Progress®
Kemp® LoadMaster®

Installation Guide VMware

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1

Introduction

Introduction

The Virtual LoadMaster is a version of the 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 hypervisor environment.



The Virtual LoadMaster is VMware ready.

The Virtual LoadMaster is supported and has been tested with:

- VMware ESXi 5.5 through ESXi 7.0 Update 3c (7.0.3)
- vCenter Server 5.5 through vCenter Server 7.0 Update 3c (7.0.3)

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 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.

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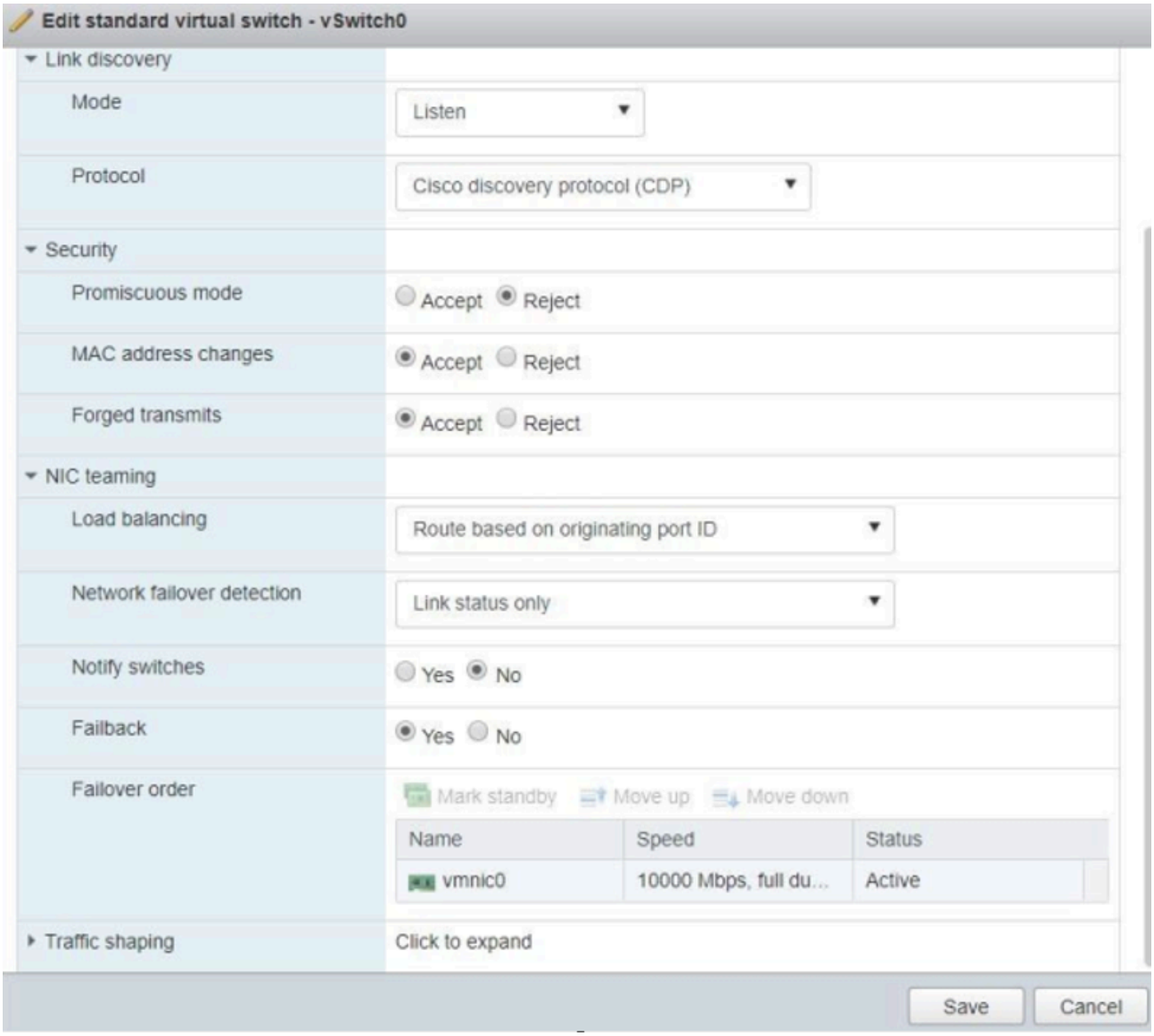
Best Practices

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

Note: Reordering happens only when using 4 or more VMNET3 network adapters. This issue does not occur if using e1000 network adapters.



- When using High Availability (HA), ensure that **MAC address changes** and **Forged transmits** are both 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.

Note: Starting with vSphere version 7.0, the default values for **MAC Address Changes** and **Forged Transmits** are set to **Reject** by default; in previous vSphere releases, these parameters were set to **Accept** by default. While it has always been a step in the VMware HA configuration process to ensure that these parameters are set to **Accept** for LoadMaster, extra care will need to be taken with vSphere version 7.0 and later releases. To mitigate against any security concerns about changing these default values, create a separate management plane subnet for LoadMaster HA using a dedicated vSwitch or separate port groups.

NIC teaming policy	
Notify switches	No
Policy	Route based on originating port ID
Reverse policy	Yes
Failback	Yes

Security policy	
Allow promiscuous mode	No
Allow forged transmits	Yes
Allow MAC changes	Yes

- 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**.

Note: Progress Kemp does not support vMotion.

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Installing Virtual LoadMaster (VLM) using vSphere

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.

Related Links

For details, see the following topics:

- Static MAC Addresses Must Be Configured
- Download the OVF File
- Deploy the OVF File
- Check the Virtual Machine Settings
- Power On the LoadMaster

Static MAC Addresses Must Be Configured

Static MAC Addresses Must Be Configured

If 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.

A static MAC address is needed due to the Progress Kemp license being tied to the MAC address. If the MAC address changes, the license can break and you must contact Progress Kemp Support to restore your license.

Download the OVF File

Download the OVF File

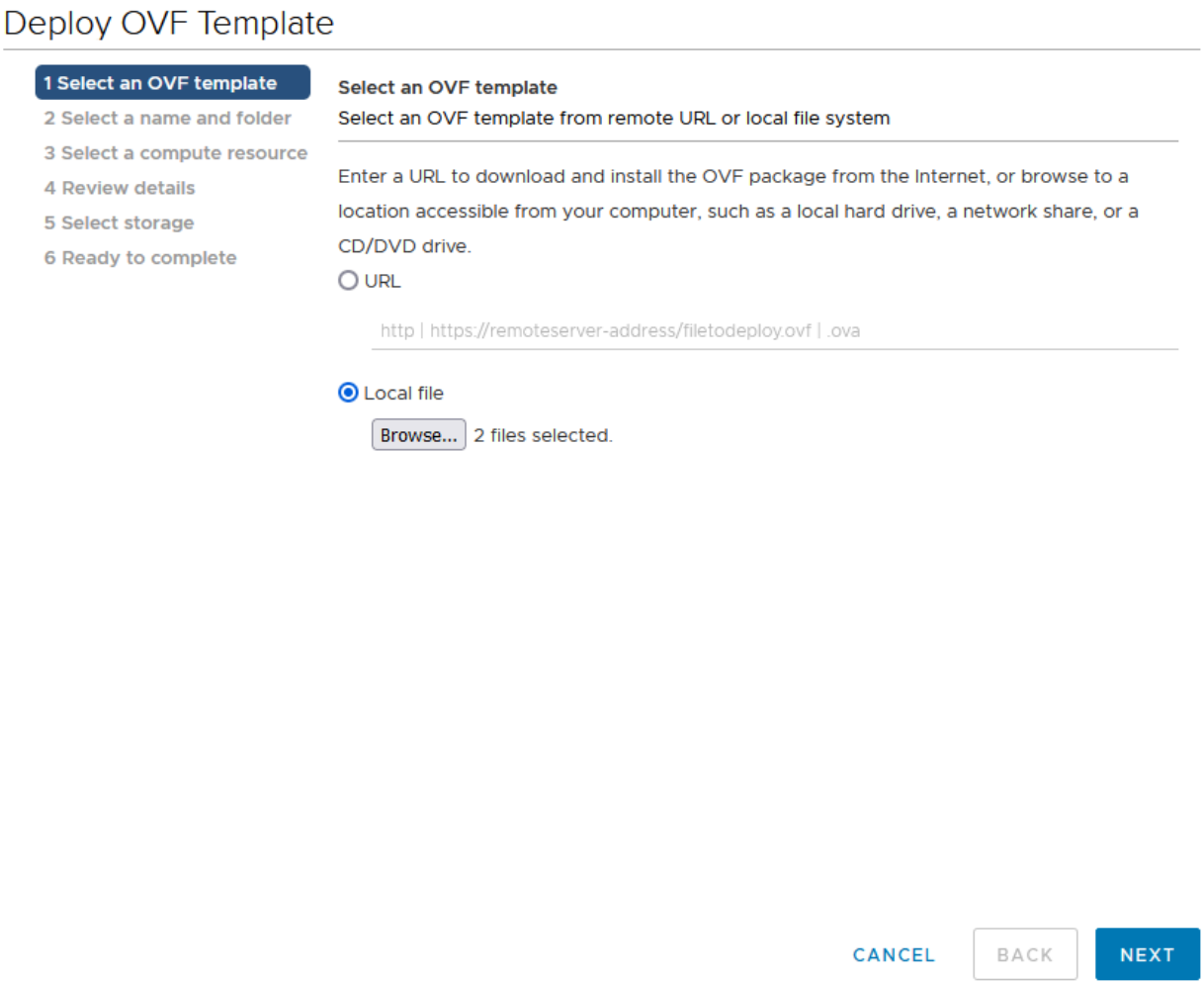
The VLM is packaged with an .ovf file for ease of deployment. This file can be freely downloaded from Progress Kemp for a 30 day evaluation period. To download the VLM please follow the following instructions.

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.

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. Ensure to extract the file you download to ensure you can select the OVF and VMDK files.

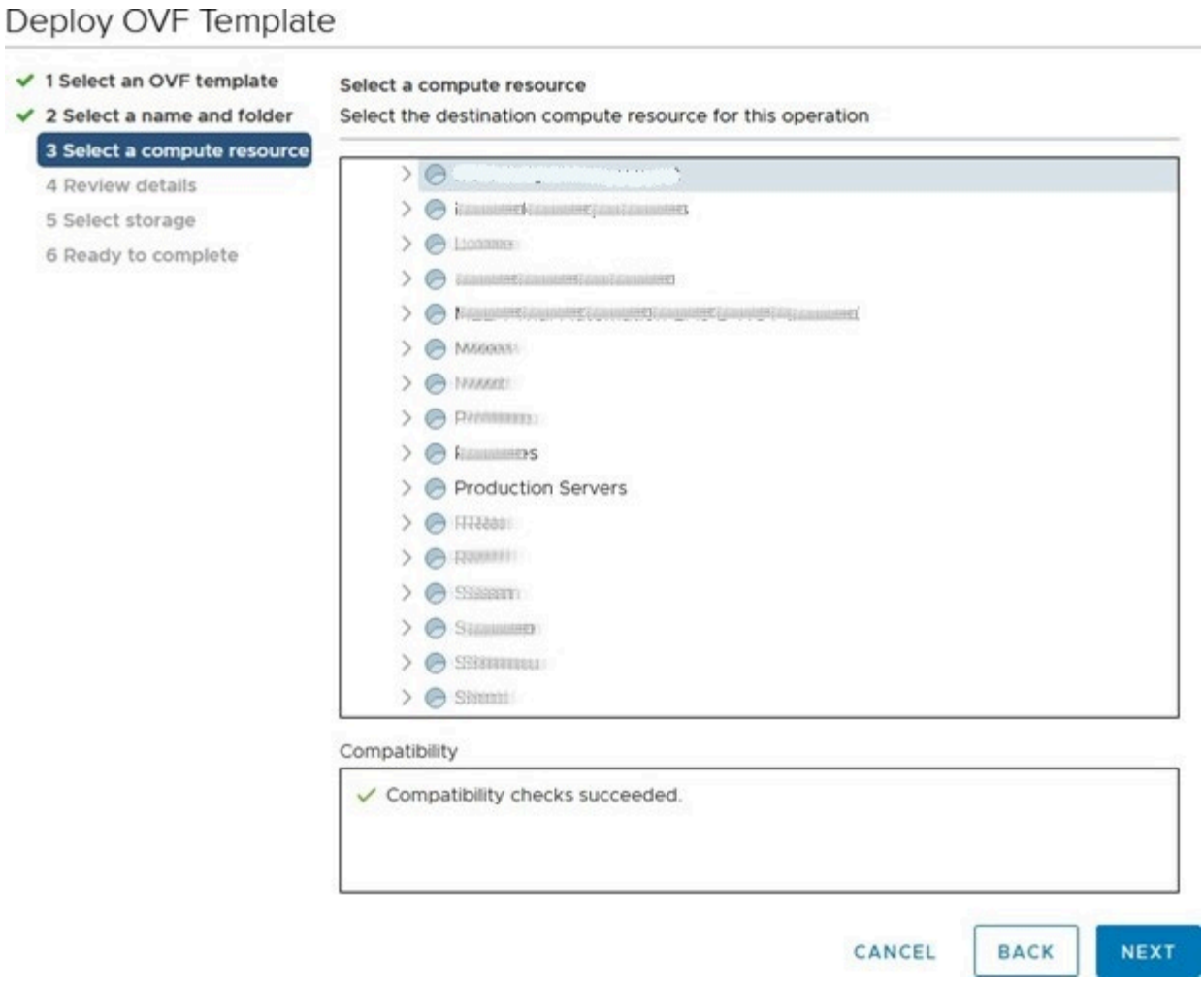
1. Open the VMware vSphere client.
2. Right-click the Resource Pool that you want to install the VLM within and click **Deploy OVF Template**.



3. Select **Local file**.
4. Click **Browse** and select the downloaded files. Ensure to select both the OVF and VMDK files.
5. Click **Next**.
6. Enter a name for the VLM into the **Virtual machine name** field.

   Note: The name can be up to 80 characters long. It should be unique within the Virtual Machine folder. Names are case sensitive.

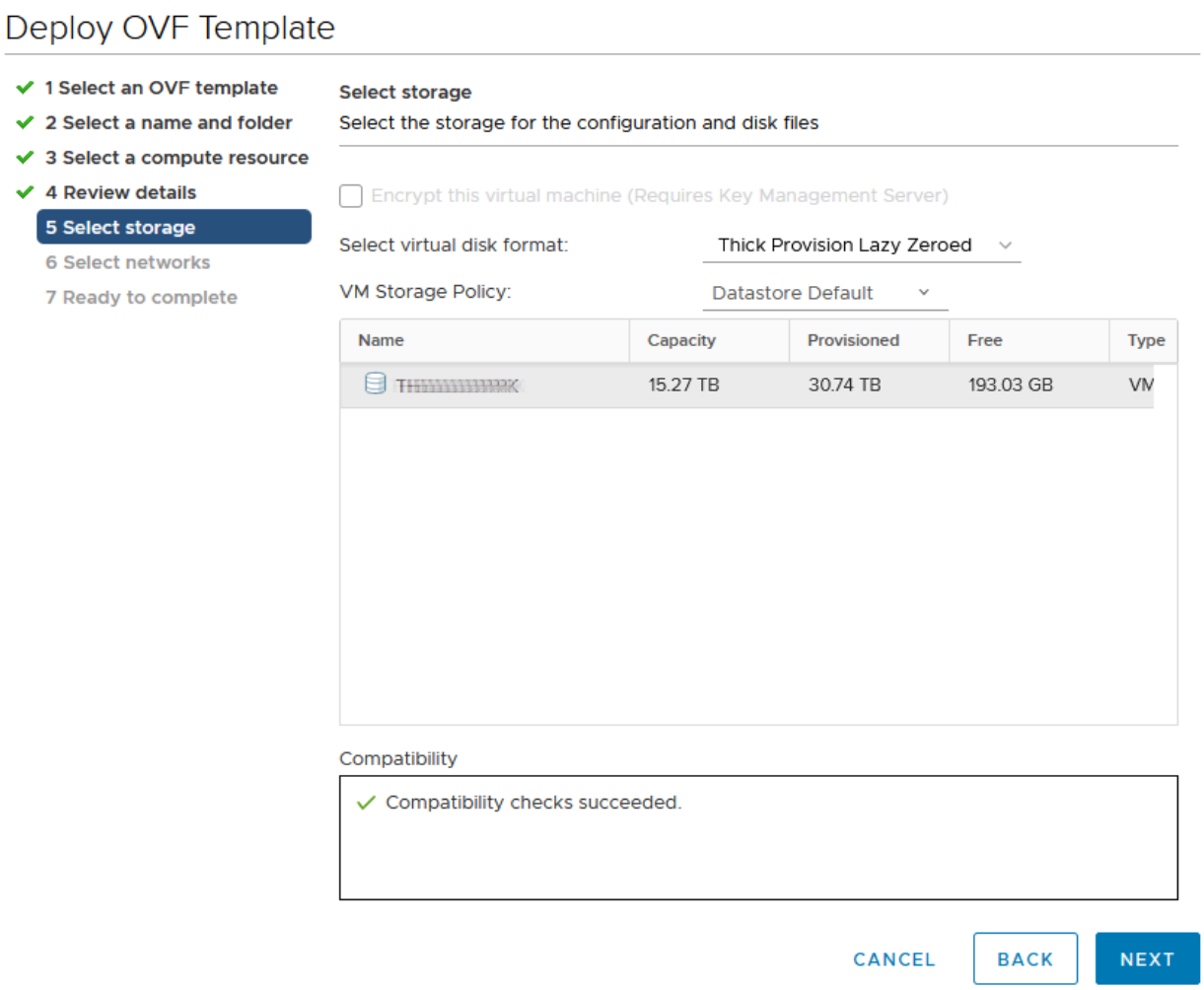
7. If required, select the folder location within the inventory where the VLM will reside.
8. Click **Next**.



9. Select the resource pool where the VLM will run.

   Note: This screen 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.

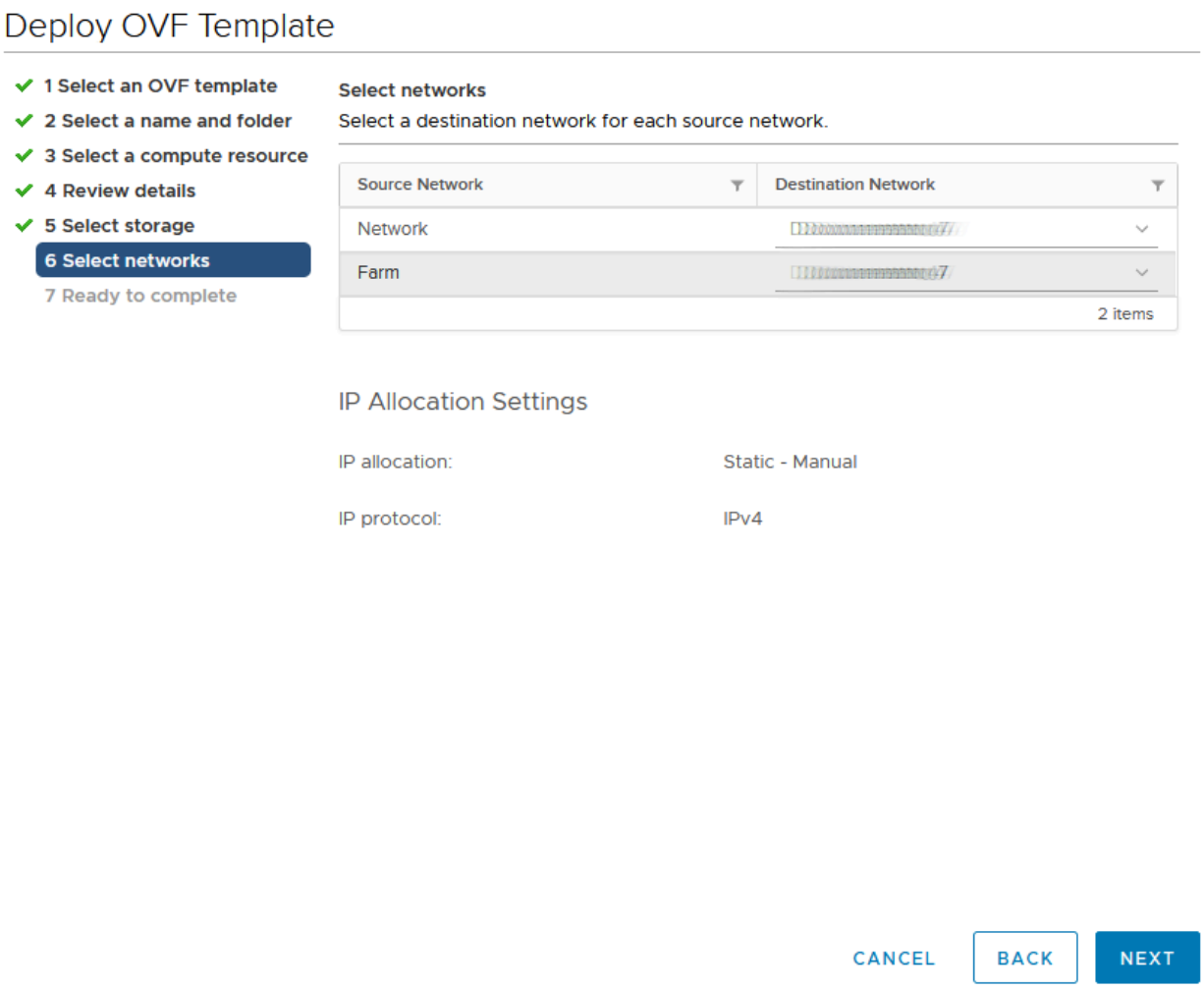
10. Click **Next** on the **Review details** screen.
11. Click **Next**.



12. Select whether you wish to use **thin provisioned format** or thick provisioned format.

    Note: We recommend you using the **thick provisioned format** option. The estimated disk usage is approximately 32 GB.

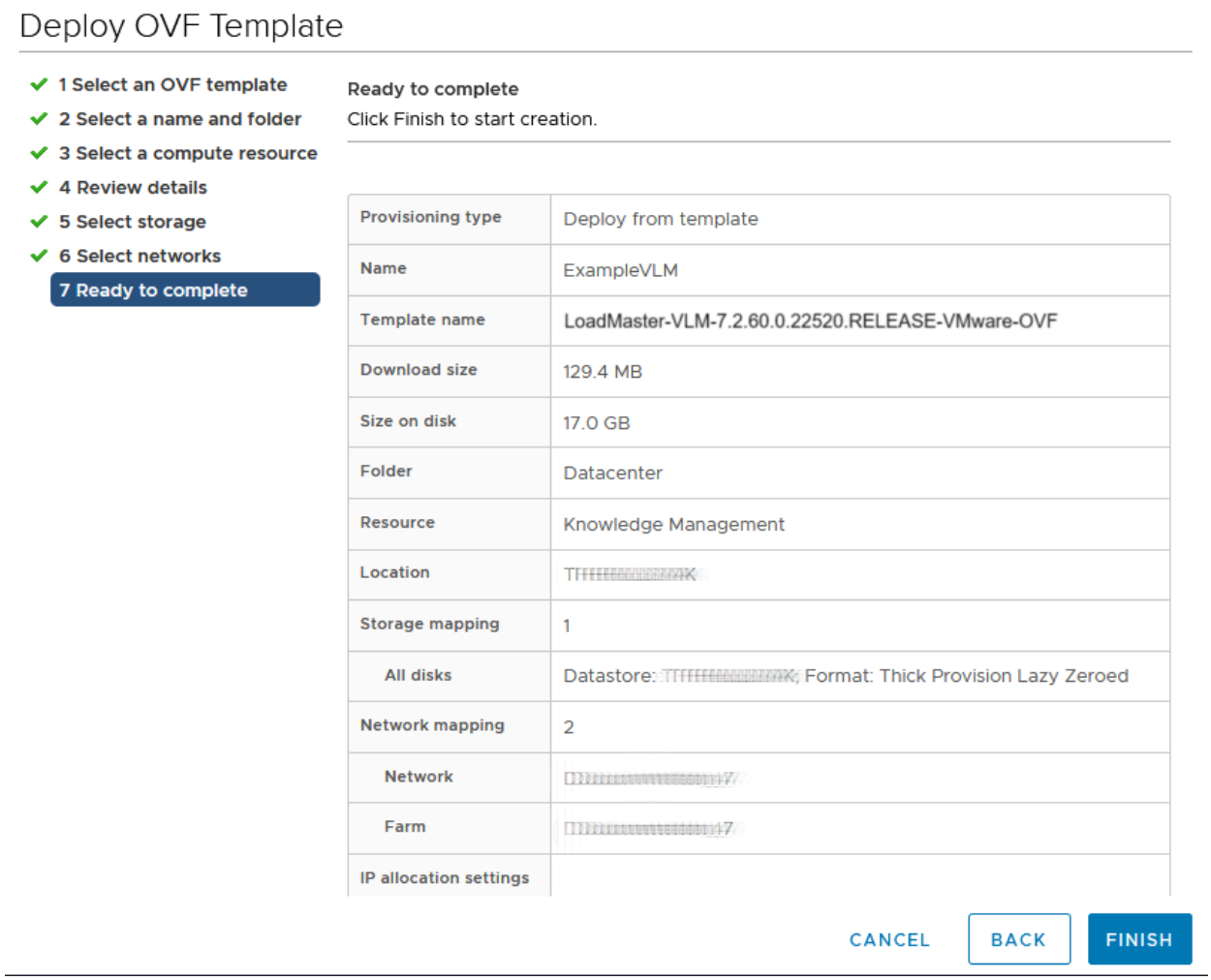
13. Click **Next**.



14. Select which networks in the inventory should be used for the VLM.

    Note: **Network** is the eth0 network and **Farm** is the eth1 network on initial deployment.

15. Click **Next**.



16. Ensure that all the details are correct.
17. Click **Finish**.

Once **Finish** is clicked, the VLM starts to deploy.

Check the Virtual Machine Settings

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)

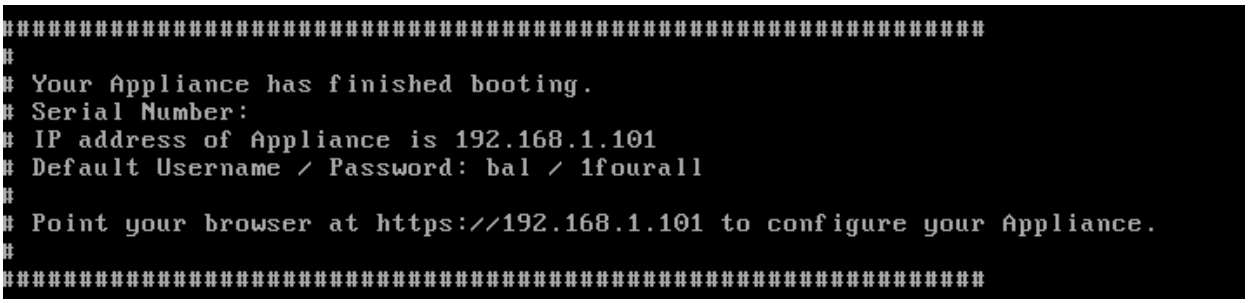
Power On the LoadMaster

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 play icon to power on the LoadMaster .
3. Click the **Launch Console** icon and wait for the Virtual Machine to finish booting.



4. When the Virtual Machine finishes booting, a screen similar to the one above appears which shows the **IP address**. If your LoadMaster is DHCP-enabled, refer to the Obtain or the LoadMaster IP Address if Using DHCP section. If your LoadMaster is not DHCP-enabled, refer to the Configuring the LoadMaster Using the Console section.

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

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Configure the LoadMaster

Configure the LoadMaster

After you power on the Virtual Machine, you must either obtain or set the IP address of the LoadMaster to access the WUI. You must then license the LoadMaster. Refer to the sections below for instructions on how to do this.

Related Links

For details, see the following topics:

- Obtain/Set the LoadMaster IP Address
- License and Configure the LoadMaster

Obtain/Set the LoadMaster IP Address

You need to know the IP address of the LoadMaster to access the WUI. The IP address can be manually set using the console if you are not using DHCP. If you are using DHCP, the IP address is automatically assigned to the LoadMaster. Depending on your configuration, refer to the following sections for further details.

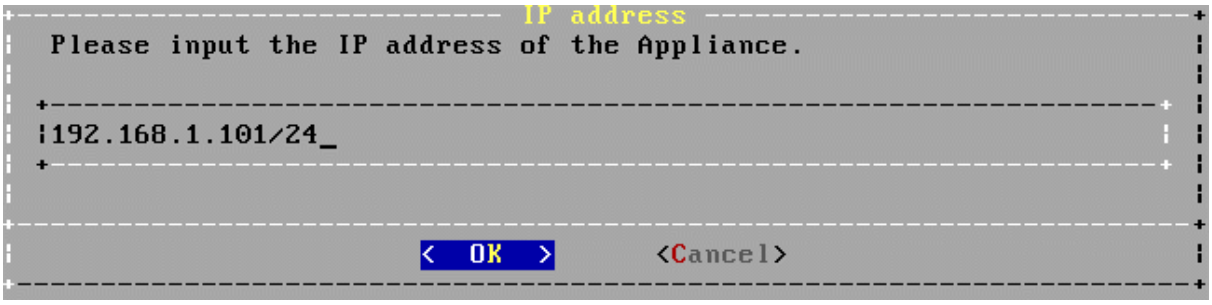
Configuring the LoadMaster Using the Console

If the LoadMaster does not automatically obtain an IP address using DHCP, or if you would prefer to

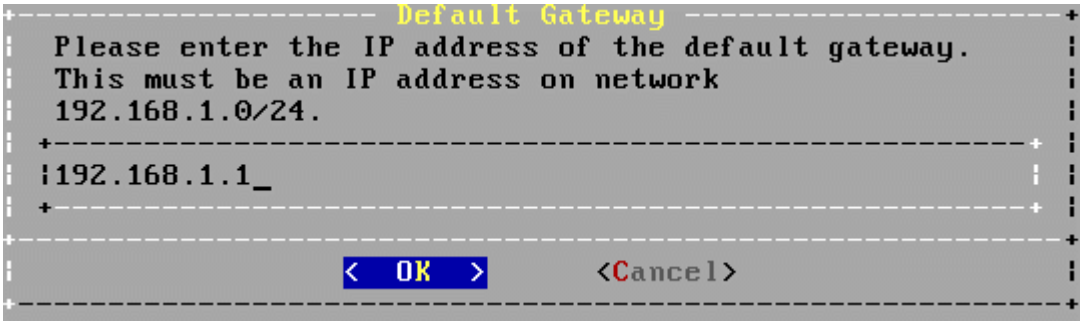
configure the LoadMaster using the console, then the following configuration steps must be completed before starting the LoadMaster.

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

   - **lb100 login:** bal
   - **Password:** 1fourall



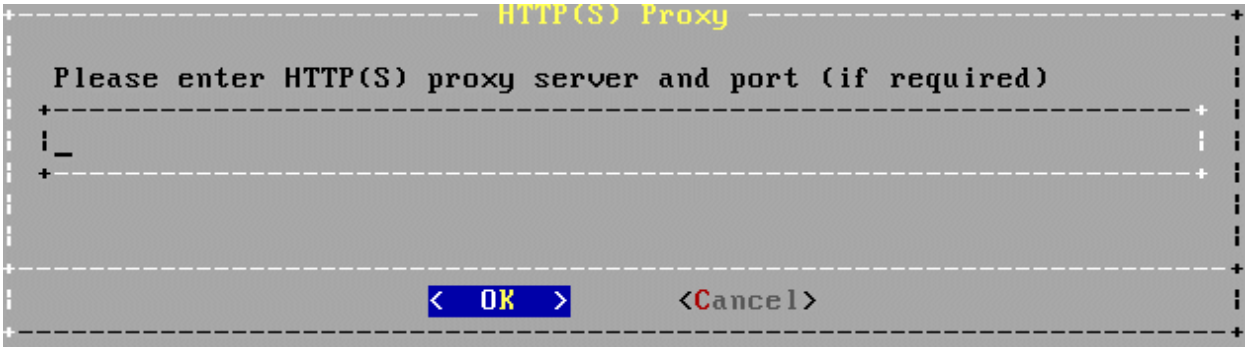
2. Enter the IP address of the eth0 interface, the network facing interface of the LoadMaster, in the input field within the **IP address** dialog box.
3. Press **OK**.



4. Enter the IP address of the default gateway in the input field of the **Default Gateway** dialog box.
5. Press **OK**.



6. Enter a space separated list of nameserver IP addresses.



7. Enter the HTTP(S) proxy server and port (if required).
8. 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.

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

9. A warning may appear regarding website security certificates. Please click the continue/ignore option.
10. The LoadMaster End User License Agreement screen appears.
11. Please read the license agreement and, if willing to accept the conditions therein, click on the **Agree** button to proceed.
12. 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.
13. Click **OK**.
14. 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://docs.progress.com/.

Obtain the LoadMaster IP Address if Using DHCP



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.

License and Configure the LoadMaster

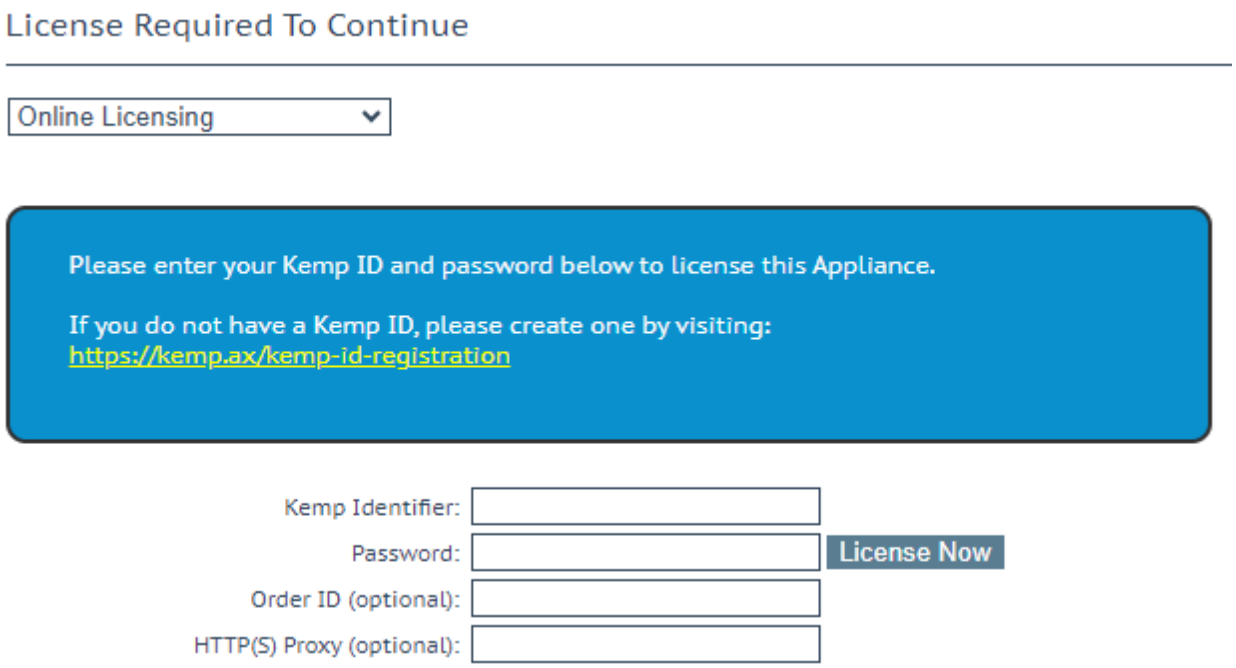
The LoadMaster must now be configured to operate within the network configuration.

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

   Note: 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.

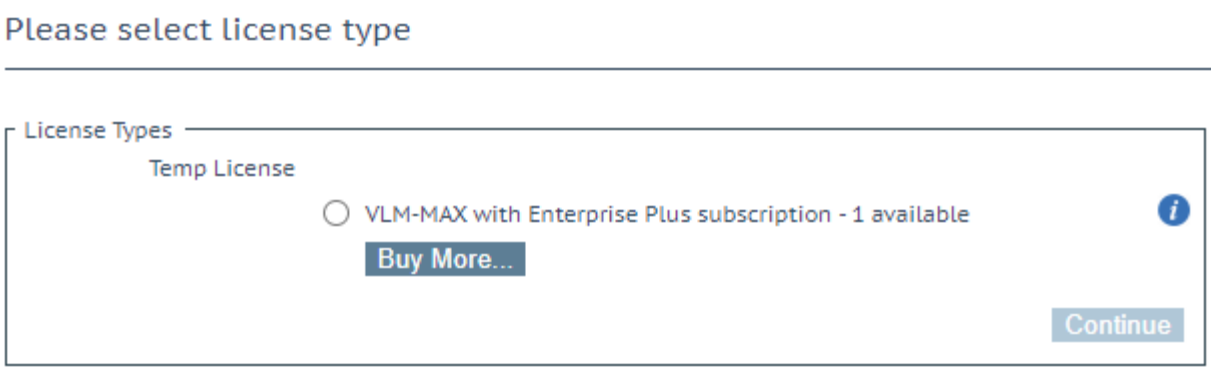


4. If using the **Online** licensing method, fill out the fields and click **License Now**.

   Note: 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 Progress Kemp **Order ID#** if this was provided to you.

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

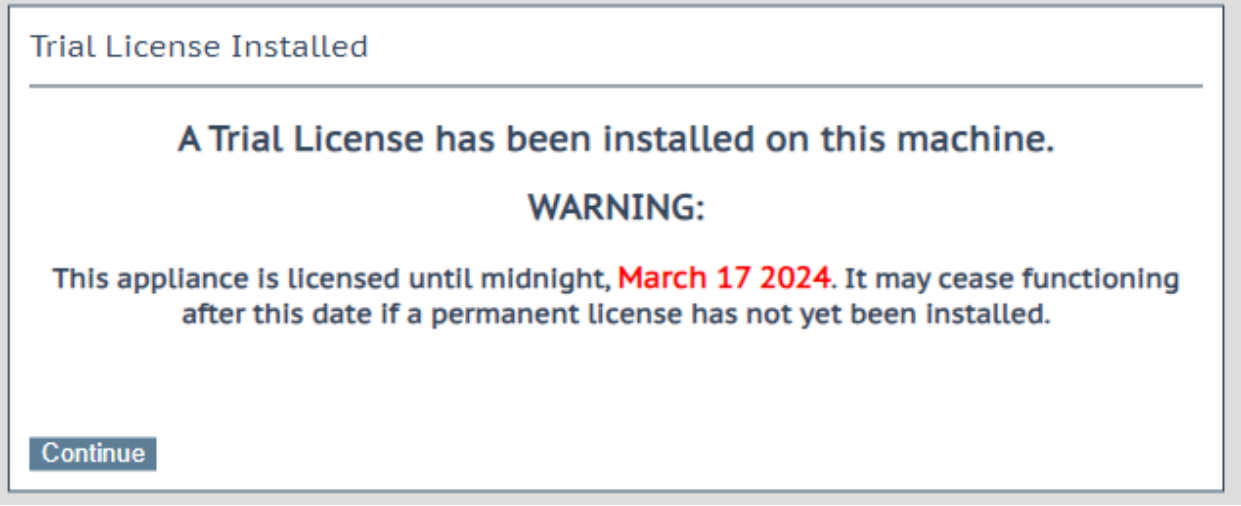
   Note: For detailed instructions on how to register for a Progress ID (formerly Kemp ID) and license the LoadMaster, refer to the **Licensing, Feature Description** on the Documentation Page.



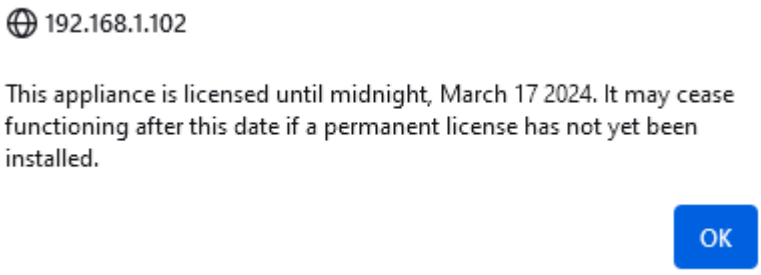
5. If you entered an **Order ID**, a screen appears that provides a list of available licenses for that order ID, in addition to any licenses registered for the Progress ID based on the LoadMaster platform type. Select the license type you want to apply to this LoadMaster.

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

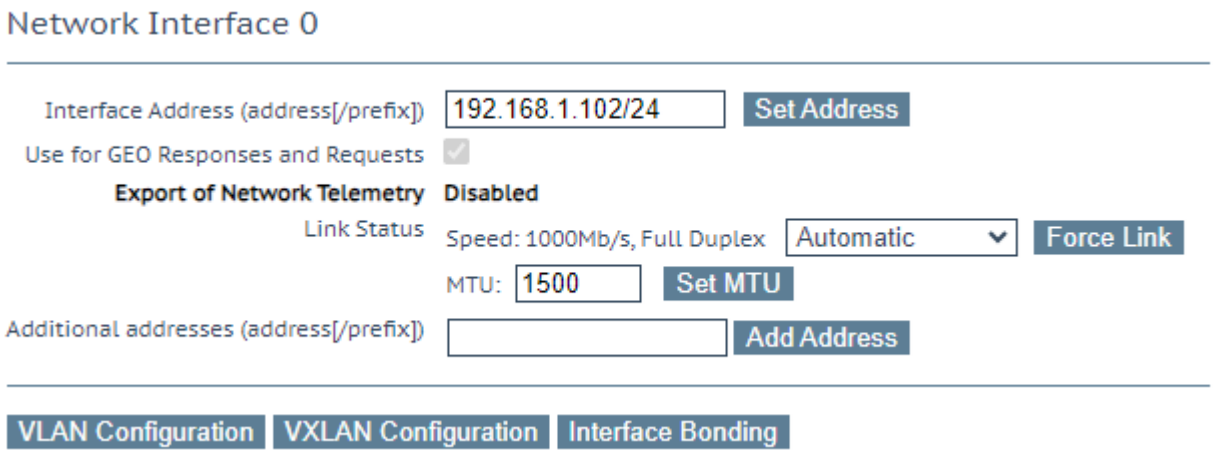
6. Click **Continue**.



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.



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.

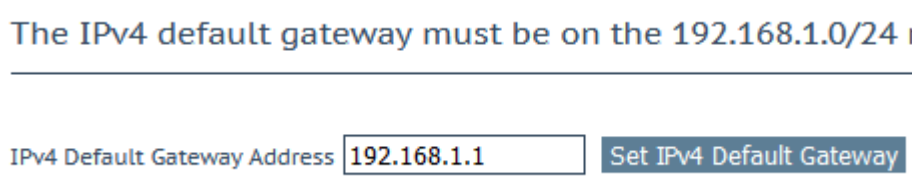
19. Go to **System Configuration > Network Setup > Host & DNS Configuration**.



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



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.



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 https://docs.progress.com/ page.

5

Upgrading Your Virtual Machine

Upgrading Your Virtual Machine

The VMware VLM is delivered as a hardware version 10 virtual machine. You can upgrade to a higher virtual machine number as needed. Before upgrading, first take a backup of the virtual machine. If you do this, you can reverse the upgrade if needed.

For further details on upgrading a virtual machine, refer to the VMware documentation.

Note: If you have the VMware Tools package installed on LoadMaster, you must upgrade to the appropriate version of VMware Tools for the target hardware version before you upgrade the virtual hardware. Ensure that the version of VMware Tools is appropriate for the target hardware version.

6

Troubleshooting

Troubleshooting

Refer to the following sections for troubleshooting details.

Related Links

For details, see the following topics:

- Factory Reset
- VMware Tools
- Working with VMware Virtual Switches

Factory Reset

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 via the Console section.

VMware Tools

VMware Tools

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

Working with VMware Virtual Switches

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.

7

Best Practices for Backups

Best Practices for Backups

Hypervisor snapshots cannot be used to restore a LoadMaster to a working state. The best way to back up your LoadMaster settings is by using the native backup and restore facility in the LoadMaster WUI or API.

To back up your LoadMaster configuration, follow these steps:

1. In the main menu, go to **System Configuration > System Administration > Backup/Restore**.
2. Click **Create Backup File**.

You can create a remote host for automated backups using SCP to save backups to a remote server.

For further details on backing up and restoring the LoadMaster configuration, including certificates and cipher sets, refer to the following links:

- Backup and Restore Technical Note
- How to Create and Restore a LoadMaster Configuration or Certificate Backup

8

References

References

Unless otherwise specified, the below documents can be found at https://docs.progress.com/.

VMware Tools Add-On Package, Feature Description

Licensing, Feature Description