



# VMware ESX ESXi and vSphere

## Installation Guide

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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 VMware ESX or ESXi hypervisor environment.



The Virtual LoadMaster is VMware ready. The VLM has been tested with VMware ESX 4.0, 4.1, 5.0, 5.1, and 6.7; vCenter Server 5.5 and 6.0; VMware ESXi 4.0, 4.1, 5.0, 5.1, 5.5, 6.0, 6.5, and 6.7; and vSphere 4.0, 5.0, 5.5, 6.0, 6.5, and 6.7.

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

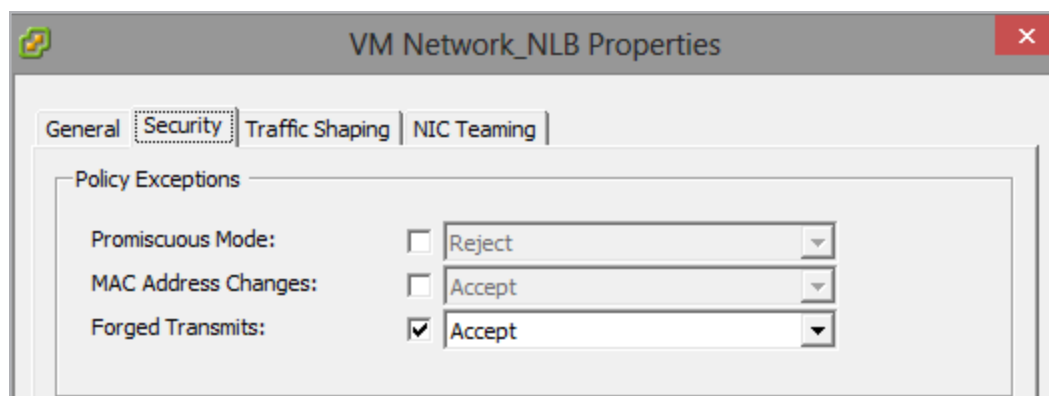
- 2 x virtual CPUs (reserve 2 GHz)
- 2 GB RAM
- 16 GB disk space (sparse where possible)

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

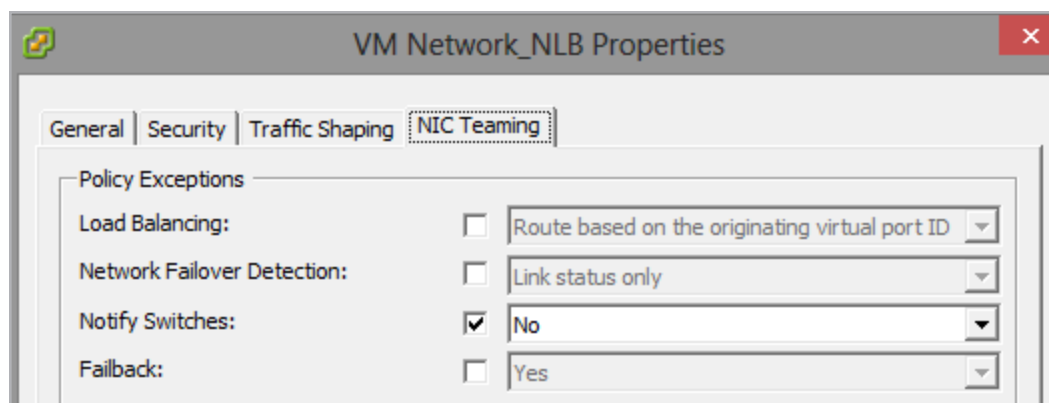
## 2 Best Practices

Some best practices to be aware of before deploying a LoadMaster on VMware are below:

- Configure an existing or new load balancing port group for the relevant VLAN to avoid port flooding
- Use the VMXNET3 network adapter type when deploying the VLM



- When using High Availability (HA): The Security Policy **Forged Transmit** on the port group should be set to **Accept**. Ensure this is forced (hard coded) on the port group as any changes to the vSwitch will affect all port groups by default.



- When using HA and the LoadMasters are on different hosts: To prevent the transmission of RARP packets from being sent every time a Virtual Machine is powered on, set the **Notify Switches** option to **No**.

# 3 Installing Virtual LoadMaster (VLM) using vSphere

The following instructions describe how to install a Virtual LoadMaster on a VMware ESXi environment using the VMware vSphere client.

## 3.1 Static MAC Addresses Must Be Configured

In case you move a VLM system to a different Virtual Machine, ensure that the MAC addresses of the Virtual Machine's NICs stay the same. Static MAC addresses must be configured for all NICs within Virtual Machines.

For further information on configuring static MAC addresses, please refer to the relevant VMware documentation.

## 3.2 Download the OVF File

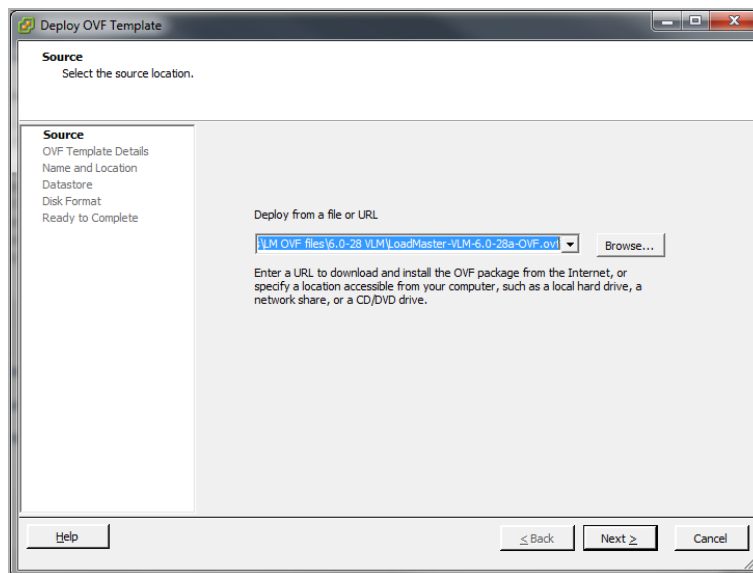
The VLM is packaged with an .ovf file for ease of deployment. This file can be freely downloaded from Kemp for a 30 day evaluation period. To download the VLM please follow the following instructions.

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 **VMware (OVF)**.
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.

### 3.3 Deploy the OVF File

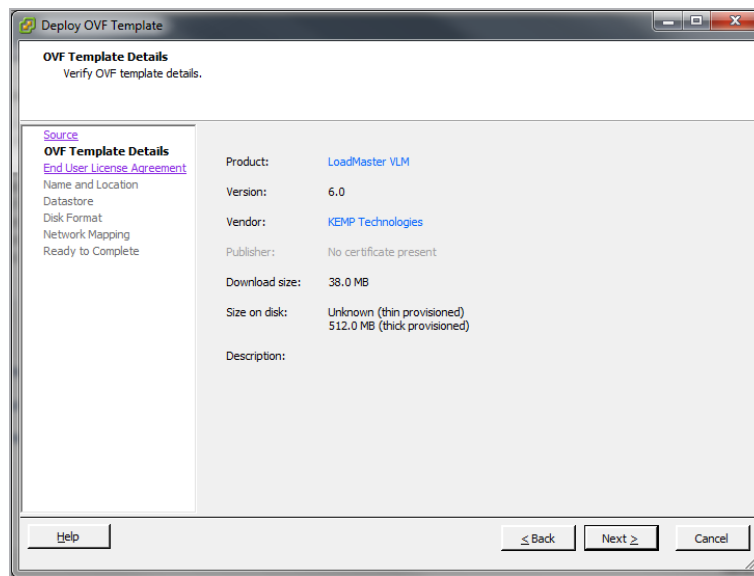
To deploy the VLM we initiate a **Deploy OVF Template** wizard which gathers all the information required to correctly deploy the VLM.

1. Open the VMware vSphere client.
2. Select the correct Resource Pool within which you wish to install the VLM.
3. Select the **File > Deploy OVF Template** menu option, this initiates the **Deploy OVF Template** wizard.
4. Within the **Source** screen, click on the **Browse** button and select the downloaded file.



5. Click **Next**.
6. Within the **OVF Template Details** screen, ensure that all the details regarding the VLM are correct.

## 3 Installing Virtual LoadMaster (VLM) using vSphere



7. Click **Next**.

8. Within the **End User License Agreement** screen, read the Kemp SOFTWARE LICENSE AGREEMENT.

9. If you wish to continue with the installation, you must accept the end-user license agreement by clicking the **Accept** button.

10. When the **Accept** button has been clicked the **Next** button will become available.

11. Click the **Next** button.

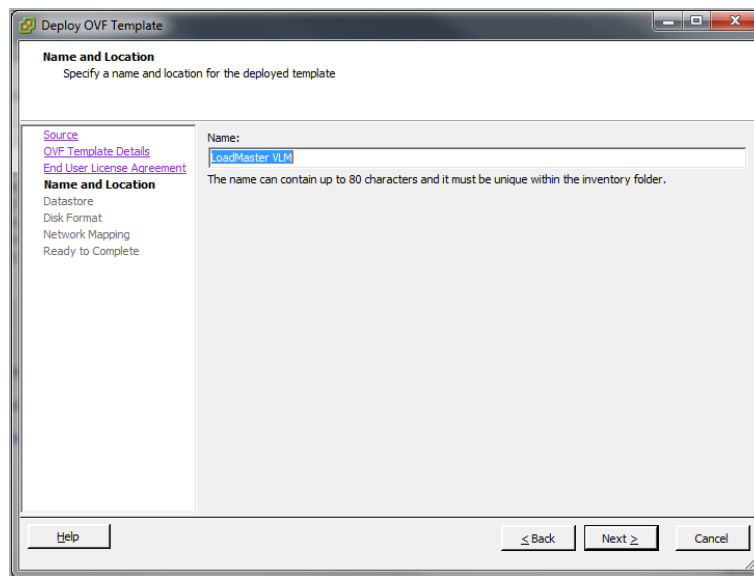
12. In the **Name and Location** field, enter a name for the VLM into the **Name** field.

The name can be up to 80 characters long. It should be unique within the virtual machine folder. Names are case sensitive.

13. If required, select the folder location within the inventory where the VLM will reside



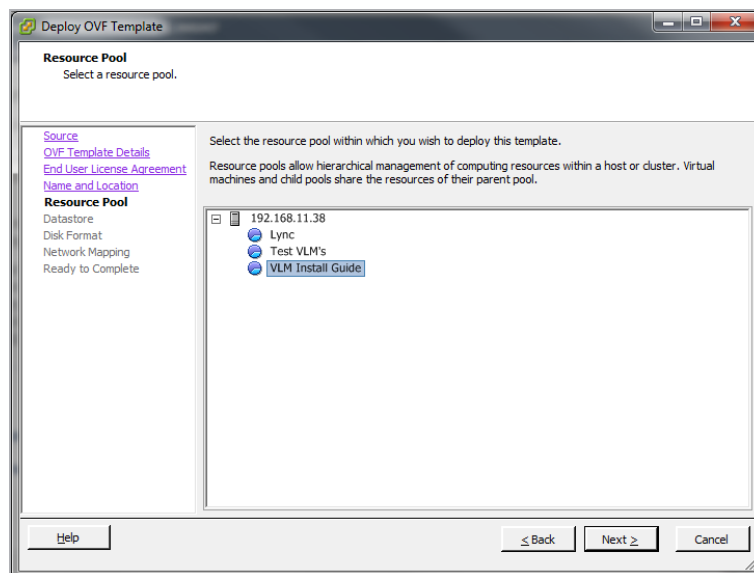
## 3 Installing Virtual LoadMaster (VLM) using vSphere



14. Click **Next**.

15. Within the **Resource Pool** screen, select the resource pool where the VLM will run.

This page is only displayed if the cluster contains a resource pool and if you had not selected a resource pool within the inventory tree before initiating the deployment wizard.

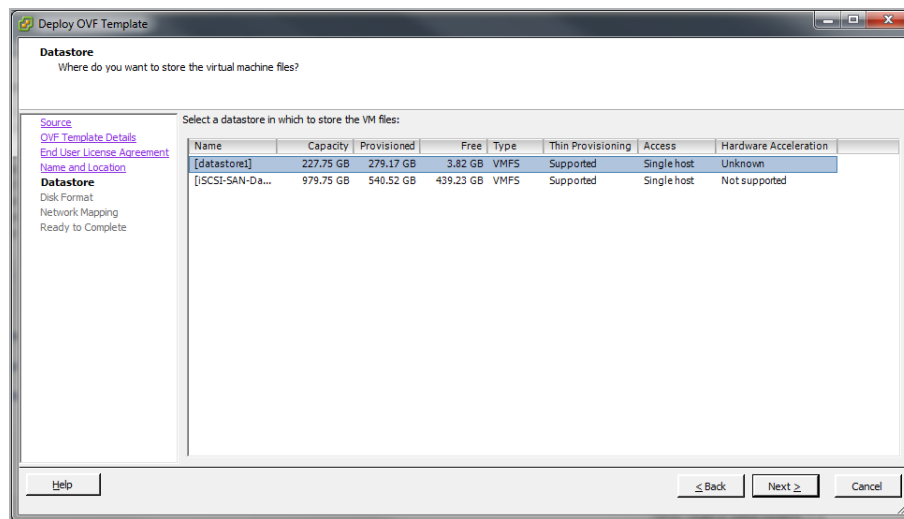


16. Click the **Next** button

17. Within the **Datastore** screen, select the datastore in which you wish to store the VLM.

You may only select from preconfigured datastores within this screen.

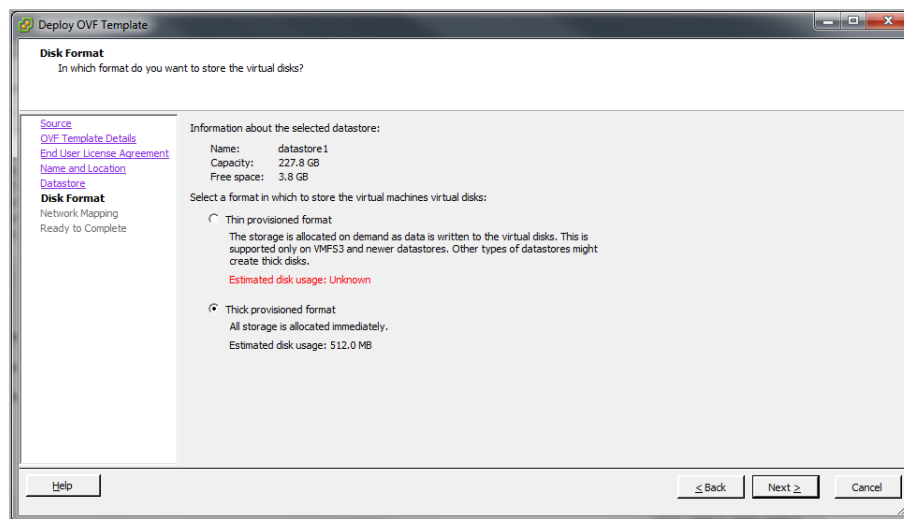
## 3 Installing Virtual LoadMaster (VLM) using vSphere



18. Click **Next**.

19. Within the **disk Format** screen, select whether you wish to use **Thin provisioned format** or **Thick provisioned format**

Kemp recommends you using the **Thick provisioned format** option. The estimated disk usage is approximately 32 GB.

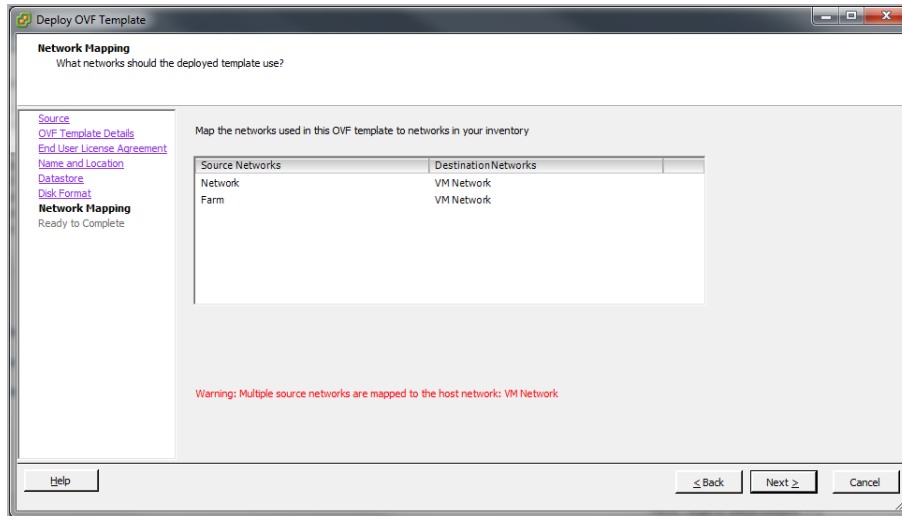


20. Click **Next**.

21. Within the **Network Mapping** screen, select which networks in the inventory should be used for the VLM.

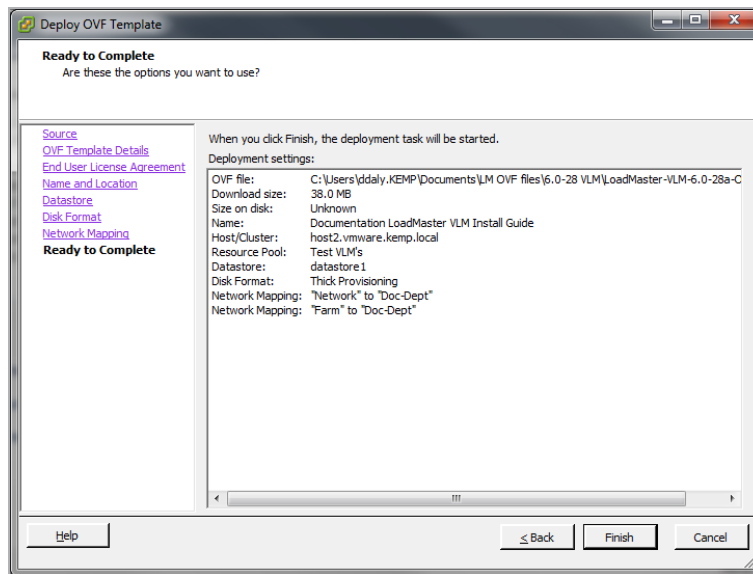
### 3 Installing Virtual LoadMaster (VLM) using vSphere

Select the network mapping for **Network** and **Farm** by right-clicking the **Destination Network** column and choosing the relevant preconfigured network from the drop-down list.



22. Click **Next**.

23. Within the **Ready to Complete** screen, ensure that all the details are correct.



24. Click the **Finish** button.

Once the **Finish** button is clicked, the VLM is deployed.

## 3.4 Check the Virtual Machine Settings

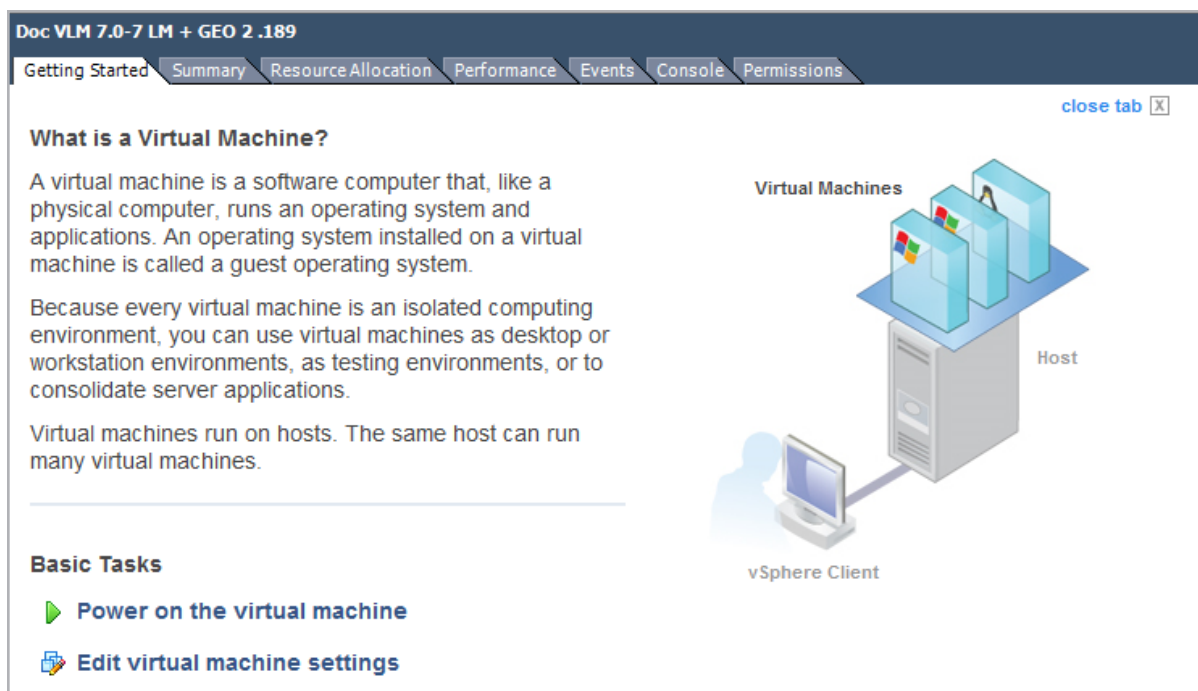
Please verify that the Virtual Machine settings are configured with the recommended values:

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

## 3.5 Power On the LoadMaster

To power on the Virtual LoadMaster, follow the steps below:

1. In the left panel of the client, select the LoadMaster Virtual Machine.



2. Click the **Power on the virtual machine** link.
3. Select the **Console** tab and wait for the Virtual Machine to finish booting.

```
#####  
#  
# Your LoadMaster has finished booting.  
# UUID: 31159ab6-5da4-4b92-8ee2-b8922cc08dfe  
# Serial Number: 446312  
# IP address of LoadMaster is 10.154.11.180  
#  
# Point your browser at https://10.154.11.180 to configure your LoadMaster.  
#  
#####
```

4. When the Virtual Machine finishes booting, a screen similar to the one above appears which will show the **IP address**. Take note of this as you will need it to access the LoadMaster Web User Interface (WUI).

To change the IP address using the console view, follow the steps in the **Configuring the LoadMaster Using the Console** section.

## 3.6 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.

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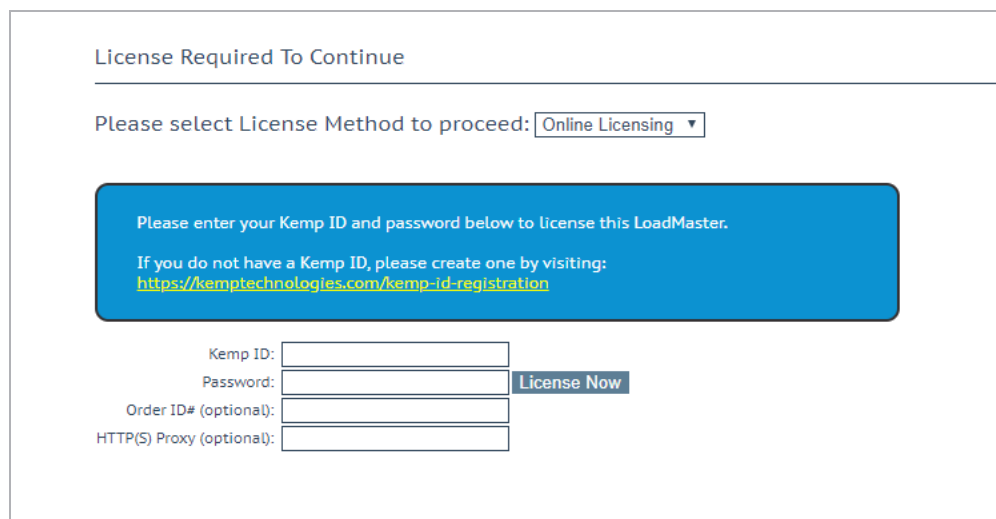
Ensure to enter **https://** before the IP address.

---

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.

## 3 Installing Virtual LoadMaster (VLM) using vSphere



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):

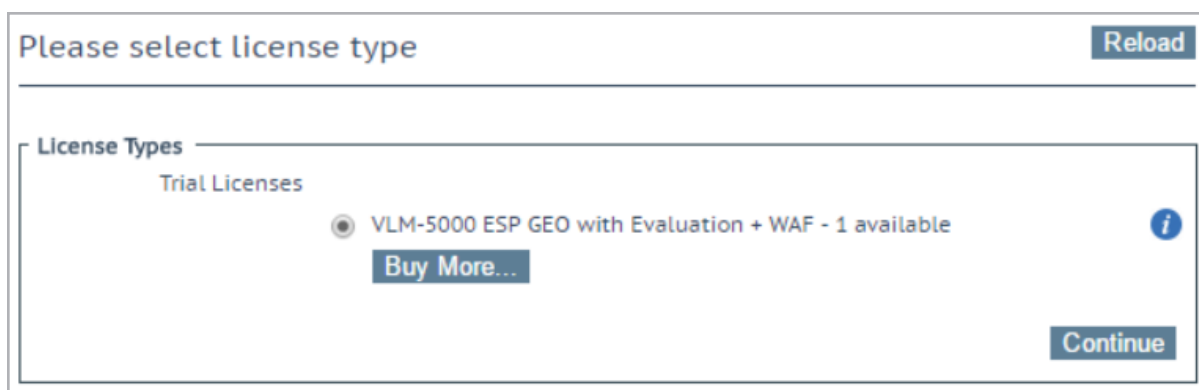
HTTP(S) Proxy (optional):

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](#).



Please select license type Reload

License Types

Trial Licenses

☒ VLM-5000 ESP GEO with Evaluation + WAF - 1 available i

Buy More...

Continue

## 3 Installing Virtual LoadMaster (VLM) using vSphere

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.

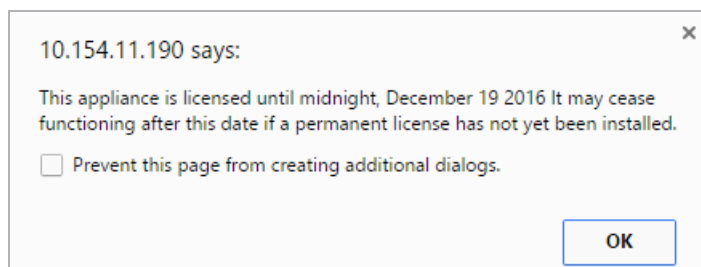
---

6. Click **Continue**.

7. The login screen appears, enter the **bal** user name and the password.

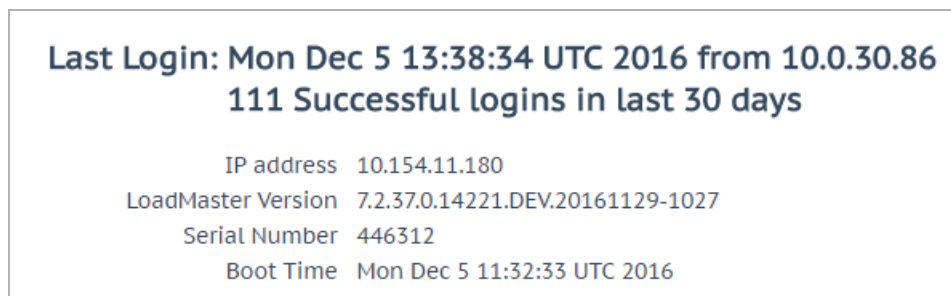
8. In the screen informing you that the password has changed, press the **Continue** button.

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.

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Network Interface 0	
Interface Address (address[/prefix])	<input type="text"/> <b>Set Address</b>
Link Status	Speed: 10000Mb/s, Full Duplex <b>Automatic</b> <b>Force Link</b>
MTU:	<input type="text" value="1500"/> <b>Set MTU</b>
Additional addresses (address[/prefix])	<input type="text"/> <b>Add Address</b>
<b>VLAN Configuration</b> <b>Interface Bonding</b>	

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	<input type="text"/> <b>Set Hostname</b>

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.



## 3 Installing Virtual LoadMaster (VLM) using vSphere

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

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"/>	<button>Set IPv4 Default Gateway</button>

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.

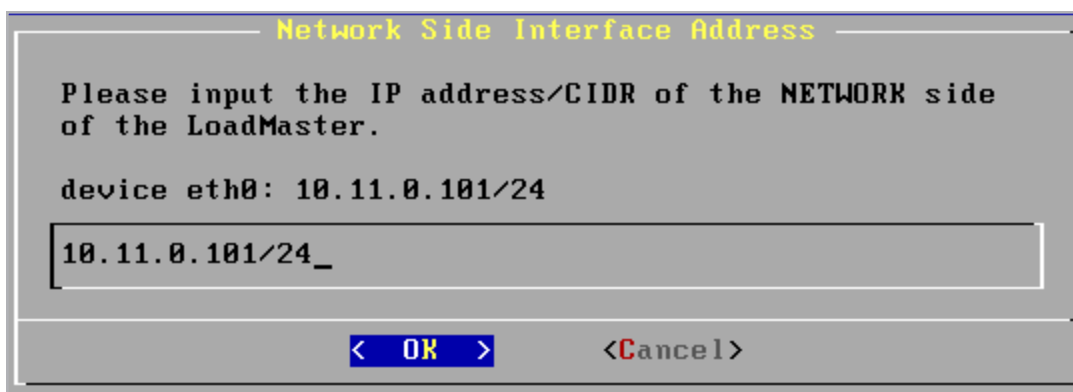
# 4 Troubleshooting

## 4.1 Configuring the LoadMaster Using the Console

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

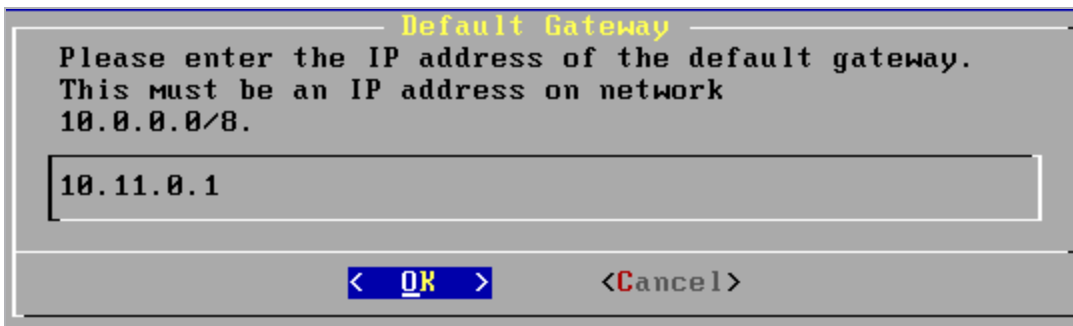
1. Login into the LoadMaster using the console with the following settings:

- lb100 login: bal
- Password: 1fourall



A screenshot of a terminal window showing a configuration dialog box titled "Network Side Interface Address". The dialog box has a grey background and a black border. It contains the text: "Please input the IP address/CIDR of the NETWORK side of the LoadMaster." Below this, it shows "device eth0: 10.11.0.101/24". There is a text input field containing "10.11.0.101/24\_". At the bottom, there are two buttons: "< OK >" and "<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 dialog box has a grey background and a black border. It contains the text: "Please enter the IP address of the default gateway. This must be an IP address on network 10.0.0.0/8." Below this, there is a text input field containing "10.11.0.1". At the bottom, there are two buttons: "< OK >" and "<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 Appliance Vitals 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+
CPU Load	2% 
TPS	Total 0 (SSL 0)
WAF Stats	Total handled: 0 Incidents: 0
NetLoad	Mbits/sec
eth0	0.0 

Upgrade ↗

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>.

## 4.2 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.

## 4.3 VMware Tools

The VLM supports integration with VMware Tools. For more information, please refer to the [VMware Tools Add-On Package, Feature Description](#).

## 4.4 Working with VMware Virtual Switches

When working with VMware Virtual Switches within your configuration, please ensure that the value of the Forged Transmit Blocking option is **Accept**. If this option's value is **Reject**, the LoadMaster is prevented from sending traffic as it appears to come from nodes on the network other than the LoadMaster.

Please refer to your VMware documentation for further details on how to configure the VMware Virtual Switch.

# References

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

**VMware Tools Add-On Package, Feature Description**

**Licensing, Feature Description**

# Last Updated Date

This document was last updated on 27 July 2023.