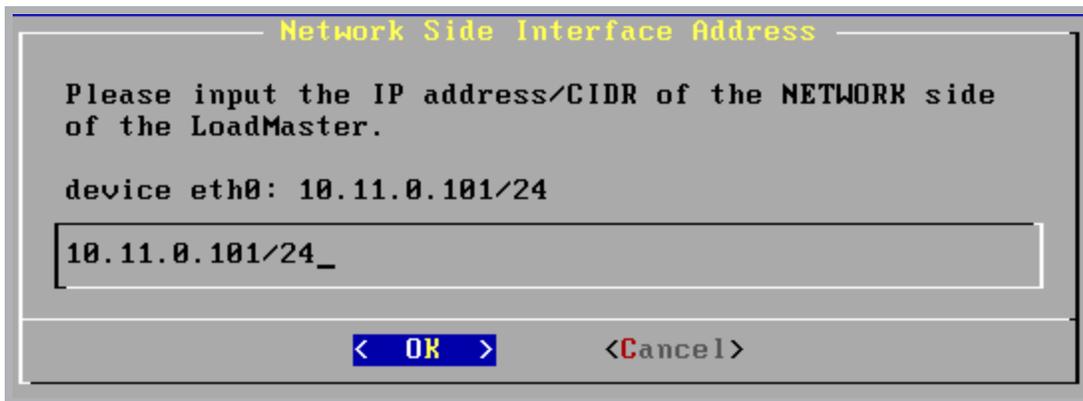
# 3 Troubleshooting

## 3.1 Configuring the LoadMaster Using the Console

If the LoadMaster does not automatically obtain an IP address using DHCP, or if you prefer to configure the LoadMaster using the console, then you can complete the following configuration steps before starting the LoadMaster:

1. Log in into the LoadMaster in the console using the following credentials:

- lb100 login: bal
- Password: 1fourall



```
Network Side Interface Address

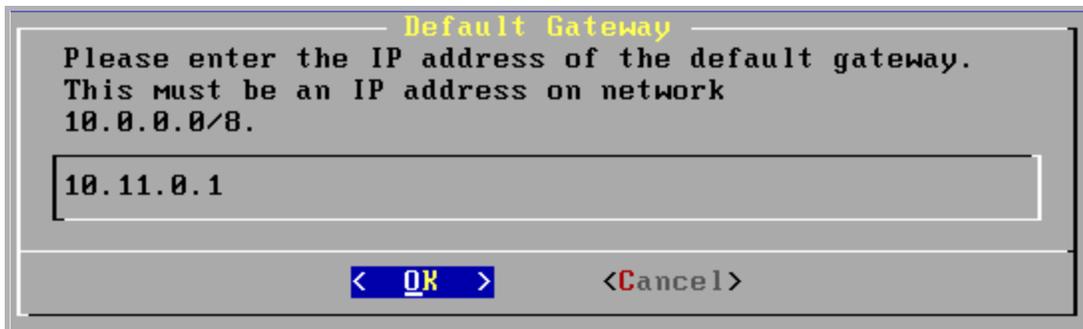
Please input the IP address/CIDR of the NETWORK side
of the LoadMaster.

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 in the **Network Side Interface Address** dialog box.
3. Press OK.



```
Default Gateway

Please enter the IP address of the default gateway.
This must be an IP address on network
10.0.0.0/8.

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 appears asking to connect to the web interface at the newly configured IP address. In an internet browser, enter the IP address of the eth0 interface which was entered in a previous step.

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

7. A warning may appear regarding website security certificates. Click the continue/ignore option.
8. The LoadMaster End User License Agreement screen appears.
9. Read the license agreement and, if willing to accept the conditions, click **Agree** to proceed.
10. If the machine has shipped with a temporary license, a warning appears 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.

IP address	10.154.11.51 (lb100:10.154.11.50)
Serial Number	1050788
Boot Time	Tue Sep 8 09:30:58 UTC 2015
Active Since	Tue Sep 8 09:31:13 UTC 2015
LoadMaster Version	7.1-29-1851.20150907-1730
License	UUID: 6987ad8c-ff52-4158-acbb-372a07faa13d Activation date: Thu Aug 20 09:04:46 UTC 2015 Licensed until: September 20 2015 Support Level: Evaluation + WAF Support Until: Sat Aug 20 04:00:00 UTC 2016 License Type: VLM-5000 ESP GEO License Status: Single Temp Appliance Model: VLM-5000G+
	<a href="#">Upgrade ↗</a>
CPU Load	2% 
TPS	Total 0 (SSL 0)
WAF Stats	Total handled: 0 Incidents: 0
NetLoad	Mb/its/sec
eth0	0.0 

The LoadMaster is now fully installed and ready to use. For further information on how to configure and implement the VLM, refer to the LoadMaster documentation at: <https://kemptechnologies.com/documentation>.

## 3.2 Nutanix Cloning

If you use the cloning features in Nutanix, it is possible an IP conflict may occur. This may be caused by the DHCP address obtained, a static IP address configured on the LoadMaster, or Virtual Services that are configured on the LoadMaster before cloning. Therefore, Kemp recommends not using the Nutanix cloning feature in production environments.

## 3.3 Factory Reset

If you perform a factory reset on the VLM, all configuration data, including the VLMs 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 is not 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.

## 3.4 Preventing `agetty##: ttyS0: ioctl: Input/output Errors`

The LoadMaster expects a serial port connection. However, not having a serial port connection does not cause problems, other than causing the following log message:

```
agetty##: ttyS0: ioctl: Input/output error
```

To prevent these errors from appearing in the logs, enable a virtual serial port on Nutanix AHV by following these steps:

1. Turn off the VM.
2. SSH into one of the Controller VMs (CVMs) in the AHV cluster.
3. Run the following command to add the serial port to the VM:

```
accli vm.serial_port_create <VMName> type=kServer index=0
```

Replace **<VMName>** with the name of the VM.

# References

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

**Licensing, Feature Description**

# Last Updated Date

This document was last updated on 16 March 2021.