



# LoadRunner

Software Version: 12.56

## Installation Guide

Go to **HELP CENTER ONLINE**

<http://admhelp.microfocus.com/lr/>

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# Welcome to LoadRunner

Welcome to the LoadRunner Installation Guide.

LoadRunner, a tool for performance testing, stresses your application to isolate and identify potential client, network, and server bottlenecks.

This guide describes how to install and set up LoadRunner.

## LoadRunner Help Center

For context sensitive help within the LoadRunner products, click F1 within a dialog box or use the Help menu.

You can access the LoadRunner Help Center on the Web (<https://admhelp.microfocus.com/lr/>), or use the locally installed Help Center. To switch between online and local modes, select **Help > Help Center Options > Open Online** or **Open Locally**.

### Note:

- To view the Help Center in Internet Explorer or within VuGen, you need to enable JavaScript (Active scripting) in your browser settings (**Tools > Options > Security > Internet > Custom Level**).
- If the online Help Center is unavailable at the start of a LoadRunner application session, the **Open Online** option may be disabled during the whole session with that application.

## Accessing PDF Files

To access LoadRunner Help in PDF format:

- In Windows operating systems prior to Windows 8: After installing LoadRunner, click **Start > All Programs > HPE Software > HPE LoadRunner > Documentation** and select the relevant document.
- In icon-based desktops such as Windows 8, search for **Guide** and select the appropriate user guide.

## Useful Links

The following online resources provide more information for LoadRunner users:

Resource	URL
Help Center	<a href="#">LoadRunner Help Center</a> (select the relevant version)
Software Site	<a href="https://www.microfocus.com/">https://www.microfocus.com/</a>
Software Support	<a href="https://software.microfocus.com/en-us/software/customer-technical-support-services">https://software.microfocus.com/en-us/software/customer-technical-support-services</a>

Resource	URL
<b>Knowledge Base and Manuals Library</b>	<a href="https://softwaresupport.softwaregrp.com/group/softwaresupport/">https://softwaresupport.softwaregrp.com/group/softwaresupport/</a> <b>Note:</b> Requires a Micro Focus Software Passport.
<b>Community Forums</b>	<a href="https://community.softwaregrp.com/t5/LoadRunner-Performance-Center/ct-p/sws-LoadRunner">https://community.softwaregrp.com/t5/LoadRunner-Performance-Center/ct-p/sws-LoadRunner</a>
<b>Blogs</b>	<a href="https://community.softwaregrp.com/t5/LoadRunner-and-Performance/bg-p/sws-585#.WkNITt-WZaQ">https://community.softwaregrp.com/t5/LoadRunner-and-Performance/bg-p/sws-585#.WkNITt-WZaQ</a>
<b>Resources Site</b>	<a href="https://software.microfocus.com/en-us/resources/loadrunner">https://software.microfocus.com/en-us/resources/loadrunner</a>
<b>Integrations and Solutions</b>	<a href="https://community.softwaregrp.com/">https://community.softwaregrp.com/</a>
<b>Twitter</b>	<a href="https://twitter.com/hashtag/Loadrunner">https://twitter.com/hashtag/Loadrunner</a>
<b>LinkedIn</b>	<a href="https://www.linkedin.com/groups/1879289">https://www.linkedin.com/groups/1879289</a>
<b>Facebook</b>	<a href="https://www.facebook.com/groups/MFLoadRunner/">https://www.facebook.com/groups/MFLoadRunner/</a>

## LoadRunner Components

The LoadRunner **full** installation includes the following components:

- **Virtual User Generator (VuGen).** LoadRunner's tool for creating virtual user (Vuser) scripts, primarily through recording. Vuser scripts emulate users without a graphical user interface by using direct function calls.
- **Controller.** Controls the execution of scenarios and Vusers. Includes the online monitors which monitor and display information about the test execution. The Controller must be installed on the computer used to control the Vusers.
- **Analysis.** Graphs and reports for analyzing the load test.
- **Load Generator.** Component for running Vusers (including Windows-based GUI Vusers) to generate load.
- **MI Listener Component.** Component for the MI Listener machine used in running Vusers and monitoring over the firewall. For more information, refer to the "Working with Firewalls in LoadRunner" in the [LoadRunner Help Center](#) (select the relevant version).
- **Monitors over Firewall.** Component on the agent machine for monitoring over the firewall. For more information, refer to "Working with Firewalls in LoadRunner" in the [LoadRunner Help Center](#) (select the relevant version).
- **TruClient.** Component for recording and developing test scripts for Web-based applications. For more information, see the [TruClient Help Center](#) (select the relevant version).

All of the standalone installations (for example, for VuGen or the load generator) can be found in the LoadRunner installation package's **Standalone Applications** folder.

All of the additional components (such as the Citrix Agent and so forth) can be found in the installation package's **Additional Components** folder.

## Help Improve VuGen

You can help us improve the quality, reliability, and performance of VuGen by participating in the VuGen improvement program. When you join the program, VuGen collects anonymous information about your software and hardware configuration, and about how you use VuGen.

VuGen does not collect any personally identifiable information, or any information about your company environment or the code of your scripts.

You can join the program by selecting the **Participate in VuGen improvement program** check box included in the initial LoadRunner or VuGen Setup window, displayed at the beginning of installation.

You can also join or leave the improvement program from within VuGen. Select **Tools > Options > General > Usage Data Collector**.

# Chapter 1: System Requirements

This chapter includes:

- [LoadRunner System Requirements](#) ..... 8
- [Prerequisite Software for Installation on Windows](#) ..... 8
  - [Automatically detected and installed by LoadRunner installer](#) ..... 8
  - [Manual installation for Windows updates](#) ..... 9
- [Installation Notes and Limitations](#) ..... 9

## LoadRunner System Requirements

The system requirements necessary for running LoadRunner on a Windows system, or for running a load generator on a Windows or Linux system, are listed in the [System Requirements](#).

System requirements for other related components:

- **HPE Diagnostics:** For system requirements, see HPE Diagnostics System Requirements at <https://softwaresupport.softwaregrp.com/km/KM02816022>.
- **HPE Network Virtualization:** For system requirements and installation instructions, see the [Network Virtualization for LoadRunner and Performance Center Help](#) (select the relevant version) or the Network Virtualization installation guide in the **<LoadRunner installation package>\Additional Components\HPE NV** folder. You can install Network Virtualization during the LoadRunner installation, or at a later time.

## Prerequisite Software for Installation on Windows

Before installing LoadRunner, make sure the prerequisite software is installed on the LoadRunner machine. Some of the prerequisite software is detected manually by the installer; other prerequisite software must be installed manually.

- ["Automatically detected and installed by LoadRunner installer" below](#)
- ["Manual installation for Windows updates" on the next page](#)

## Automatically detected and installed by LoadRunner installer

When you run the LoadRunner installation wizard, the wizard detects which prerequisite software is already installed on the machine and which software is missing. When you continue with the installation, all missing prerequisite software is installed.

The following prerequisite software must be installed:

- Microsoft Windows Installer 3.1
- Windows Imaging Component. This is a prerequisite for .NET Framework 4.0
- .NET Framework 4.6.2



- Microsoft Core XML Services (MSXML) 6.0
- Microsoft Visual C++ 2010 Redistributable Package - x86 only
- Microsoft Visual C++ 2012 Redistributable Package - x86 and x64
- Microsoft Visual C++ 2013 Redistributable Package - x86 and x64
- Microsoft Visual C++ 2015 Redistributable Package - x86 and x64
- Microsoft Data Access Components (MDAC) 2.8 SP1 (or later)

## Manual installation for Windows updates

Before installing any of the LoadRunner components, make sure that the full set of Windows updates has been installed. If not, you must install them manually.

**Note:** Before installing any of the Windows updates, disable UAC (User Account Control) and restart the computer. For details on how to disable UAC, see the [Microsoft Windows documentation](#).

You can find the list of Windows updates in the [System Requirements](#).

## Installation Notes and Limitations

**Note:** See the LoadRunner Readme for additional notes and limitations.

### Permission requirements:

The Installation process, for all components, requires a full administrator account (root account for Linux systems) for all operating systems.

After installation, all of the LoadRunner applications and components can run under a standard user account (an administrator account is not required), with UAC and DEP enabled.

### Coloring output messages:

VuGen uses SQL CE for coloring output messages, which requires Microsoft.VC90.CRT (9.0.30729) to be installed on the machine.

This can be found in Microsoft Visual C++ 2008 Service Pack 1 Redistributable Package.

To use this functionality, [Microsoft Visual C++ 2008 Service Pack 1 Redistributable Package MFC Security Update](#) must be manually installed on the LoadRunner machine before installing LoadRunner.

## Running Web Services Vusers on Windows

If you are installing a standalone load generator on a Windows 8.1 or Windows 2012 (R2) machine, and you intend to run Web Services Vusers, .NET 3.5 must be turned on, and WSE 2.0 SP3 and WSE 3.0 must be installed.

1. Turn on .NET 3.5 Windows. (See [MSDN](#) for details.)
2. Install the WSE components from the LoadRunner installation package's folders—**lrunner\Common\wse20sp3** and **lrunner\Common\wse30**—or download these components from the Internet:

WSE 2.0 SP3: <https://www.microsoft.com/en-us/download/details.aspx?id=23689>

WSE 3.0: <https://www.microsoft.com/en-us/download/details.aspx?id=14089>

## LoadRunner and UFT coexistence

If you install LoadRunner and UFT on the same machine, and then uninstall one of them, the remaining software program may not function correctly.

**Resolution:** Run a Repair of the software program you want to use on the machine.

## Virtual environments

The architectures provided by virtualization vendors are rapidly evolving. LoadRunner is expected to function as designed in these changing environments, as long as the third-party vendor guarantees full compatibility of the virtualized environment with the LoadRunner-approved hardware requirements. If you follow LoadRunner system requirements and support matrix to create the virtual machine, LoadRunner will work correctly.

Working on top of a virtual machine may require access to the virtualization server hardware/monitoring environment, to ensure the virtualization server is not saturated; otherwise, this might obscure the virtual machine's measurements and lead to false results.

# Chapter 2: Installing LoadRunner on Windows

This chapter describes how to install either the full version of LoadRunner or a LoadRunner component, on a Windows platform.

This chapter includes:

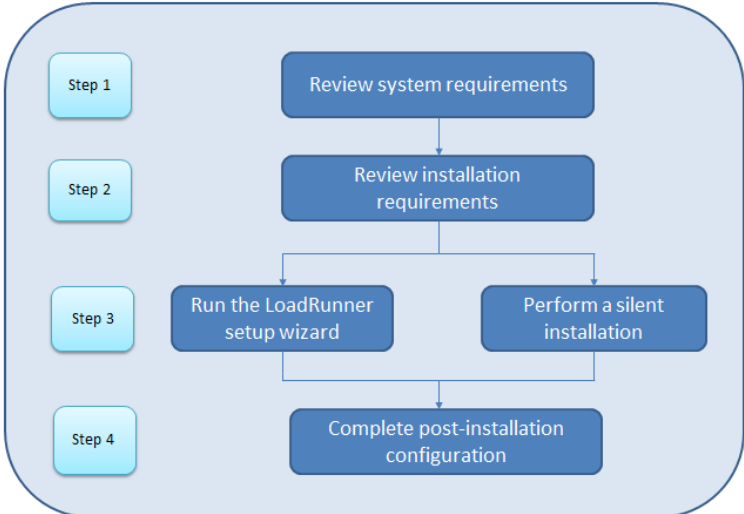
- [Installation Workflow](#) ..... 11
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- [Install a LoadRunner Language Pack](#) ..... 21

## Installation Workflow

Your LoadRunner installation package includes a setup wizard that guides you through the process of installing the LoadRunner components.

The final stage of the installation includes the optional installation of Network Virtualization. Installing Network Virtualization enables you to generate the NV Insights report (replaces the NV Analytics report) from LoadRunner. The NV Insights report provides an in-depth analysis of how your application performs with different loads over various types of networks (virtual locations) and includes suggestions for optimizing your application's performance.

Installing LoadRunner on a Windows system involves the steps shown below:



### 1. Review system requirements

Before you install LoadRunner, make sure that your system meets the hardware and software requirements. For details, see ["LoadRunner System Requirements" on page 8](#).

**Prerequisite software:** When you run the LoadRunner installation wizard, the wizard detects which prerequisite software is already installed on the machine and which software is missing. When you continue with the installation, all missing prerequisite software is installed. For details, see ["Prerequisite Software for Installation on Windows" on page 8](#).

### 2. Review installation requirements

Before you begin the installation, make sure you meet the following installation requirements:

- You must have full local administrative rights on the designated machine.
- Installation must be performed at the destination machine. LoadRunner does not support installation via terminal service.
- For the full list of components that can be installed on the same physical machine at the same time, see the [System Requirements](#).

**Note:** It is recommended that you close all anti-virus applications, such as McAfee or Aladdin's eSafe, before installing LoadRunner.

### 3. Perform the installation

- a. If you were working with a previous version of LoadRunner, review the upgrade instructions. For details, see ["Upgrade to LoadRunner 12.56" below](#).
- b. Run the setup wizard to install the full version of LoadRunner, LoadRunner standalone components, or additional components on a Windows system. For details, see ["Install LoadRunner on Windows" on the next page](#).  
To perform a silent installation, see ["Install LoadRunner Silently" on page 17](#).
- c. After you complete the LoadRunner installation, you can install a localized version to view the LoadRunner, VuGen Standalone, and Analysis Standalone user interface in your local language. For details, see ["Install a LoadRunner Language Pack" on page 21](#).

### 4. Complete post-installation configuration

- Configure LoadRunner to run Vusers on a load generator machine, without the need to log on manually. For details, see ["Configure User Login Settings" on page 21](#).
- Manage LoadRunner licenses. For details, see ["Managing Licenses" on page 43](#).

## Upgrade to LoadRunner 12.56

The upgrade process varies depending on your installed version of LoadRunner.

- ["Upgrading from LoadRunner 11.00 or later" on the next page](#)
- ["Upgrading from a LoadRunner version earlier than 11.00" on the next page](#)

## Upgrading from LoadRunner 11.00 or later

Install LoadRunner 12.56 as described in "[Install LoadRunner on Windows](#)" below. The installation process detects the older version, and gives you the option to upgrade or exit the installation.

**Note:** If you used custom certificates in your previous installation of LoadRunner, install them again when prompted for certificates during setup. Otherwise, the setup program will overwrite them using the defaults.

## Upgrading from a LoadRunner version earlier than 11.00

1. Uninstall LoadRunner.

To uninstall LoadRunner, use the Windows Add/Remove Programs utility. Alternatively, you can run the **setup.exe** file located in the root directory of the LoadRunner installation package, select **LoadRunner Full Setup**, and then select the **Remove** option in the setup wizard.

2. Install LoadRunner 12.56.

For details, see "[Install LoadRunner on Windows](#)" below.

## Install LoadRunner on Windows

This section describes how to install LoadRunner on Windows using the setup wizard.

For details on how to perform a silent installation, see "[Install LoadRunner Silently](#)" on page 17.

## Installation Wizard Information

Review the following information to help you successfully install your LoadRunner component.

- During installation, you can select the **Start LoadRunner Agent after installation** option, which starts the LoadRunner Agent on the load generator immediately after installation. The Agent enables communication between the load generator and the Controller. For more details on the LoadRunner Agent, see the *LoadRunner User Guide*.
- During the installation of **Load Generator** standalone, **MI Listener**, or **Monitors over Firewall** components, the setup wizard prompts you to select whether you want the installed agent to run in LoadRunner mode or Performance Center mode. The differences are as follows:

LoadRunner mode	Performance Center mode
The agent runs as a regular process.	The agent runs as a service under a special account named <b>IUSR_METRO</b> . This is a local Windows account, created during the installation process in Performance Center mode. (Some additional Performance Center configuration is also added on the Load Generator standalone machine.)

LoadRunner mode	Performance Center mode
You must log in to the computer before the process can start.	As a service, the agent is launched automatically when the operating system starts.

- If you are installing Load Generator standalone for use with Business Process Monitoring (BPM), select LoadRunner mode unless you have a specific requirement to run the agent as a service.
- In LoadRunner/BPM mode you can delete the IUSR\_METRO account using the Windows **Local Users and Groups** console. Deleting IUSR\_METRO in LoadRunner/BPM mode will not affect functionality.
- In Performance Center mode, you can delete the IUSR\_METRO account only if the Performance Center system user was configured to a different Windows account; otherwise the host will not function correctly.
- During installation of LoadRunner **Full Setup, Load Generator, Monitor over Firewall, and MI Listener**, you can optionally install CA and SSL certificates for LoadRunner by selecting the **Specify a certificate that will be used by the LoadRunner Agent** option. These certificates are used for authentication and secure communication respectively. Both certificates should be in \*.cer (X.509) format.
  - For a CA certificate: You can enter the path to an existing certificate, or leave blank to skip the step. If you want to install the CA certificate, it should be generated in advance.
  - For an SSL certificate: You can select it from an existing certificate file. Alternatively, it can be generated automatically if you provide the CA certificate containing the private key.

For details on generating a CA certificate, see “How to Create and Use Digital Certificates” in the *LoadRunner User Guide*.

For more information on working with certificates in LoadRunner, see the "Authentication Settings" documentation in the *LoadRunner User Guide*.

## Running the Installation

The following procedure guides you through the Windows installation process.

### To install LoadRunner or an additional component:

1. Before installing:
  - Review the pre-installation information, including the system requirements and prerequisite software, described in ["System Requirements" on page 8](#).
  - If you plan to install Network Virtualization, make sure that your system meets the requirements, as described in the [Network Virtualization for LoadRunner and Performance Center Help](#) (select the relevant version), or in the NV installation guide which can be downloaded from the **\Additional Components\HPE NV** folder of your LoadRunner installation package. (You can install Network Virtualization during the LoadRunner installation, or at a later time.)

- **Note:** If you install Network Virtualization as part of the LoadRunner Windows installation, you may need to restart the machine after setup.

- Make sure you have full, local administrative rights on the designated machine.
  - Make sure the Windows Update process is not running.
2. Perform the following on the installation machine:
    - Uninstall any previous Shunra version.
    - Disable UAC (User Account Control) - for details, refer to your Microsoft Windows documentation.

Then reboot the machine. (Installation may fail if this is not done.)

3. To prevent DEP (Data Execution Prevention) from interfering with the installation, enable it for essential Windows programs and services only.

For details on how to change DEP settings, refer to your Microsoft Windows documentation.

4. Run the **setup.exe** file in the root folder of the installation package.

The LoadRunner installation program begins and displays the installation options.

5. Select the required installation option.

From the installation menu page, select one of the following installation options:

- **LoadRunner Full Setup.** Installs the main LoadRunner components, including Controller, Virtual User Generator (VuGen), Analysis, Load Generator, and TruClient. Use this option for the machine that runs the load testing scenarios.

**Note:** The LoadRunner Setup wizard can install either LoadRunner or Performance Center. Make sure to select **LoadRunner**.

For details on the components that are included in the full installation, see "[LoadRunner Components](#)" on page 6.

- **VuGen.** Installs a standalone version of VuGen (includes TruClient).
- **Analysis.** Installs a standalone version of LoadRunner Analysis.
- **Load Generator.** Installs the components needed for running Vusers to generate load. Use this option for machines that are used to generate load only, and not to control Vusers.
- **Monitors Over Firewall.** Installs the components on the agent machine for monitoring over the firewall. For more information, refer to the "Working with Firewalls in LoadRunner" chapter in the *LoadRunner User Guide*.
- **MI Listener.** Installs the components needed on the MI Listener machine used in running Vusers over a firewall and monitoring over a firewall. For more information, refer to the "Working with Firewalls in LoadRunner" chapter in the *LoadRunner User Guide*.
- **TruClient.** Installs the standalone TruClient application for recording and developing test scripts for Web-based applications.

**Note:** If you install the TruClient standalone on a machine, you cannot install any of the other LoadRunner components, except for the standalone Analysis.

To use TruClient on a LoadRunner machine, install the LoadRunner full setup, which includes the TruClient component.

- **Language Packs.** This option is available only when installing on native non-English operating systems. Enables you to install a patch for localized LoadRunner user interface, on top of the English version. For details, see ["Install a LoadRunner Language Pack" on page 21](#).
  - **Additional Components.** Opens the Additional Components folder located in the root folder of the installation package. For details of the additional components that you can install, see the **Advanced Topics > Additional Components** section in the [LoadRunner Help Center](#) (select the relevant version) .
6. Specific software, for example, Microsoft Visual C++, needs to be installed before you can install LoadRunner. If the prerequisite software is not already installed on your computer, a dialog box opens displaying the list of prerequisite programs that are required.

Click **OK** to install the listed software before continuing with the LoadRunner installation. If you click **Cancel**, the LoadRunner setup wizard exits because LoadRunner cannot be installed without the prerequisite software.

**Note:** For the full list of prerequisite software, see ["Prerequisite Software for Installation on Windows" on page 8](#).

7. Perform the installation.

The LoadRunner Setup Wizard opens, displaying the Welcome page.

Follow the instructions in the wizard to complete the installation. Check the information in ["Installation Wizard Information" on page 13](#) to ensure a successful installation.

**Note:** The installation path for LoadRunner or LoadRunner components cannot contain non-English characters.

8. After the installation is complete, you can choose to install Network Virtualization (NV).

In the setup wizard, select

- **Typical mode** for an automatic installation.
- **Custom mode** to change the installation folder, data folder, and the port.

For more details, see the installation section of the [Network Virtualization for LoadRunner and Performance Center Help](#) (select the relevant version), or see the NV installation guide which can be downloaded from the **\Additional Components\HPE NV** folder of your LoadRunner installation package.



**Note:**

- To repair the installation, run the setup.exe file located in the root directory of the LoadRunner installation package, select **LoadRunner Full Setup**, and then select the **Repair** option in the setup wizard.
- You can configure LoadRunner to run Vusers on a load generator machine without the need for the user to manually log in to the machine. For more information, see ["Configure User Login Settings" on page 21](#).
- For a list of the components that were registered during setup, such as **DLL** and **OCX** files, see the **RegisteredComponents\_HPE LoadRunner.txt** file in the **build\_info** folder of the installation.

## Install LoadRunner Silently

A *silent installation* is an installation that is performed without the need for user interaction. You use the command line to run the setup files. For details, see ["Installation Command Line Options" on the next page](#).

**Note:** Before you install LoadRunner, review the pre-installation information, including the system requirements and prerequisite software, described in ["System Requirements" on page 8](#).

To perform a silent installation of LoadRunner, run one of the following commands from the command line:

- To install all of the LoadRunner components including the prerequisite software in a single command:

```
<Installation_disk>\lrunner\<<your_language_folder>\setup.exe /s
```

- To first install all of the prerequisites, and then LoadRunner, run the following commands:

```
<Installation_disk>\lrunner\<<language_folder>\setup.exe /InstallOnlyPrerequisite /s
```

```
msiexec.exe /qn /i "<Installation_disk>\lrunner\MSI\LoadRunner_x64.msi"
```

- By default, HPE Network Virtualization (NV) is installed during the LoadRunner installation. To facilitate this installation add the following to the installation command:

```
REBOOT_IF_NEEDED=1
```

- To prevent the installation program from installing NV, add the following to the installation command:

```
INSTALL_NV=0
```

- To install a LoadRunner standalone application:

```
<Installation_disk>\Standalone Applications\Setup<component_name>.exe /s /a /s
```

- To install a LoadRunner additional component:

```
<Installation_disk>\Additional Components\<setup_file_path> /s /a /s
```

**Note:**

- All machines on which you install LoadRunner require administrator privileges.
- Use standard MSI command line options to define installation properties. For example, use INSTALLDIR to specify an alternate installation folder.
- To prevent the LoadRunner Agent on the load generator from starting immediately after installation, add the following to the command line command: START\_LGA=0. The Agent enables communication between the load generator and Controller. For more details on the LoadRunner Agent, see the [LoadRunner Help Center](#) (select the relevant version).

## Installation Command Line Options

You can use the Windows command line to install the full LoadRunner package, standalone applications, and Additional Components using the Wrapper file (Setup.exe) and "Package for the Web" files (<PFTW>.exe).

- The full LoadRunner installation can be launched using the Setup.exe file.
- The installations of standalone applications and additional components can be launched via PFTW files.

### Installing the full LoadRunner package from the Wrapper file

You can install the full LoadRunner package from the installation wrapper file, **Setup.exe**, located in \runner\<<your\_language> folder of your LoadRunner installation package. The following command line options are available:

Option	Description
/s	Runs the installation in the background (silently), with no user interaction.
/qb	Runs the installation in unattended mode, with limited user interaction.

Option	Description
/InstallOnlyPrerequisite	<p>Installs only the prerequisites – does not install any LoadRunner components.</p> <p>By default, the setup program checks that your machine has the required prerequisites, and installs them if necessary, before installing the LoadRunner components.</p>

You can set public properties for the command line installation, using the following syntax:

```
setup.exe PROPERTY_NAME="value"
```

The following properties are available:

Property name	Description
INSTALLDIR=" <i>your_path</i> "	Specifies the location where the application will be installed.
REBOOT_IF_NEEDED	<p>1: Reboots the machine after installation, if required. This is recommended if you include the installation of NV (Network Virtualization).</p> <p>0: Does not reboot the machine after installation.</p> <p>Default: 0</p>
INSTALL_NV	<p>Empty string: Excludes the installation of the NV (Network Virtualization) component.</p> <p>1: Includes the installation of the NV (Network Virtualization) component.</p> <p>Default: 1</p>
INSTALL_NV_MODE	<p>1: Sets the NV installation mode to <b>Typical</b>.</p> <p>2: Sets the NV installation mode to <b>Custom</b>.</p> <p>Default: Typical</p>
INSTALL_DIR=" <i>your_path</i> "	Specifies a path for the installation.

Property name	Description
START_LGA	Empty string: Instructs the machine not to start the Load Generator after installation.  1: Instructs the machine to start the Load Generator after installation.  Default: 1
IS_RUNAS_SERVICE	0: Runs the Load Generator's agent as a process.  1: Runs the Load Generator's agent as a service.  Default: 1

**Example:** The following command performs the installation silently and then reboots the machine if necessary:

```
DVD\lrunner\en\setup.exe /s REBOOT_IF_NEEDED="1"
```

## Installing a Standalone Application or an Additional Component from a PFTW file

You can install a LoadRunner standalone application or one of the additional components, via the PFTW (Package for the Web) files that are included with the LoadRunner installation media. The installation files are located under the **Standalone Applications** or **Additional Components** folders on the installation media. You can double-click on the packaged file or run it from the command line, using the following options:

Option	Description
/s	Runs the installation in the background (silently), with no user interaction.
/e	Only extracts the installation files; does not run them.
/f	Specifies the path of a temporary folder for file extraction.  For example: /f "c:\my_temp_folder"  If you leave out this option, the default temporary folder is used.
/a	Allows you to pass parameters or properties to the autorun file, such as setup.exe.  Use the properties defined above for the Setup.exe file.

**Example:** The following command silently runs a Load Generator () setup, installs the application in a specified folder, and then starts the Load Generator agent after the installation:

```
SetupLoadGenerator.exe /s /a INSTALLDIR="c:\HPE\LGSA" START_LGA="1"
```

## Configure User Login Settings

By default, you need to manually log on to a computer before LoadRunner can run Vusers on that computer. However, you can configure LoadRunner to run Vusers on a load generator machine without the need to manually log on to the machine.

### To configure user login settings:

1. Do one of the following:
  - Select **Start > All Programs > HPE Software > HPE LoadRunner > Tools > Agent Runtime Settings Configuration**.Or
  - In icon-based desktops such as Windows 8, search for **Agent** and select the **Agent Runtime Settings Configuration** item.The LoadRunner Agent Runtime Settings dialog box opens.
2. Select one of the following options:
  - **Allow virtual users to run on this machine without user login.** LoadRunner automatically logs on to the network from the load generator machine, so the Vusers can run without any manual intervention. Enter the network domain where the user machine resides, a user name, and password.

**Note:** When created, the LoadRunner Agent service starts with the **LocalSystem** account (not as a specified user). The specified credentials are used by the Agent service to start the *mdrv.exe* process when you run the script.

- **Manual log in to this machine.** The user must manually log on to the network from the load generator machine for each session of running Vusers.

3. Click **OK**.

**Note:** You must reboot and log on to the system at least once after the LoadRunner installation before the automatic login can work.

## Install a LoadRunner Language Pack

The LoadRunner language packs enable you to view the LoadRunner user interface in your local language. You install the language packs from the LoadRunner installation package, for the relevant LoadRunner component: LoadRunner full, VuGen standalone, or Analysis standalone.

For a list of supported languages, see the [System Requirements](#).

The language packs are supported for native non-English operating systems only.

**Important:** The native language of the operating system must be the same as the language pack you are installing. For example, the Spanish language pack must be installed on a machine with a

native Spanish operating system.

### To install a language pack:

1. Make sure that LoadRunner English is already installed.
2. In the root folder of the LoadRunner installation package, run **setup.exe**. The LoadRunner installation program begins and displays the installation options.
3. Click **Language Packs**. The Language Packs folder in the installation package opens.
4. Navigate to the folder for the language and component you want to install and run the installation file. For example, to install the French language pack on a Vugen standalone machine, the path is **..\Language Packs\French\VugenSA\Vugen\_FRA.msp**.  
Follow the on-line instructions.

# Chapter 3: Installing the Load Generator on Linux

LoadRunner uses load generators to run Vusers. There are two versions of the LoadRunner Load Generator. One version runs Vusers on Windows platforms, and the other version runs Vusers on Linux platforms. You use a Windows-based Controller to control both the Windows-based and the Linux-based Vusers.

This chapter describes how to install the Load Generator on a Linux platform. For details on how to install the Load Generator on a Windows platform, see ["Installing LoadRunner on Windows" on page 11](#).

**Note:** For troubleshooting information, see ["Troubleshoot the Load Generator Linux Installation" on page 37](#).

This chapter includes:

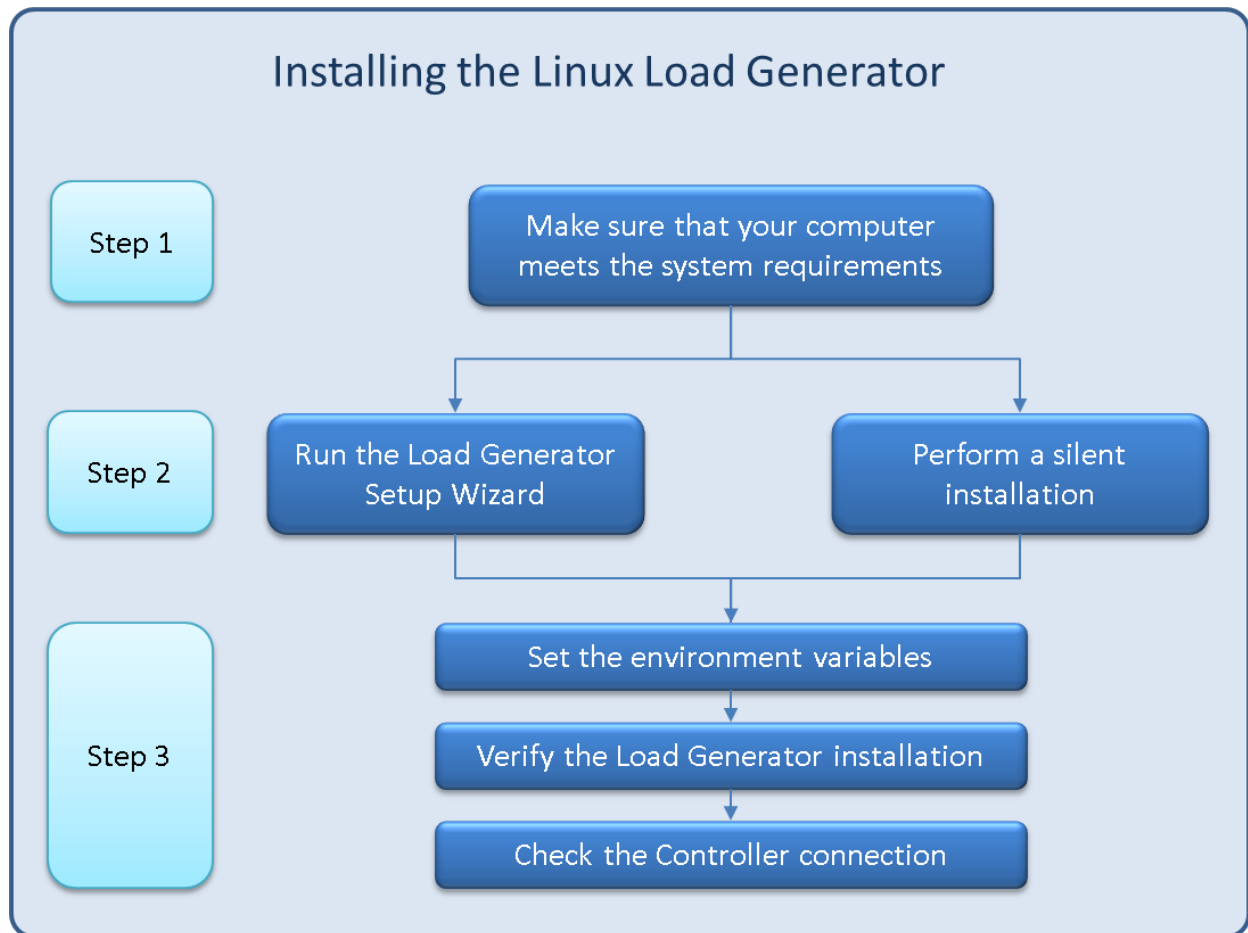
- [Installation Workflow](#) ..... 23
- [Install a Load Generator on Linux with the Setup Wizard](#) ..... 25
  - [Before you start](#) ..... 25
  - [Run the installation wizard](#) ..... 26
- [Silent Load Generator Installations on Linux](#) ..... 27
- [Configure the Linux Environment](#) ..... 27
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- [Install a Load Generator Using Docker](#) ..... 31
- [Improve Load Generator Performance](#) ..... 34
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  - [Increase Swap Space](#) ..... 36
- [Uninstall the Load Generator from a Linux Machine](#) ..... 36
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## Installation Workflow

You can install the LoadRunner load generator component on a Linux platform to run Vusers. The Linux-based Vusers interact with the LoadRunner Controller, installed on a Windows platform.

You can install the load generator on a Linux machine using the installer (UI based or silent) or through a Docker container.

The following diagram shows the primary steps in installing the load generator on a Linux platform using the standard installation program:



#### 1. Review the system requirements

Before you install the load generator on a Linux platform, make sure that your system meets the requirements, as described in "[System Requirements](#)" on page 8.

If you plan to install Network Virtualization, make sure that your system meets the requirements, as described in the [Network Virtualization for LoadRunner and Performance Center Help](#) (select the relevant version), or the NV installation guide in the **\Additional Components\HPE NV** folder of your LoadRunner installation package.

**Note:** To replay ODBC Protocol scripts on Linux machines, unixODBC v.2.3.1 or higher is required.

#### 2. Run the setup

**Note:**

- It is recommended that you close all anti-virus applications, such as McAfee or Aladdin's eSafe, before installing LoadRunner.



- If Load Generator version 12.55 or earlier is installed, you must first uninstall it. For details, see ["Uninstall Load Generator 12.55 or earlier" on page 36](#).

- **Wizard installation:** Start the setup using the Load Generator Setup Wizard. For more information, see ["Install a Load Generator on Linux with the Setup Wizard" below](#).
- **Silent installation:** To perform a silent installation, see ["Silent Load Generator Installations on Linux" on page 27](#).

### 3. Configure your environment

After the installation, before you can begin working with the load generator you need to configure your environment. This involves setting the appropriate environment variables, checking access to the load generator, and verifying the installation. See ["Configure the Linux Environment" on page 27](#).

## Install a Load Generator on Linux with the Setup Wizard

This section describes how to install the load generator on a Linux platform using the setup wizard..

### Note:

To perform the installation through a Docker container, see ["Install a Load Generator Using Docker" on page 31](#).

To perform a silent installation, see ["Silent Load Generator Installations on Linux" on page 27](#).

This section includes:

- ["Before you start" below](#)
- ["Run the installation wizard" on the next page](#)

## Before you start

- During installation, you can optionally install CA and SSL certificates for the load generator. These certificates are used for authentication and secure communication respectively. Both certificates should be in \*.cer (X.509) format.
  - For a CA certificate: You can enter the path to an existing certificate, or leave the path blank to skip the step. If you want to install the CA certificate, it should be generated in advance.
  - For an SSL certificate: You can select it from an existing certificate file. Alternatively, it can be generated automatically if you provide the CA certificate containing the private key.

For details on generating a CA certificate, see the section about creating and installing digital certificates in the *LoadRunner User Guide*.

For more information on working with certificates in LoadRunner, see the section about configuring client-server authentication in the *LoadRunner User Guide*.

## Run the installation wizard

### To install the load generator:

1. Switch to super user.
2. If Load Generator version 12.55 or earlier is installed on the machine, you must uninstall it manually. For details, see ["Uninstall Load Generator 12.55 or earlier" on page 36](#).

If you do not uninstall the load generator, you will get an error during the installation.



**Tip:** If Load Generator 12.56 is installed, the setup wizard uninstalls during the installation process, before reinstalling it.

3. Change directory to `/<path_to_installer_dvd>/load_generator_linux_x64/`.
4. Launch the setup wizard:

For:	Type:
[sh and bash shells]	source ./installer.sh
[csh and tcsh shells]	source ./installer.csh
If the source command is not supported by the current shell, use the "dot" command.	For example: . ./installer.csh



**Note:** It is recommended that you use the **source** command to run the setup wizard, as shown above. If you run the setup wizard without using this command, you must manually set the environment variables for the current shell session. For details, see ["Set the Environment Variables" on page 28](#).

The Load Generator Setup Wizard checks that the required prerequisite software is installed on the computer. If any prerequisite software is missing, a message is displayed, and the setup wizard aborts. Install the required package. Then rerun the setup wizard.

5. Follow the online instructions to install the load generator. For more help during installation, see ["Troubleshoot the Load Generator Linux Installation" on page 37](#).
6. Exit super user or switch to another user.
7. Configure your environment as described in ["Configure the Linux Environment" on the next page](#).

# Silent Load Generator Installations on Linux

This section describes how to perform a silent installation of the load generator on a Linux machine.

**Note:** You must have super user privileges.

## To perform a silent installation of the load generator:

1. If a load generator is installed on the machine, you must first uninstall it—otherwise the silent installation will fail. To uninstall the load generator, see ["Uninstall the Load Generator from a Linux Machine" on page 36](#).
2. Change directory to `<path_to_installer_dvd>/load_generator_linux_x64/`.
3. Run the following command to silently install the load generator:

```
source ./installer.sh -i silent
```

**Note:** It is recommended that you use a **source** command to perform a silent installation, as shown above. If you perform the installation without using the **source** command, you will need to set up the environmental variables after installing the load generator. For details, see ["Set the Environment Variables" on the next page](#).

If the **source** command is not supported by the current shell, use the "dot" command. For example, `./installer.sh -i silent`.

If you encounter an error during the installation, see ["Troubleshoot the Load Generator Linux Installation" on page 37](#).

By default, the load generator will be launched at the end of the installation. If you do not want to automatically launch the load generator, add the following command-line option:

```
source ./installer.sh -i silent -DSTART_PRODUCT_AFTER_INSTALL=No
```

## Configure the Linux Environment

This section describes the configuration steps you need to complete after installing the load generator, before you can begin working with the load generator.

### To complete the setup process after installing the load generator:

1. Set the appropriate environment variables.  
See ["Set the Environment Variables" on the next page](#).

**Note:** If you used a **source** command to install the load generator, the setup wizard automatically sets the appropriate environment variables, and there is no need to perform this step.

2. Verify the load generator installation.  
See ["Verify the Linux Installation" on the next page](#).
3. Start the load generator.

```
.cd /opt/MF/MF_LoadGenerator/;source env.csh;cd bin;./m_daemon_setup -install
```

4. Check that the Controller is able to access the load generator.  
For details, see ["Check Controller Connection" on page 30](#).

## Set the Environment Variables

**Note:** This topic is applicable only if you ran the Load Generator Setup Wizard without using a **source** (or "dot") command. If you used these commands, there is no need to perform any of the procedures described below.

To enable the load generator to run, the following environment variables must be defined:

- **M\_LROOT.** The location of the Linux load generator root folder.
- **PATH.** The location of the Linux load generator **bin** directory.
- **PRODUCT\_DIR.** The location of the Linux load generator root folder.

The Load Generator Setup Wizard performs the following tasks relating to the environment variables:

- Adds the environment variable definitions to the system-wide startup scripts.  
If the variable definitions were not correctly set during the setup, see ["Troubleshoot the Load Generator Linux Installation" on page 37](#) for possible solutions.
- Sets environment variables for the current shell session if the **source** command was used to run the setup wizard.

This topic describes how to set the environment variables for the current shell session if a **source** command was not used to run the setup wizard.

To determine if environment variables are set, run **verify\_generator** (see ["Run verify\\_generator" on the next page](#)) or use the following command:

```
echo $M_LROOT
```

If the name of the load generator root folder is returned, then the environment variables are correctly set for current shell. If the name of the load generator root folder is not returned, then manually set the variables as described below.

To manually set the environment variables for the current shell session (if the **source** command was not used to run the setup wizard), execute one of the following commands:

- Bash users:

```
source <Load Generator root>/env.sh
```

- C Shell users:

```
source <Load Generator root>/env.csh
```

## Verify the Linux Installation

The load generator installation includes a setup verification utility, **verify\_generator**, that checks the load generator setup on your Linux machine. The verification utility checks environment variables and your startup scripts (**/etc/csh.cshrc**, **\${HOME}/.cshrc** or **/etc/profile**, **\${HOME}/.profile**) to verify that they are set up correctly.

It is strongly recommended that you run **verify\_generator** after installing the load generator, before attempting to invoke the load generator. For details on how to run the **verify\_generator** utility, see "[Run verify\\_generator](#)" below.

The **verify\_generator** utility checks the following:

- All the prerequisite software is installed. (This check is performed for 64-bit installations only.)
- There are at least 128 file descriptors
- The **.rhosts** permissions have been defined properly: **-rw-r--r--**
- The host can be contacted by using **rsh** to the host. If not, it checks for the host name in **.rhosts**
- **M\_LROOT** is defined
- **.cshrc** or **.profile** defines the correct **M\_LROOT**
- **/etc/csh.cshrc**, **\${HOME}/.cshrc** or **/etc/profile**, **\${HOME}/.profile** defines the correct **M\_LROOT**
- **.cshrc** or **.profile** exists in the home directory
- The current user is the owner of the **.cshrc** or **.profile**
- A Linux load generator installation exists in **\$M\_LROOT**
- The executables have executable permissions
- **PATH** contains **\$M\_LROOT/bin** and **/usr/bin**

## Run verify\_generator

It is recommended that you run the **verify\_generator** utility after installing the load generator, before attempting to invoke the load generator. For details on what is checked by the **verify\_generator** utility, see "[Verify the Linux Installation](#)" above.

**Note:**

- To run this command, you must be a "normal" user and not root user.
- Before you run the **verify\_generator** utility, make sure that you have set the DISPLAY environment variable on your machine.

**To run verify\_generator:**

1. From the **<Load Generator root>/bin** folder, run the following command:

```
./verify_generator
```

For example:

```
/opt/MF/MF_LoadGenerator/bin/verify_generator
```

If you want to receive detailed information about the checks, you can use the **-v** option, as follows:

```
./verify_generator -v
```

2. View the results.
  - If the settings are correct, **verify\_generator** returns **OK**.
  - If any of the settings are incorrect, **verify\_generator** returns **Failed**, and suggestions on how to correct the setup.

## Check Controller Connection

If LoadRunner Controller will connect remotely to the load generator using **rsh** (remote shell), you need to make sure that the load generator can be remotely accessed by Controller.

1. On the load generator machine, locate the **.rhosts** file which is located in the user home directory.
2. In the **.rhosts** file, verify that Controller is included in the list of machines. If it is not listed, add it to the list.

If Controller still cannot connect to the load generator, contact your system administrator.

### Connecting to a Linux Load Generator without using rsh

You can configure Controller to connect to the load generator without using **rsh**. In this case, you need to activate the agent daemon on the load generator, as described below.

This section describes how to connect to a Linux load generator without using **rsh**.

1. On the Linux load generator, run the agent daemon by entering the following command from **<Load Generator root>/bin**:

```
./m_daemon_setup -install
```

This runs a daemon called **m\_agent\_daemon**, and if successful, you receive a message: **m\_agent\_daemon <process ID>**.

The agent now keeps running, even if the user is logged off. You can stop the agent by using the command explained in step 9 below, or by rebooting the machine.



**Note:** If you look at the **m\_agent\_daemon[xxx].log** log file in the temp directory, you may see communication errors, even if the installation succeeded.

2. In the Controller, select **Scenario > Load Generators**. The Load Generators dialog box opens.
3. Click **Add**. The Load Generators dialog box opens.
4. In the **Name** box, enter the name of the computer on which the load generator is running.
5. From the **Platform** list, select **Linux**.
6. Click **More**.
7. Click the **Linux Environment** tab, and make sure that the **Don't use RSH** check box is selected.
8. Connect as usual.
9. To stop the agent daemon, run the following command from the **<LoadRunner root>/bin** directory:

```
./m_daemon_setup -remove
```

This stops the **m\_agent\_daemon** daemon, and if successful, you receive the message: **m\_agent\_daemon is down**.

## Install a Load Generator Using Docker

This section describes how to install the load generator on a Linux platform using Docker.

Docker is a platform that allows you to develop, ship, and run applications via a container. Docker uses a standard container format that lets developers prepare applications inside containers, while system administrators and other teams, such as Quality Assurance engineers, run the container in order to deploy the application. For details regarding Docker, see <https://docs.docker.com>.

### To set up an installation through Docker:

#### Install Docker

Install Docker on the target machine, along with its dependencies. Currently, only the 64-bit version is supported. For installation details, see <https://docs.docker.com/installation>.

#### Set up the environment

Set up the target machine environment as required.

#### Obtain the Dockerfile image

Locate the base load generator image. Use the image provided in the LoadRunner installation package

(in the **InsData** folder of the ISO file) or obtain one from the [Docker hub](#).

If you need to customize your settings, you can start a container and install the load generator manually. Alternatively, you can create your own Dockerfile. Use the sample Dockerfile contents provided below, and edit them to fit your specific needs.

### Build a custom Dockerfile image (optional)

Create a custom Dockerfile using the [sample](#) below as a basis for your custom file. Once you have the file, follow these steps to build an image:

1. Place your Dockerfile and the load generator installation folder, **VM** (containing `inst64.bin`, `unzip`, and `installer.sh`), together in the same folder.
2. Switch to root user. Make sure you have Internet access and the ability to install dependencies.
3. In the directory which contains Dockerfile, type:

```
docker build -t load_generator ./
```

### Import the base image

Import the image from the tar archive using the following command:

```
docker load < load_generator.tar
```

### Set the proxy (optional)

If you need to set a proxy for a target image, set it in the Dockerfile using the following command:

```
ENV http_proxy http://my_proxy_name:port
```

### Start a container and launch the load generator

Check that port 54345 is available and not being used by another process. This is the default port used by Controller. Use the following command to run the load generator in the background, in detached mode.

```
docker run -d -i -p 54345:54345 --net=host performancetesting/load_generator_linux
```

If you need to use a different port, type

```
docker run -id -p <host_port>:54345 performancetesting/load_generator_linux
```

If you specify a non-default port, you also need to modify the port on Controller side.

### Tips and Guidelines



- Use `docker ps` to list the containers that are running.
- Use `docker stop <container>` to stop the load generator service.
- The Dockerfile container has an ENTRYPOINT section. The container first runs the commands in ENTRYPOINT. It sets up the environment and then starts the load generator. The command uses a While loop to wait for input, in order to keep the container from exiting. This behavior prevents you from accessing the container while it is running. Make sure to add `-i` while starting the container; otherwise the While loop will consume an excessive amount of CPU.
- If you need entry into the container, add an argument such as `--entrypoint=/bin/bash` when starting the container. After entering the container, set the load generator environments and start the load generator. You can then switch to the host using `CTRL+p` and `CTRL+q` while keeping the container running in background. To access the container again, use the `docker attach container_id` command.
- To access the host network directly, add `--net=host`. We recommend you add this flag if the AUT generates a lot of network activity.

### Sample Dockerfile Content

The following example shows how to build an image. It sets a proxy enabling the container to connect to the Internet and then installs the load generator prerequisites. It then copies the load generator installation files to the container and installs it silently. Lastly, it sets an ENTRYPOINT which tells the container what to execute when starting.

```
# sudo docker build -t load generator /
# Set the base image
FROM ubuntu:14.04
# Set the proxy
# ENV http_proxy http://my_proxy_name:port
# Install prerequisites for Load Generator
RUN dpkg --add-architecture i386
RUN apt-get update && apt-get install -y libc6-i386 lib32stdc++6
lib32ncurses5 libkeyutils1:i386 libglib2.0-0:i386 libidn11:i386
# Copy the Load Generator installation files to a temporary folder
RUN mkdir /opt/tmp_LG
ADD VM /opt/tmp_LG
# Install the Load Generator
RUN /bin/bash -c "cd /opt/tmp_lg; source ./installer.sh -i silent"
```

```
# Remove the installation files

RUN rm -R /opt/tmp_LG

#Start the container. If you need entry to the container, add --entrypoint
to overwrite the ENTRYPOINT. If you do not need entry to the container,
use "-id" to start the container.

ENTRYPOINT ["/bin/bash","-c","cd /opt/MF/MF_LoadGenerator/; source env.sh;
cd bin/; ./m_daemon_setup -install; while true; do cat; done"]
```

## Improve Load Generator Performance

This section includes recommendations for improving load generator performance. You can increase the number of file descriptors, process entries, and amount of swap space by configuring the kernel.

**Note:** Most operating systems using the Linux load generator have sufficient default file descriptors, process entries, and swap space, and rarely require reconfiguration.

This section includes:

- [Increase File Descriptors](#) ..... 34
- [Increase Process Entries](#) ..... 35
- [Increase Swap Space](#) ..... 36

## Increase File Descriptors

A load generator uses the following File Descriptor resources:

- 14 file descriptors for the launch service
- 20 file descriptors for the agent
- 30 file descriptors for each Vuser driver. By default, there is a driver for every 50 Vusers.
- File descriptors for the running Vusers. Each Vuser requires two descriptors.

For example, to compute the number of file descriptors used in running 100 threaded Vusers, the load generator requires:

Descriptors	Purpose of the descriptors
14	For the launcher
20	For the agent
60	For 2 drivers (30 x 2, each one drives 50 Vusers)
200	For 100 Vusers (each Vuser requires 2)

**Total: 294 File Descriptors**

If Vusers are run as processes instead of threads, one driver is run per Vuser. Therefore, each Vuser requires 30 file descriptors.

The procedure to increase the number of file descriptors differs between shells.

In the examples below, the number of descriptors is increased to the maximum of 1024.

- For sh and ksh users, type:

```
ulimit -n 1024
```

- For csh users, type:

```
limit descriptors 1024
```

Below is an alternate procedure to increase file descriptors. In this example, the number of descriptors is increased to the maximum of 8192.

1. Add the following line to the **/etc/security/limits.conf** file:

```
hard nfile 8192
```

2. Add the following line to the **/etc/sysctl.conf** file:

```
fs.file-max = 8192
```

3. Reboot the machine.

## Increase Process Entries

Each Vuser requires several free process entries. To increase the number of process entries on your system, you must reconfigure the kernel.

This section describes how to reconfigure the kernel for Linux platforms.

1. Locate the **/etc/security/limits.conf** file.
2. Set the maximum number of processes in the limits file. Type:

```
hard nproc 8192
```

3. Reboot the machine.

## Increase Swap Space

Each Vuser requires swap space ranging in size from 200 KB to 4 MB. Before adding space to your system configuration, you should determine your paging requirements. For environments running programs with very large memory requirements, it is recommended to have paging space of four times the physical memory. If you do not have enough paging space, certain processes may be killed, and others will be unable to start.

## Uninstall the Load Generator from a Linux Machine

This section describes how to uninstall the load generator from a Linux machine.

This section includes:

- ["Uninstall Load Generator 12.55 or earlier" below](#)
- ["Uninstall Load Generator 12.56" on the next page](#)

### Uninstall Load Generator 12.55 or earlier

You can uninstall Load Generator 12.55 or earlier versions using a manual command or silently.

#### To uninstall Load Generator version 12.55 or earlier:

1. Make sure that you are logged in as the same user who installed the load generator.
2. Make sure that the **m\_agent\_daemon** process is not running on the machine. If it is running, kill its process:

```
cd /opt/HP/HP_LoadGenerator/bin;./m_daemon_setup -kill;su -;
```

3. Change the current directory to the installation directory:

```
cd <path_to_installation_folder>/_HP_LoadGenerator_Installation
```

4. Switch to super user.
5. Uninstall the load generator:

- **Manual uninstall:** run the following command:

```
sh ./Change_HP_LoadGenerator_Installation
```

- **Silent uninstall:** Run the following command:

```
sh ./Change_HP_LoadGenerator_Installation -i silent
```

## Uninstall Load Generator 12.56

You can uninstall Load Generator 12.56 using the setup wizard or a manual command, or silently.

### To uninstall Load Generator version 12.56:

1. Make sure that you are logged in as the same user who installed the load generator.
2. Make sure that the **m\_agent\_daemon** process is not running on the machine. If it is running, kill its process:

```
cd /opt/MF/MF_LoadGenerator/bin;./m_daemon_setup -kill;su -;
```

3. Change the current directory to the installation directory:

```
cd <path_to_installation_folder>/_MF_LoadGenerator_Installation
```

4. Switch to super user.
5. Uninstall the load generator:

- **Manual uninstall:** Run the following command:

```
sh ./Change_MF_LoadGenerator_Installation
```

- **Silent uninstall:** Run the following command:

```
sh ./Change_MF_LoadGenerator_Installation -i silent
```

## Troubleshoot the Load Generator Linux Installation

This section describes troubleshooting tasks relating to the setup of the Linux load generator.

This section includes:

- ["Environment variables were not set correctly in the system-wide startup scripts" on the next page](#)
- ["Error when installing the Load Generator on a Linux platform" on page 40](#)
- ["Error when running Load Generator on RedHat Enterprise Linux 5.x with SELinux enabled" on page 41](#)
- ["Environment variables are not unset after uninstalling the load generator" on page 41](#)
- ["Unable to run Vusers on the load generator" on page 41](#)

## Environment variables were not set correctly in the system-wide startup scripts

To enable the load generator to run, the system-wide startup scripts must be modified to set specific environment variables. The required modifications to the startup scripts are made by the Load Generator Setup Wizard. If the startup scripts were not correctly modified during the setup of the load generator, you can manually make the required changes to the startup scripts as described below. The required changes differ slightly between C shell users, and Bourne and Korn shell users.

- **Manually modifying the startup scripts for C shell users**

During the load generator installation process, the setup wizard creates the **env.csh** script. This script includes the commands to set the required environment variables for C shell users. A sample **env.csh** script is shown below.

```
setenv PRODUCT_DIR <Load Generator installation directory>
setenv M_LROOT ${PRODUCT_DIR}
  if ( ! $?PATH ) then
    setenv PATH ""
  endif
setenv PATH ${M_LROOT}/bin:${PATH}"
```

Add the following line to the **/etc/csh.cshrc** or **~/.cshrc** startup script to execute the **env.csh** script during the shell startup:

```
source <Load Generator installation directory>/env.csh
```

For example:

```
source /opt/MF/MF_LoadGenerator/env.csh
```

The effect of making the above modification to the startup script is similar to the modifications that are made by the setup wizard. A sample of the modifications that the setup wizard makes to the **/etc/csh.cshrc** startup script is shown below:

```
# New environment setting added by MF_LoadGenerator on Wed Jan 30 16:20:10 IST 2013
2.
# The unmodified version of this file is saved in /etc/.login1557000131.
# Do NOT modify these lines; they are used to uninstall.
setenv PRODUCT_DIR "/opt/MF/MF_LoadGenerator"
# End comments by InstallAnywhere on Wed Jan 30 16:20:10 IST 2013 2.
```

```
# New environment setting added by MF_LoadGenerator on Wed Jan 30 16:20:10 IST 2013
5.
# The unmodified version of this file is saved in /etc/.login1557000131.
# Do NOT modify these lines; they are used to uninstall.
setenv M_LROOT "/opt/MF/MF_LoadGenerator"
# End comments by InstallAnywhere on Wed Jan 30 16:20:10 IST 2013 5.
# New environment setting added by MF_LoadGenerator on Wed Jan 30 16:20:10 IST 2013
8.
# The unmodified version of this file is saved in /etc/.login1557000131.
# Do NOT modify these lines; they are used to uninstall.
if ( ! $?PATH ) then
setenv PATH ""
endif
setenv PATH "/opt/MF/MF_LoadGenerator/bin:${PATH}"
# End comments by InstallAnywhere on Wed Jan 30 16:20:10 IST 2013 8.
```

- **Manually modifying the startup scripts for Bourne and Korn shell users**

During the load generator installation, the setup wizard creates the **env.sh** script. This script includes commands to set the required environment variables for Bourne shell and Korn shell users.

Add the following line to the **/etc/profile** or **~/.profile** startup script to execute the **env.sh** script during the shell startup:

```
source <Load Generator installation directory>/env.sh
```

For example:

```
source /opt/MF/MF_LoadGenerator/env.sh
```

The effect of making the above modification to the startup script is similar to the modifications that are made by the setup wizard. A sample of the modifications that the setup wizard makes to the **/etc/profile** startup script is shown below:

```
# New environment setting added by MF_LoadGenerator on Fri Jan 16 11:14:24 IST 2013
1.
# The unmodified version of this file is saved in /etc/profile1806316421.
# Do NOT modify these lines; they are used to uninstall.
PRODUCT_DIR=/opt/MF/MF_LoadGenerator
export PRODUCT_DIR
```

```
# End comments by InstallAnywhere on Fri Jan 16 11:14:24 IST 2013 1.

# New environment setting added by MF_LoadGenerator on Fri Jan 16 11:14:24 IST 2013
4.

# The unmodified version of this file is saved in /etc/profile1806316421.

# Do NOT modify these lines; they are used to uninstall.

M_LROOT=/opt/MF/MF_LoadGenerator

export M_LROOT

# End comments by InstallAnywhere on Fri Jan 16 11:14:24 IST 2013 4.

# New environment setting added by MF_LoadGenerator on Fri Jan 16 11:14:24 IST 2013
7.

# The unmodified version of this file is saved in /etc/profile1806316421.

# Do NOT modify these lines; they are used to uninstall.

PATH="/opt/MF/MF_LoadGenerator/bin:${PATH}"

export PATH

# End comments by InstallAnywhere on Fri Jan 16 11:14:24 IST 2013 7. LoadRunner
settings #PATH=${M_LROOT}/bin:$PATH; export PATH
```

## Error when installing the Load Generator on a Linux platform

When you use the **source installer.sh** command to install the load generator version 12.56 on a Linux machine on which the load generator version 12.56 was previously installed, you may receive the following error message:

"An error occurred while trying to manage the selected instance."

### Solution:

1. Open the registry file **/var/.com.zerog.registry.xml** and locate the element **"product"** with attribute **"name"="MF\_LoadGenerator"**.

For example:

```
<product name="MF_LoadGenerator" id="77f695c1-1f0c-11b2-883d-c486a85f6555"
version="12.56.0.0" copyright="2018" info_url="http://www.microfocus.com" support_
url="http://www.microfocus.com" location="/opt/MF/MF_LoadGenerator" last_modified="2018-01-
21 13:12:14">
```

2. Record the value of the **"location"** attribute.
3. Remove the entire directory that is referred to by the **"location"** attribute.
4. Delete the registry file **/var/.com.zerog.registry.xml**.
5. Rerun the **source installer.sh** command.



## Error when running Load Generator on RedHat Enterprise Linux 5.x with SELinux enabled

During use of the load generator on RHEL 5.x, you might receive the following error:

**"m\_agent\_daemon: error while loading shared libraries: /opt/MF/MF\_LoadGenerator/bin/liblwc\_cryptolib.so: cannot restore segment prot after reloc: Permission denied."**

This problem occurs because SELinux is installed and enabled on the machine. SELinux is preventing the specified shared library from loading.

### **Solution:**

There are two possible workarounds:

1. Before using the load generator, disable SELinux using the command "setenforce 0".
2. If you want to keep SELinux enabled, you can change the security context of all problematic libraries (for example, <Path\_to\_LoadGenerator>/bin/\*.so" to "textrel\_shlib\_t").  
To do this, execute the command: "chcon -t textrel\_shlib\_t <Path\_to\_LoadGenerator>/bin/\*.so"

## Environment variables are not unset after uninstalling the load generator

When you uninstalled the Linux load generator, the setup wizard might not have unset the load generator environment variables (M\_LROOT, PRODUCT\_DIR, and PATH) for the current shell. To unset the environment variables, close the current shell session and invoke a new one, or manually unset the variables as described below:

- To unset the M\_LROOT and PRODUCT\_DIR variables:
  - [bash shells] Use the **unset** command.
  - [csh shells] Use the **unsetenv** command.
- To update the PATH variable to exclude the load generator binary directory, type:
  - [bash shells] PATH=<required list of paths>; export PATH
  - [csh shells] setenv PATH <required list of paths>

## Unable to run Vusers on the load generator

If you are unable to run Vusers on the load generator, no specific error is reported, and the Vuser protocol requires a third-party application or client to be present on load generator side, check the dynamic libraries used by the application. This will enable you to establish if any shared objects cannot be found. A shared object that cannot be found may indicate either a missing prerequisite package or an environment variable issue.

To check the dynamic libraries used by an application, type:

```
ldd application_name
```

For example, type `ldd mdrv` to determine if all the dependencies of the **mdrv** executable can be found. If any dependencies are not found, run **verify\_generator** as described in ["Run verify\\_generator" on page 29](#).

**Note:** If you are running Vusers for a protocol that requires a client installation (for example, Oracle), make sure that the path for the client libraries is included in the dynamic library path environment variable (`LD_LIBRARY_PATH` or `SHLIB_PATH`).

# Chapter 4: Managing Licenses

LoadRunner is delivered with a Community Bundle license (this replaces the Instant-on license). The Community Bundle provides the following features:

- A permanent bundle with that lets you run 50 Vusers.
- All protocols are included except for GUI (UFT), COM/DCOM and protocols in the template bundle such as C and Java Vusers.

To run additional Vusers from the LoadRunner Controller, you need the appropriate LoadRunner licenses. These licenses must be available on the computer on which the LoadRunner Controller is installed.

You use the LoadRunner License Utility to manage your LoadRunner licenses. The LoadRunner License Utility enables you to:

- View the details of licenses that are currently installed
- Install additional licenses

This chapter includes:

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- [View License Information](#) ..... 44
- [Troubleshoot Licenses](#) ..... 47

## Install New Licenses

After you receive your license information from your Customer service representative, you can use the LoadRunner License Utility to enter the license information.

You install a new license using either the license key or the license file provided to you.

- **License key.** A license key enables you to install just a single license at a time. You may receive the license key directly from your Customer service representative, or the license key may be included in a license file that you received.
- **License file.** A license file contains the license keys for one or more licenses. When you use a license file to install the new licenses, the LoadRunner License Utility reads the license file and extracts all the license keys that are included in the license file. You can then select which of the available licenses to install. You may choose to use a license file to install LoadRunner licenses because the license file enables you to install multiple licenses simultaneously.

### To install a new LoadRunner license:

1. **Open the LoadRunner License Utility.**
  - a. In legacy Windows operating systems, click **Start > All Programs > HPE Software > HPE LoadRunner > License > LoadRunner License Utility.**or

In icon-based desktops such as Windows 8, search for **License** and select the **LoadRunner License Utility** item.

The LoadRunner License Utility opens.

- b. In the LoadRunner License Utility, click **Install New Licenses**. The LoadRunner License Utility - New License dialog box opens.
2. **To install using a license file:**
  - a. Click the **Browse** button to the right of **License file**, and locate the license file that was sent to you by your Customer service representative.
  - b. Click **View License File Content** to display details of the licenses that are included in the license file.
  - c. In the list of licenses included in the license file, select the licenses to install.
3. **To install using a license key:**
  - a. Click **Install a license using a license key**.
  - b. Enter the license key that you received from your Customer service representative.
4. **Complete the installation.**
  - a. Click **Install**. The selected licenses are installed.
  - b. Click **Close**. In the License Summary table, make sure that the new licenses appear in the list of installed licenses.

## View License Information

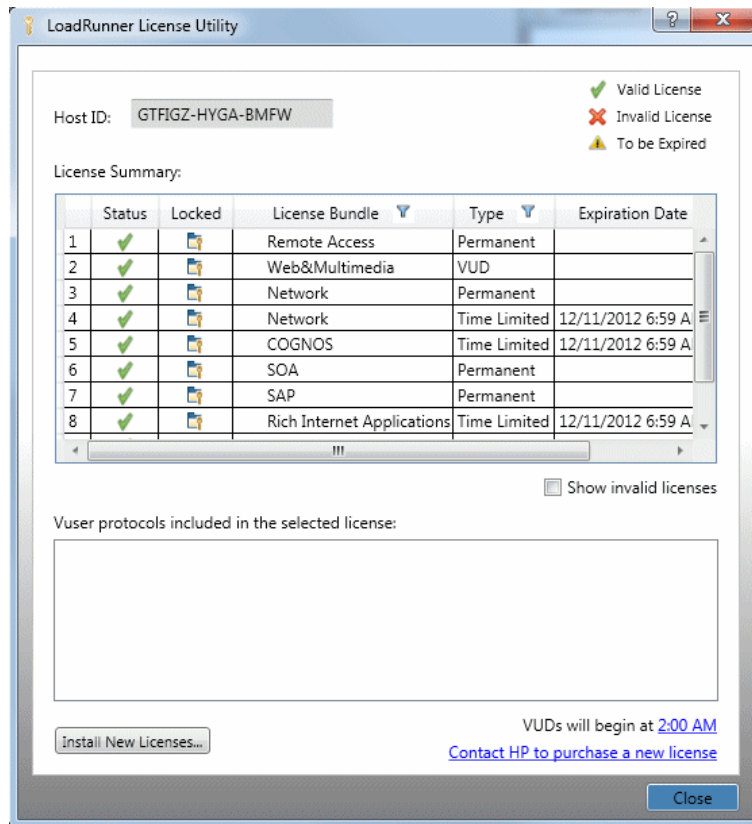
You can use the LoadRunner License Utility to view your license information.

The **Community** license provides 50 permanent Vusers at no cost. These Vusers are valid for all protocols except for GUI (UFT), COM/DCOM, and template protocols.

To view your license information:

In legacy Windows operating systems, click **Start > All Programs > HPE Software > HPE LoadRunner > License > LoadRunner License Utility**.

In icon-based desktops such as Windows 8, search for **License** and select the **LoadRunner License Utility** item. The LoadRunner License Utility opens.



The LoadRunner License Utility displays the following information:

- **Host ID.** Identifies the computer on which the Controller is installed. You may need to provide the Host ID when purchasing new LoadRunner licenses. To obtain new LoadRunner licenses, click **Contact** link at the bottom of the LoadRunner License Utility.
- **License Summary.** Displays a list of the LoadRunner licenses that are installed on the Controller computer. Click on any license in the table to display additional details about the license. The User protocols included in the selected license box displays a list of the User protocols that are included in the selected license.
- **Status.** Indicates the status of the license.
  - **Valid.** Indicates that the license is current and functional.
  - **Invalid.** Indicates that the license is no longer valid. An Evaluation license becomes invalid if a Time limited, Permanent, or VUD license is installed for the same User bundle. A VUD license becomes invalid when the remaining capacity is zero. By default, the License Summary table does not show invalid licenses. Select the **Include invalid licenses** check box to show invalid licenses. Note that a license may become temporarily invalid if the LoadRunner License Utility detects that the system clock has been tampered with. To restore the affected licenses, reset the system clock to the current time.
  - **To be Expired.** Indicates that the license will expire within 30 days.
- **Locked.**

- **Locked.** Indicates that the license can be installed only on the computer on which it is currently installed – not on any other computer.
- **Unlocked.** Indicates that the license can be installed on any computer.
- **License Bundle.** Indicates the name of the Vuser protocol bundle to which the license applies. The license enables the Controller to run Vusers of any protocol that is included in the protocol bundle. To display a list of the Vuser protocols that are included in a bundle, click the license in the License Summary table. A list of the associated Vuser protocols is displayed at the bottom of the LoadRunner License Utility.

Note that a Partner License icon that appears to the left of a license bundle indicates that the license is for a LoadRunner partner, and not for standard Vuser protocols. Partner licenses enable third-party applications to be controlled by the LoadRunner Controller. Partner licenses operate the same as standard LoadRunner licenses.

- **Type.** Indicates the type of license:
  - **Freemium** licenses are installed when LoadRunner is first installed.
  - **Evaluation** licenses are supplied to enable potential customers to evaluate LoadRunner functionality.
  - **Time limited** licenses are valid for a limited period only. Time limited licenses are typically issued for 60 or 365 days.
  - **Permanent** licenses do not expire - there is no time limit to the validity of these licenses.
  - **VUD** licenses are issued with a limited capacity. The capacity is defined by the measurement Vuser-days or VUDs. For example, the capacity of a VUD license may be 1000 VUDs. Each day that the Controller is used to run Vusers, the maximum number of Vusers that ran simultaneously on that day is deducted from the remaining license capacity. If a maximum of 200 Vusers ran on day 1, then 800 VUDs remain in the license.

For example, assume that you purchase a license for 100 VUDs, and then run 3 different scenarios within the same 24 hour period, with 20 Vusers in each scenario. At the end of that period, only 20 VUDs (and not 60) are deducted from your total number of available VUDs, leaving you with 80 remaining VUDs which can be used at any time in the future.

- **Expiration Date.** Indicates the date and time when **Time limited**, and **Evaluation** licenses expire.
- **Capacity.** Indicates the capacity of the selected license:
  - For **Evaluation**, **Time Limited**, and **Permanent licenses**, **Capacity** indicates the maximum number of Vusers [of the type specified by the license bundle] that can be run simultaneously from the LoadRunner Controller.
  - For VUD licenses, **Capacity** indicates the number of VUDs that remain in the license.
- **Show invalid licenses.** Select this check box to show invalid licenses in the list of LoadRunner licenses that are installed.
- **Vuser protocols included in the selected license.** Displays the Vuser protocols that are included in the selected license.
- **Install New Licenses.** Opens the New License dialog box which enables you to install new LoadRunner licenses.

## Troubleshoot Licenses

If you have a temporary license, contact your Customer service representative to obtain a permanent license.

If LoadRunner does not accept your license key, perform the following checks:

- Make sure you typed in the license key exactly as it was given to you. The license key must include the required spaces. The license key is case sensitive.
- If you receive a permission denied error message during Controller startup, you must grant Full Control permission for the Registry's HKEY\_LOCAL\_MACHINE key as described below.

### **To add registry permissions:**

1. Run **regedit** to modify the registry.
2. Select the HKEY\_LOCAL\_MACHINE key.
3. Select **Security > Permissions**.
4. Add **Full Control** permission to the user that is running the Controller.
5. Click **OK**.

# Send Us Feedback



Let us know how we can improve your experience with the Installation Guide.  
Send your email to: [docteam@microfocus.com](mailto:docteam@microfocus.com)