Progress®
Kemp® LoadMaster®

# Installation Guide LoadMaster - Microsoft Hyper V

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# Table of Contents

**Chapter 1: Introduction . . . . . 4**

**Chapter 2: Installing Virtual LoadMaster (VLM) using Hyper-V Manager . . . . . 5**

Static MAC Addresses Must Be Configured . . . . . 5

Download the Hyper-V Files . . . . . 6

Create the Virtual Machine . . . . . 6

Check the Virtual Machine Settings . . . . . 7

Power On the LoadMaster . . . . . 7

Configure the LoadMaster Using the Console . . . . . 8

License and Configure the LoadMaster . . . . . 9

**Chapter 3: Troubleshooting . . . . . 14**

NIC Types Cannot Be Mixed . . . . . 14

Make this VM Highly Available Option is Greyed Out . . . . . 14

Factory Reset . . . . . 15

Status of Degraded (Integration Services Upgrade Required) . . . . . 15

Time Drift . . . . . 15

**Chapter 4: Best Practices for Backups . . . . . 16**

**Chapter 5: References . . . . . 17**

# 1

# 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 Microsoft Hyper-V environment. The VLM has been tested with Windows Server 2008 R2, Windows Server 2012, Windows Server 2012 R2, Windows 8, and Hyper-V 2016.

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 Microsoft Hyper-V Virtual Machine (VM) guest environment for the VLM, at minimum, must include:

- 2 x virtual processors
- 4 GB RAM
- 16 GB virtual hard disk capacity
- At least one Network Interface Card (NIC)

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

# 2

# Installing Virtual LoadMaster (VLM) using Hyper-V Manager

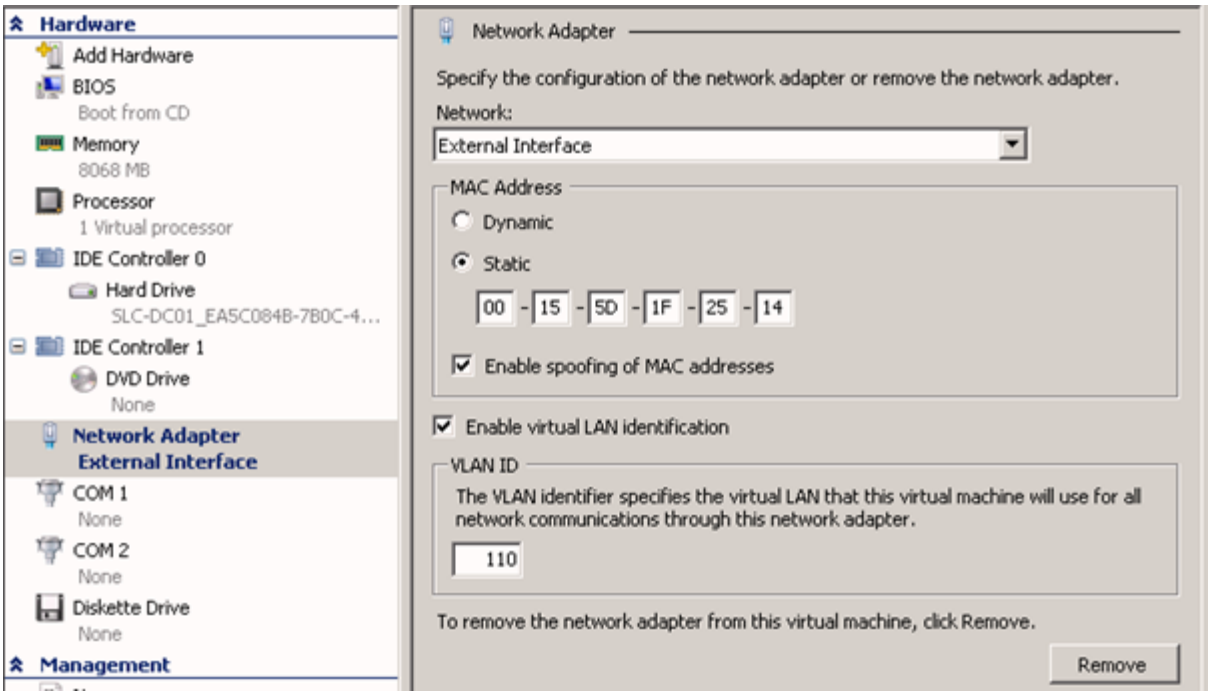
The following instructions describe how to install a Virtual LoadMaster on a Hyper-V environment using the Hyper-V Manager.

**Contents**


- Static MAC Addresses Must Be Configured
- Download the Hyper-V Files
- Create the Virtual Machine
- Check the Virtual Machine Settings
- Power On the LoadMaster
- Configure the LoadMaster Using the Console
- License and Configure the LoadMaster


## 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, refer to the relevant Hyper-V documentation.

# Download the Hyper-V Files

The VLM is packaged within a .vhd 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 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 relevant option for **Microsoft Hyper-V**.
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 zip file to an accessible location.

# Create the Virtual Machine

To create the Virtual Machine (VM), use the **New Virtual Machine** function within the Hyper-V Manager:

1. Open the Hyper-V Manager and select the relevant server node in the left panel.
2. Click **New** in the **Actions** column and select **Virtual Machine** from the list.

3. Click **Next** then type the name of the VM and click **Next**.
4. Select **Generation 1** and click **Next**.

   **Note:** The LoadMaster Operating System (LMOS) does not support the use of **Generation 2** configured virtual machines.

5. Specify the amount of memory to allocate to the virtual machine then click **Next**.
6. Configure your networking connection then click **Next**.
7. Click **Browse**. Go to the location where the .vhd file is saved and select it.
8. The LoadMaster instance should appear within the **Virtual Machines** pane in the Hyper-V Manager.

# Check the Virtual Machine Settings

Verify that the Virtual Machine settings are configured with the following minimum values:

- 2 x virtual processors
- 4 GB RAM
- 16 GB virtual hard disk capacity

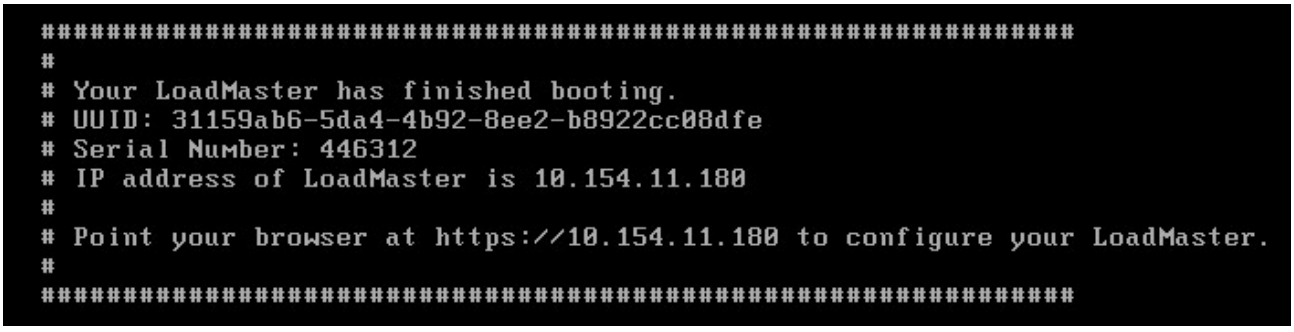
# Power On the LoadMaster

When the Virtual Machine (VM) has been deployed it can be powered on:

1. Right-click the VM that was imported within the Virtual Machines pane.
2. Click **Start**.

   **Note:** The VM should begin to boot up.

3. Right-click the VM and click **Connect** to open the console window.




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

If the VM 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 Configure the LoadMaster Using the Console section for instructions on manually configuring

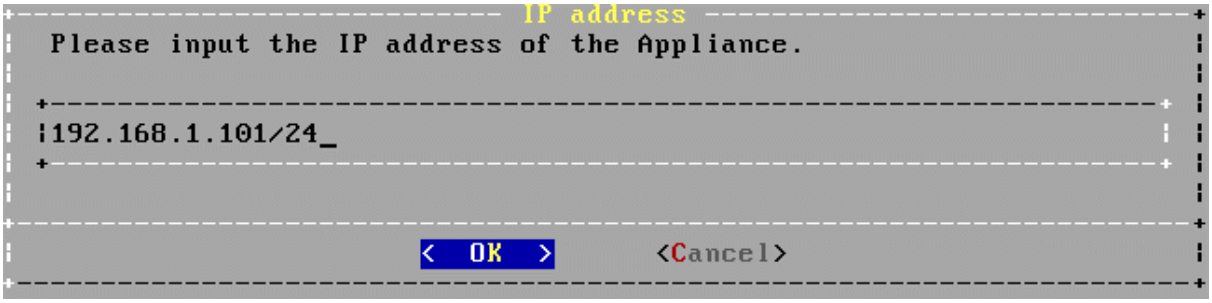
the IP address.

# Configure the LoadMaster Using the Console

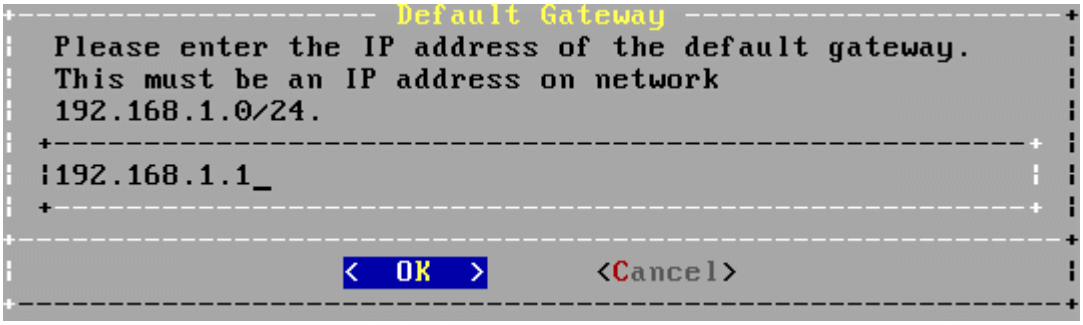
If the LoadMaster does not automatically obtain an IP address using DHCP, or if you would prefer to configure the LoadMaster using the console, then you must complete the following configuration steps before starting the LoadMaster.

1. Log in into the LoadMaster using the console with the following settings:

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



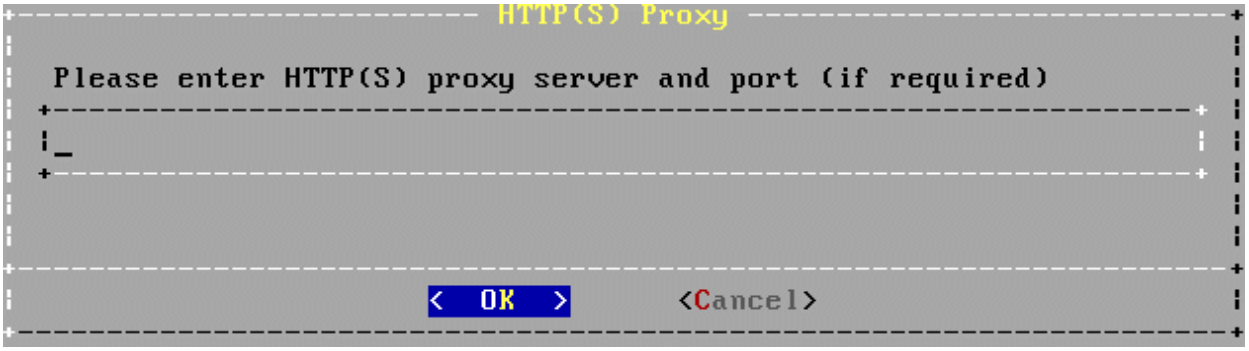

2. Enter the IP address of the eth0 interface, the network facing interface of the LoadMaster, in the input field within the **IP address** dialog box.
3. Press **OK**.




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.

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

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9. A warning may appear regarding website security certificates. Click the continue/ignore option to proceed.
10. The LoadMaster End User License Agreement (EULA) screen appears.
11. Read the license agreement and (if you are willing to accept the conditions), click **Agree** to proceed.
12. 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.
13. Click **OK**.
14. The home screen of the LoadMaster should appear.

The LoadMaster is now fully installed and ready to use.

For further information on how to configure and implement the Virtual LoadMaster, refer to the: LoadMaster documentation.

# License and Configure the LoadMaster

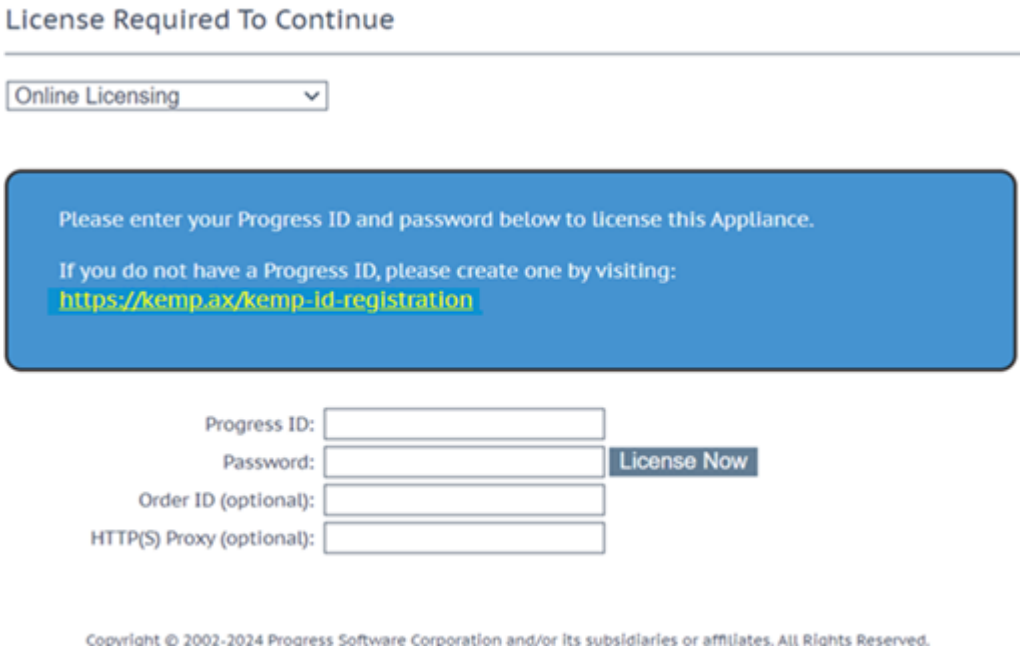
You must now configure the LoadMaster to operate within the network configuration.

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. Click the continue/ignore option to proceed.
3. The LoadMaster End User License Agreement (EULA) screen appears.

   Rread the license agreement and (if you are willing to accept the conditions), click **Agree** to proceed.

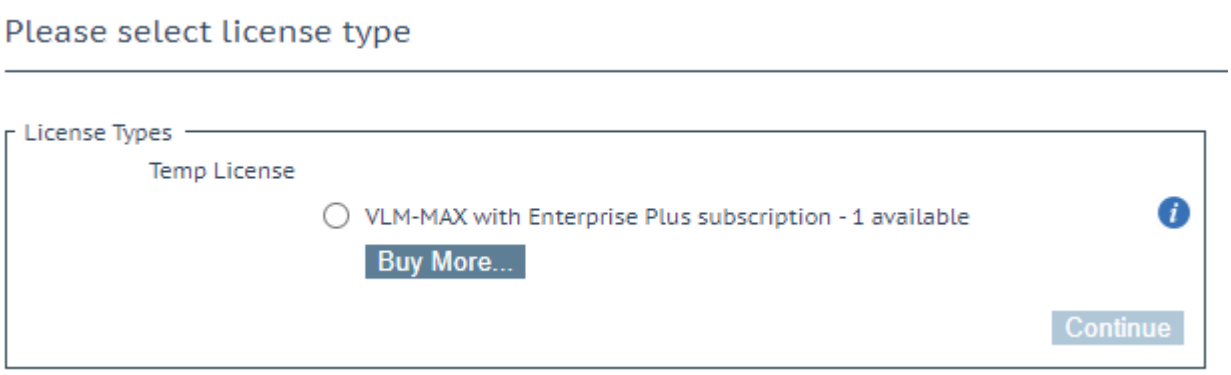



4. If using the **Online** licensing method, fill out the fields and click **License Now**.

**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 **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**.

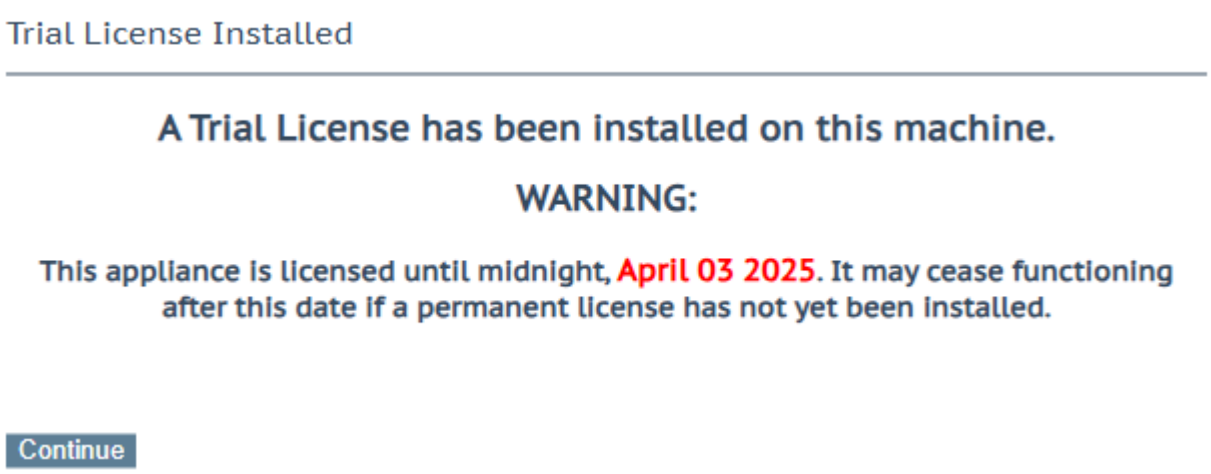
**Note:** For detailed instructions on how to register for a Progress ID (formerly Kemp ID) and license the LoadMaster, refer to the **Licensing, Feature Description** on the Documentation Page.



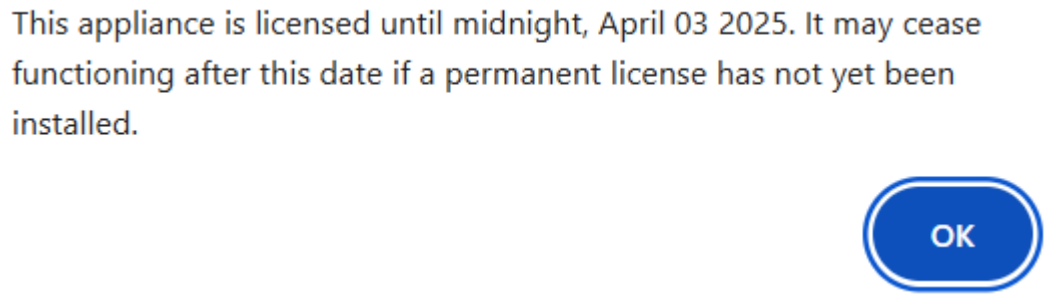
5. If you entered an **Order ID**, a screen appears that provides a list of available licenses for that order ID, in addition to any licenses registered for the Progress ID based on the LoadMaster platform type. Select the license type you want to apply to this LoadMaster.

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

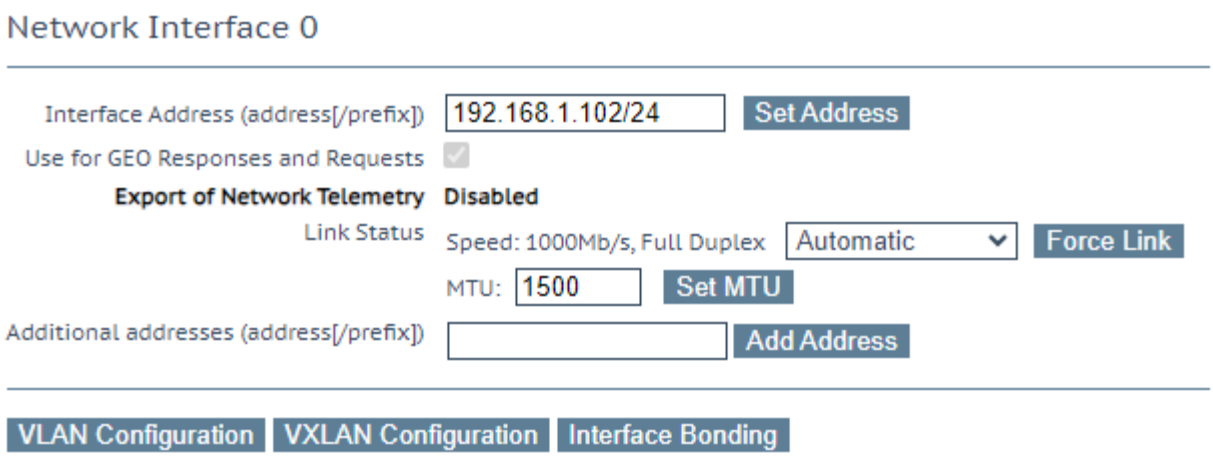
6. Click **Continue**.




7. The login screen appears. Enter the **bal** user name and the password.
8. In the screen informing you that the password has changed, click **Continue**.
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 **Set Address**.
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.

    **Note:** You cannot have two interfaces on the same subnet.

18. Click **Set Address**.

    This interface is optional, depending on the network configuration.

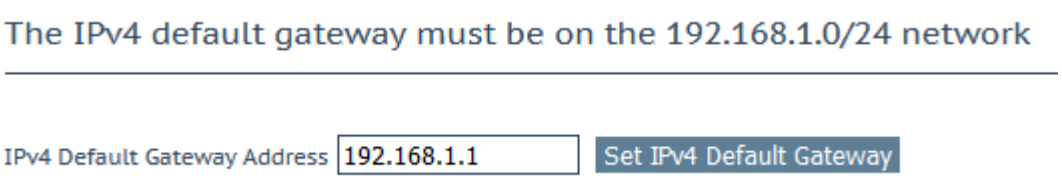
19. Go to **System Configuration > Network Setup > Host & DNS Configuration**.




20. In the **Hostname configuration** screen, enter the hostname in the **Current Hostname** field.
21. Click **Set Hostname**.
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) that is used to resolve names locally on the LoadMaster into the **DNS NameServer** input field.
24. Click **Add**.
25. Enter the domain name to be prepended to requests to the DNS nameserver into the **DNS NameServer** field.
26. Click **Add**.
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, enter the value in the **IPv6 Default Gateway Address** field.

29. Click **Set IPv4 Default Gateway**.

The LoadMaster is now fully installed and ready to be used.

For further information on how to configure and implement the Virtual LoadMaster, refer to the: LoadMaster documentation.

# 3

# Troubleshooting

Refer to the following sections for troubleshooting details.

**Contents**


- NIC Types Cannot Be Mixed
- Make this VM Highly Available Option is Greyed Out
- Factory Reset
- Status of Degraded (Integration Services Upgrade Required)
- Time Drift


## NIC Types Cannot Be Mixed

If you add new network adapters to the Virtual Machine (VM) then they must be the same adapter type as those already configured on the VM.

If you install a network adapters with a different adapter type as those already configured on the VM, the VM will not recognize the new interface.

## Make this VM Highly Available Option is Greyed Out

There is an option in the Virtual Machine Manager called **Make this VM highly available**. This option is set when the Virtual Machine is placed on a host. Therefore, the option will be grayed out, even when the Virtual

Machine is not running. There is a way to work around this problem without having to delete and re-create the Virtual Machine. The Virtual Machine can be migrated. Follow the steps below to do this:

1. Open the Virtual Machine Manager console.
2. Right-click the relevant Virtual Machine that you want to make highly-available and select **Migrate**.
3. Select the current host from the list for migration.
4. Click **Yes** to the prompt asking if you want to make the Virtual Machine highly available.
5. The path can be changed if needed. Click **Next**.
6. Select the network and click **Move**.
7. Wait for the migration to complete.

# Factory Reset

If you perform a factory reset on the VLM, all configuration data, including the IP address of the Virtual Machine (VM) is deleted. During the subsequent reboot, the VM attempts to obtain an IP address using DHCP. If the VM 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 Virtual LoadMaster (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 Using the Console section.

# Status of Degraded (Integration Services Upgrade Required)

| Adapter | Connection | IP Addresses | Status |
|---|---|---|---|
| Network Adapter (Static MAC: 00:15:5D:01:C8:ED) | MGMTLan | | Degraded (Integration services upgrade required) |
| Legacy Network Adapter (Dynamic MAC: 00:15:5D:01:3E:82) | STD-VMLan | | OK (Emulated) |

This is a warning message indicating that the LoadMaster software is too old to run on it and can be ignored. Integration services are used when booting to enable Hyper-V to see that the LoadMaster is running. After this point, it is no longer used.

# Time Drift

In some cases, Virtual LoadMasters (VLMs) on Hyper-V using Network Time Protocol (NTP) can experience significant time drift. The load that the host server is under may be a significant factor in the magnitude of the time drift. This can lead to split brain scenarios and unnecessary High Availability (HA) fail-overs. If the VLM is using NTP, consider disabling the **Time synchronization** option under the **Integration Services** section of the **Management** settings in the Hyper-V Manager.

# 4

# 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

# 5

# References

The below document can be found at https://docs.progress.com/.

**Licensing, Feature Description**