Progress®
Kemp® LoadMaster®

Installation Guide XEN Fully Virtualized

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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 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 Progress Kemp:

- Progress Kemp supports the version available from xenproject.org (note that the URL xen.org redirects to this website)
- Progress 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
- 4 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.

Note: 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.

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 Progress Kemp Support.

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Installing Virtual LoadMaster (VLM) on a Xen Environment

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

Contents

- Download the Xen, Fully-Virtualized, Files
- Deploy the LoadMaster
- Check the Virtual Machine Settings
- LoadMaster IP Address
- License and Configure the LoadMaster

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 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 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**

Deploy the LoadMaster

We recommend 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.

   Note: 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.

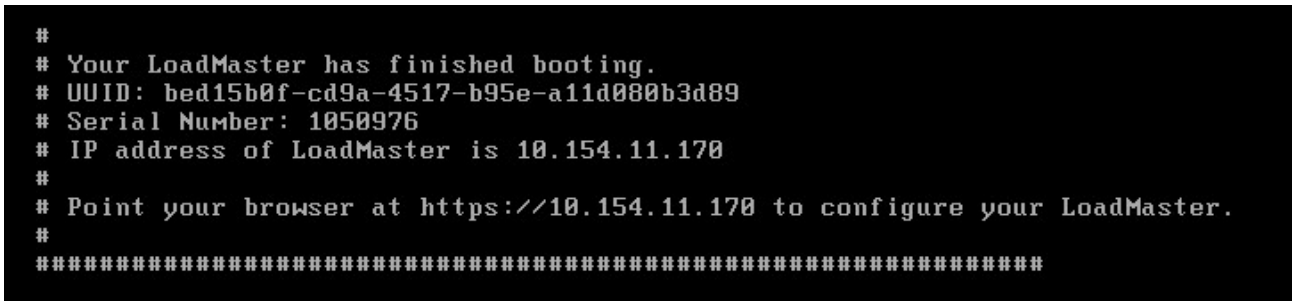
22. Expand the **Advanced Options** section.
23. Select **Virtio** as the **Disk bus**.
24. Click the **NIC** option on the left.
25. Click **Yes** to apply the changes.
26. Select **virtio** as the **Device model**.
27. Change any other settings as needed.
28. Click **Apply**.
29. Click **Begin Installation**.

Check the Virtual Machine Settings

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

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

LoadMaster IP Address



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 via the Console section for instructions on how to manually set the IP address.

License and Configure the LoadMaster

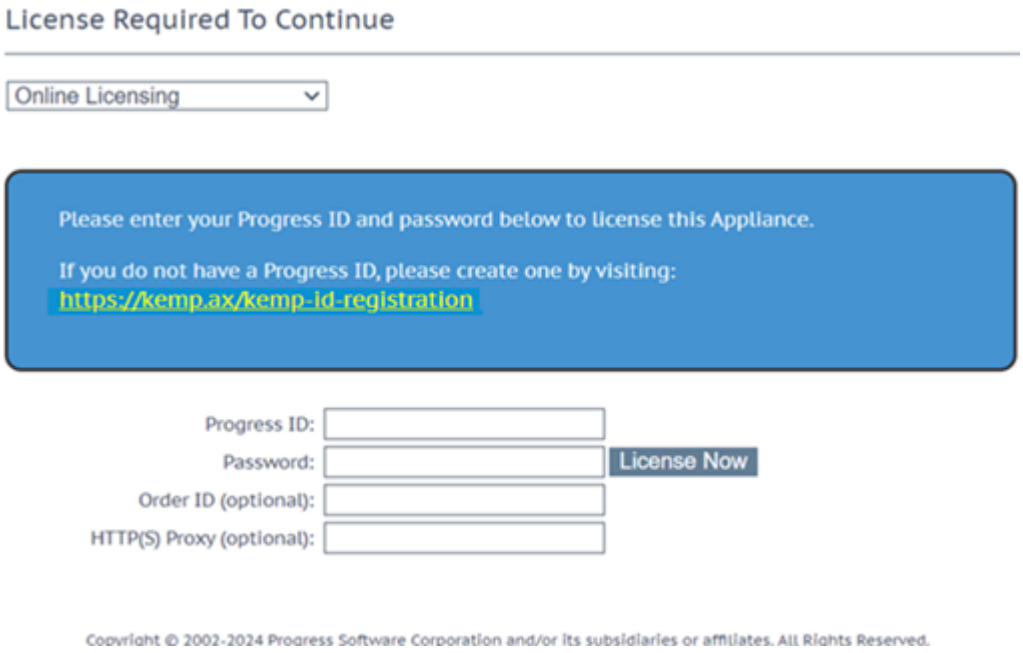
You must now configure the LoadMaster to operate within the network configuration.

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.

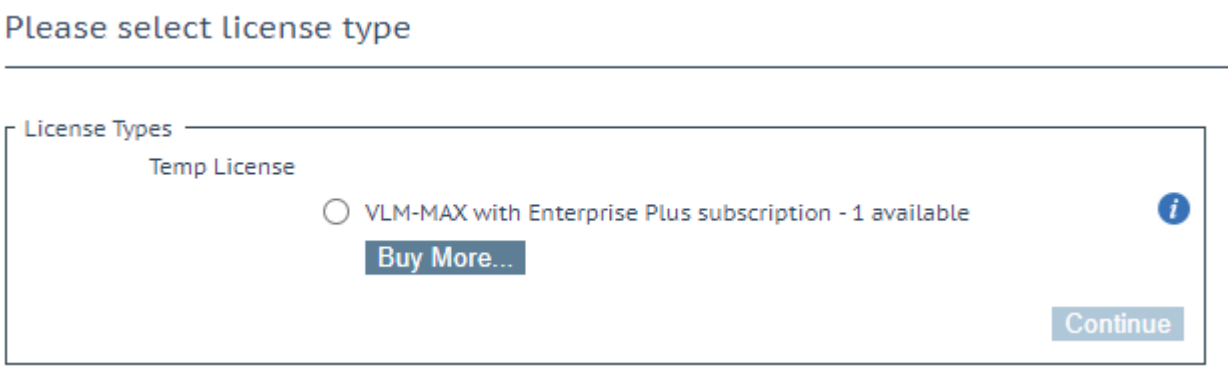


4. If using the **Online** licensing method, fill out the fields and click **License Now**.

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**.

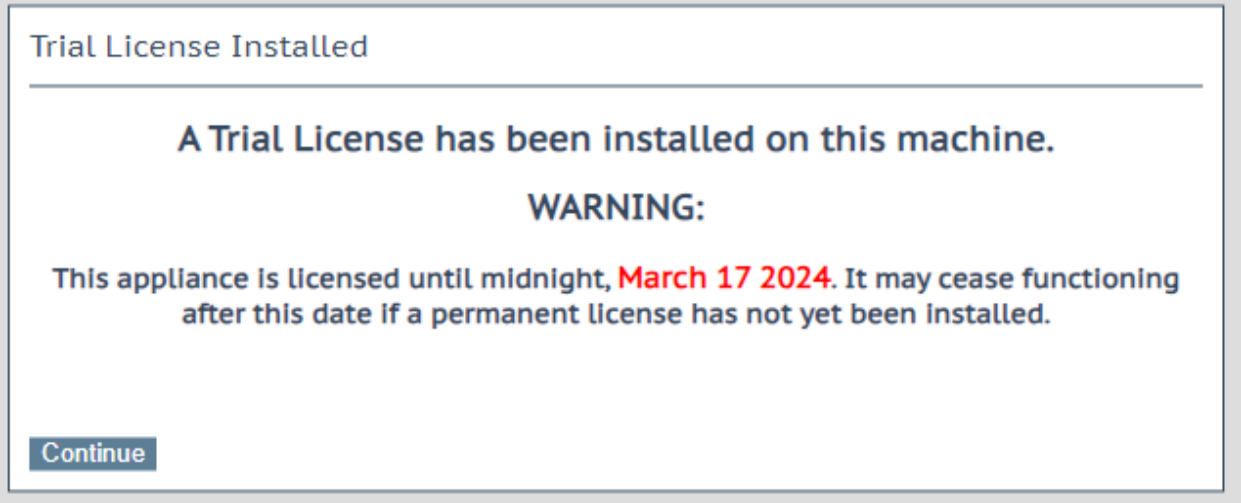
Note: For detailed instructions on how to register for a Progress ID (formerly Kemp ID) and license the LoadMaster, refer to the **Licensing, Feature Description** on the Documentation Page.



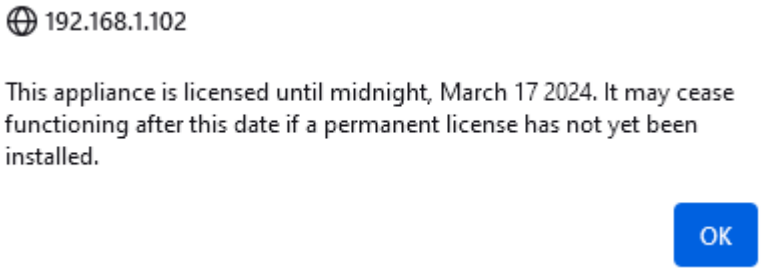
5. If you entered an **Order ID**, a screen appears that provides a list of available licenses for that order ID, in addition to any licenses registered for the Progress ID based on the LoadMaster platform type. Select the license type you want to apply to this LoadMaster.

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

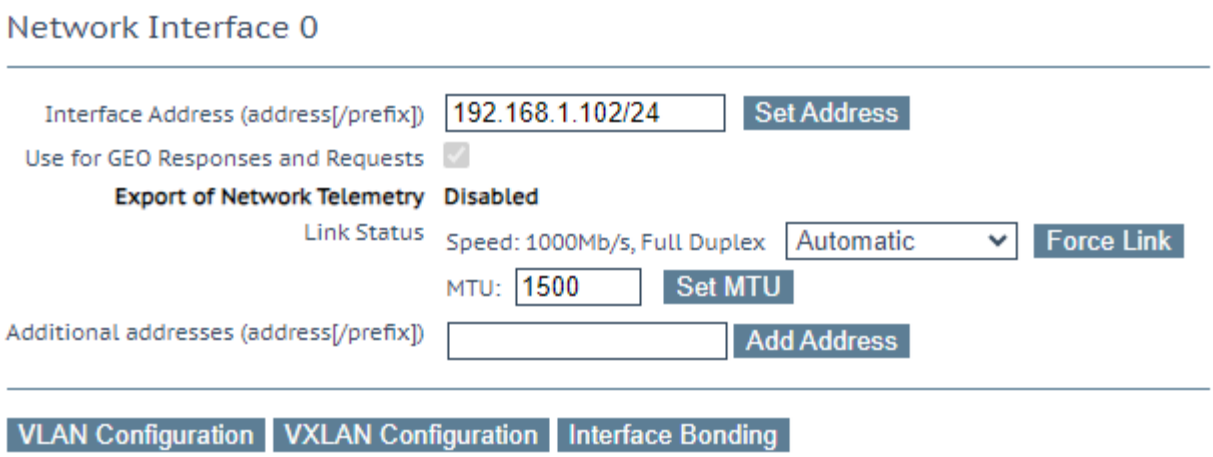
6. Click **Continue**.



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.
18. Click **Set Address**.

    This interface is optional, depending on the network configuration.

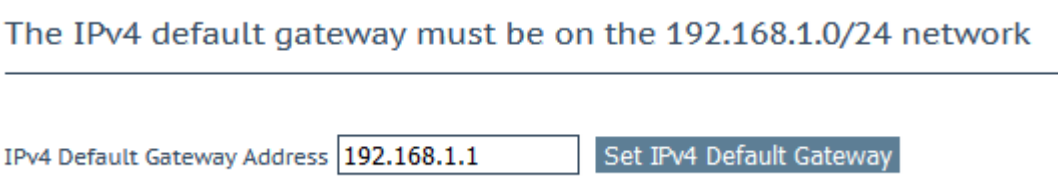
19. Go to **System Configuration > Network Setup > Host & DNS Configuration**.



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.

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Troubleshooting and Notes

Refer to the following sections for troubleshooting details.

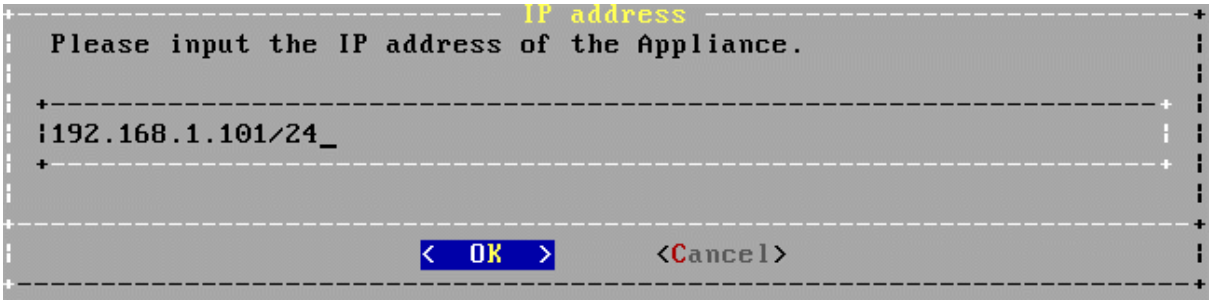
Contents

- Configuring the LoadMaster Using the Console
- Factory Reset
- Items of Note

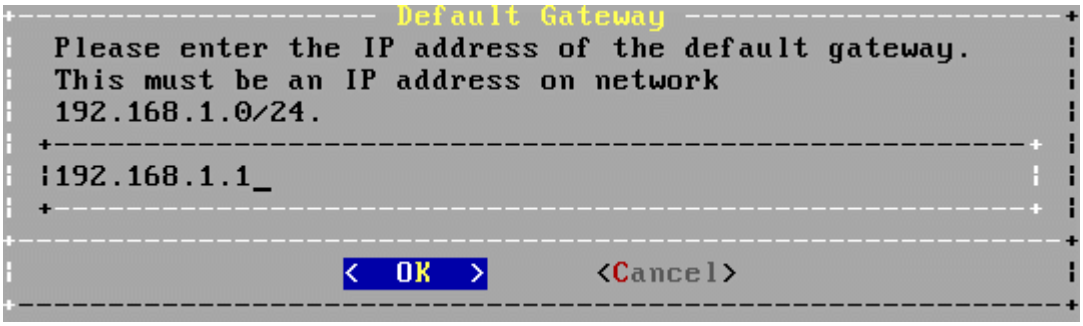
Configuring the LoadMaster Using the Console

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 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



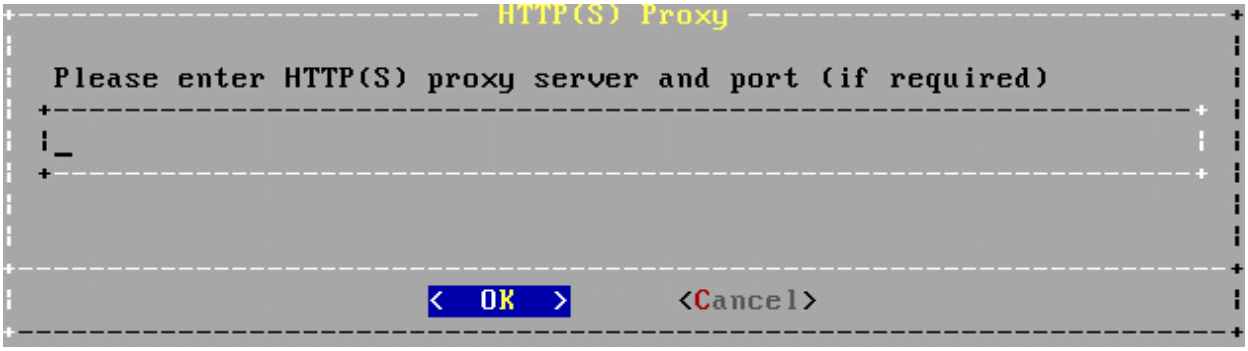
2. Enter the IP address of the eth0 interface, the network facing interface of the LoadMaster, in the input field within the **IP address** dialog box.
3. Press **OK**.



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.

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

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, please refer to the which can be found here: LoadMaster documentation.

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.

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

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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

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References

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

Licensing, Feature Description