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Network Virtualization for LoadRunner

Software version: All versions

Network Virtualization Installation Guide

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Welcome to Network Virtualization for LoadRunner

Welcome to the Network Virtualization for LoadRunner Installation Guide. This guide describes how to install and set up Network Virtualization in LoadRunner Professional and LoadRunner Enterprise.



System requirements

This section provides the system requirements when integrating Network Virtualization with LoadRunner Professional or LoadRunner Enterprise.



Prerequisites

- **For LoadRunner Professional or LoadRunner Enterprise 2020 or later:** LoadRunner Professional or LoadRunner Enterprise version 2020 must be installed before installing Network Virtualization version 2020.
- **For LoadRunner or Performance Center 12.60:** LoadRunner or Performance Center version 12.60 must be installed before installing Network Virtualization version 9.14.

System requirements

Network Virtualization has the same system requirements as [LoadRunner Professional](#) or [LoadRunner Enterprise](#), with the following exceptions:

Software requirements	Supported versions/distributions
Prerequisites for NV for Load Generator on Linux	<p>One of the following:</p> <ul style="list-style-type: none">• Azul Zulu OpenJDK v11 64-bit in NV 2022 R2 and later• Azul Zulu OpenJDK v8 64-bit in NV 2022 R1 and earlier• Oracle Java JRE v8 64-bit <p>Development tools to build kernel modules:</p> <ul style="list-style-type: none">• GCC• kernel-devel/linux-headers for the running kernel• ed editor <p>Note: In some cases, the following dependencies should be installed before installing Zulu-8 on Ubuntu: java-common, libasound2, libxi6, libxrender1, libxtst6, libfontconfig1.</p> <p>See Installation instructions below.</p>
Firewall	If a firewall is active, open port 8182 (or another port selected during installation) for TCP.

Install Network Virtualization on Windows

To gain access to the Network Virtualization (NV) functionality in either LoadRunner Professional or LoadRunner Enterprise, you must install the required NV components.



Upgrading from a previous version on Windows

If you are upgrading from a LoadRunner Professional or LoadRunner Enterprise version prior to 12.50, you must manually uninstall all Network Virtualization components before running the installer.

Installing on Windows

At the end of LoadRunner Professional or LoadRunner Enterprise installation wizards, you are prompted to install Network Virtualization. You can continue with the NV installation, or choose to install manually at a later time, as described in ["Manual installation on Windows" on the next page](#).

Via the installation wizard, you select one of the following installation modes:

- **Typical.** Installs with default options.
- **Custom.** Enables you to configure several options before installation. For details, see ["Setup wizard options for Windows" on page 9](#).

The following are installed:

NV component name	Installed with:
NV for LoadRunner Enterprise	LoadRunner Enterprise Server installation
NV for Controller	LoadRunner full installation LoadRunner Enterprise Host installation
NV for Load Generator and VuGen	Load Generator (standalone) installation LoadRunner full installation LoadRunner Enterprise Host installation VuGen installation

Manual installation on Windows

If you do not install the NV components as part of the LoadRunner Professional or LoadRunner Enterprise installations, you can run the installations manually at any time.

The installation files are located in the following folder:

<LRP or LRE installation package>\Additional Components\Network Virtualization\

Run the installation files, according to your needs:

For this component...	You need to install...	NV installation file
LoadRunner full installation	<ul style="list-style-type: none"> NV for Controller NV for Load Generator and VuGen 	<ul style="list-style-type: none"> <LR/LRE installation package>/Additional Components/Network Virtualization/NV4ControllerSetup.exe <LR/LRE installation package>/Additional Components/Network Virtualization/NV4LGSetup.exe
Load Generator (standalone)	NV for Load Generator and VuGen	<LR/LRE installation package>/Additional Components/Network Virtualization/NV4LGSetup.exe

For this component...	You need to install...	NV installation file
VuGen	NV for Load Generator and VuGen	<LR/LRE installation package>/Additional Components/Network Virtualization/NV4LGSetup.exe
LoadRunner Enterprise Server	NV for LoadRunner Enterprise	<LR/LRE installation package>/Additional Components/Network Virtualization/NV4PCSetup.exe
LoadRunner Enterprise Host	<ul style="list-style-type: none"> NV for Controller NV for Load Generator and VuGen 	<ul style="list-style-type: none"> <LR/LRE installation package>/Additional Components/Network Virtualization/NV4ControllerSetup.exe <LR/LRE installation package>/Additional Components/Network Virtualization/NV4LGSetup.exe

Setup wizard options for Windows

If you run a custom installation during the setup wizard, or are installing the NV components manually, you can configure several options. Some options are enabled only when installing the first NV component on a machine.

Option	NV component
Destination Folder	Enter a location on the file system to install the component or accept the default location. Default: C:\Program Files\OpenText\NV
Data Folder	Stores temporary internal application data and user data, such as test run results. Default: C:\ProgramData\OpenText\NV
Server Port	<ul style="list-style-type: none"> On NV for Load Generator: The port is used to retrieve Network Virtualization statistics. On other components: The port is used for internal Network Virtualization communication on the machine. Default: 8182
Enable Remote Connections	Adds an exception to Windows Firewall. Required for NV for Load Generator.

Installation logs

Installation logs are located under **C:\Temp\NV_Logs**.

Troubleshooting

Running a load or performance test with Network Virtualization enabled fails with "failed to set NV secret token".

Cause: The NV secret token fails to update the encoded password in the configuration file during deployment (valid on Windows machines only).

This behavior is usually caused when cloning machines (or VMs) with an NV for Load Generator installed.

Solution: Recreate a new token after deploying an instance from the source images.

1. Open the command line as administrator.
2. Run NV for Load Generator and VuGen setup with "template" flag on source image. For example:

```
NV4LGSetup.exe /v"TEMPLATE=TRUE"
```

3. After the installation has finished and you have customized your source image, shut down the machine, but do not reboot (select "No, I will restart my computer later").
4. Deploy an instance from your image. A Task Scheduler runs (even with a non-admin user), and recreates a new secret token based on your machine ID.

A log is created under the folder **C:\Program Files\OpenText\NV\lib**

For more details, see [Software Self-solve knowledge base article KM02889919](#).

Silently install Network Virtualization on Windows

You can silently install the NV components for LoadRunner Professional and LoadRunner Enterprise.

Note: During a silent installation of LoadRunner Professional or LoadRunner Enterprise, the appropriate NV components are installed by default. For details, see the relevant installation guide in [LoadRunner Professional Help Center](#) or [LoadRunner Enterprise Help Center](#).

Silent installation overview

The installation files are located in the following folder:

<LRP or LRE installation package>\Additional Components\Network Virtualization\

For this component...	You need to install...	NV installation file
LoadRunner full installation	<ul style="list-style-type: none"> NV for Controller NV for Load Generator and VuGen 	<ul style="list-style-type: none"> <LR/LRE installation package>/Additional Components/Network Virtualization/NV4ControllerSetup.exe <LR/LRE installation package>/Additional Components/Network Virtualization/NV4LGSetup.exe
Load Generator (standalone)	NV for Load Generator and VuGen	<LR/LRE installation package>/Additional Components/Network Virtualization/NV4LGSetup.exe
VuGen	NV for Load Generator and VuGen	<LR/LRE installation package>/Additional Components/Network Virtualization/NV4LGSetup.exe
LoadRunner Enterprise Server	NV for LoadRunner Enterprise	<LR/LRE installation package>/Additional Components/Network Virtualization/NV4PCSetup.exe

For this component...	You need to install...	NV installation file
LoadRunner Enterprise Host	<ul style="list-style-type: none"> NV for Controller NV for Load Generator and VuGen 	<ul style="list-style-type: none"> <LR/LRE installation package>/Additional Components/Network Virtualization/NV4ControllerSetup.exe <LR/LRE installation package>/Additional Components/Network Virtualization/NV4LGSetup.exe

Installation logs are located under **C:\Temp\NV_Logs**.

Silently install NV for Controller (LoadRunner Professional) on Windows

This section describes how to install NV for Controller silently on a Windows machine.

To install NV for Controller silently on Windows:

- Prerequisites:
 - Make sure that all system requirements are met before beginning the installation. For details, see ["System requirements" on page 5](#).
 - Make sure the Microsoft SmartScreen Filter has been turned off. For details, see the [Microsoft documentation](#).
- Copy the NV4ControllerSetup.exe file to the target LoadRunner Professional or LoadRunner Enterprise Host machine.
- Run the installation with administrator privileges.
- Run the following command together with the required command line options:

```
NV4ControllerSetup.exe /s /v"/qn <command_line_options>"
```

Example: NV4ControllerSetup.exe /s /v"/qn PORT=8182"

Command line options:

Option	Description	Required/Optional	Default value
PORT=<port number>	The port used to connect to NV for Controller.	REQUIRED	8182
INSTALLDIR="\<path to installation folder>\"	The location where the application files will be installed.	OPTIONAL	C:\Program Files\OpenText\NV
ENABLE_REMOTE=<TRUE FALSE>	Opens the port in the firewall. Required for enabling remote access to web-based NV components.	OPTIONAL	TRUE

Option	Description	Required/Optional	Default value
REBOOT_IF_NEED=<TRUE FALSE>	If a reboot is required, automatically reboots the computer after installation completes. Even if the FALSE value is used, you will need to reboot the machine before NV for Controller is operational.	OPTIONAL	FALSE
DATA_FOLDER="<path to data dir>"	The location where temporary internal application data and user data is saved.	OPTIONAL	C:\ProgramData\OpenText\NV

Silently install NV for LoadRunner Enterprise on Windows

This section describes how to install NV for LoadRunner Enterprise silently on a Windows machine.

To install NV for LoadRunner Enterprise silently on Windows:

1. Prerequisites:
 - Make sure that all system requirements are met before beginning the installation. For details, see ["System requirements" on page 5](#).
 - Make sure the Microsoft SmartScreen Filter has been turned off. For details, see the [Microsoft documentation](#).
2. Copy the NV4PCSetup.exe file to the target LoadRunner Enterprise Host machine.
3. Run the installation with administrator privileges.
4. Run the following command together with the required command line options:

```
NV4PCSetup.exe /s /v"/qn <command_line_options>"
```

```
Example: NV4PCSetup.exe /s /v"/qn PORT=8182"
```

Command line options:

Option	Description	Required/Optional	Default value
PORT=<port number>	The port used to connect to NV for LoadRunner Enterprise.	REQUIRED	8182
INSTALLDIR="<path to installation folder>"	The location where the application files will be installed.	OPTIONAL	C:\Program Files\OpenText\NV

Option	Description	Required/Optional	Default value
ENABLE_REMOTE=<TRUE FALSE>	Opens the port in the firewall. Required for enabling remote access to web-based NV components.	OPTIONAL	TRUE
REBOOT_IF_NEED=<TRUE FALSE>	If a reboot is required, automatically reboots the computer after installation completes. Even if the FALSE value is used, you will need to reboot the machine before NV for LoadRunner Enterprise is operational.	OPTIONAL	FALSE

Option	Description	Required/Optional	Default value
DATA_FOLDER="<path to data dir>"	The location where temporary internal application data and user data is saved.	OPTIONAL	C:\ProgramData\OpenText\NV

Silently install NV for Load Generator on Windows

This section describes how to install NV for Load Generator silently on a Windows machine.

To install NV for Load Generator silently on Windows:

- Prerequisites:
 - Make sure that all system requirements are met before beginning the installation. For details, see ["System requirements" on page 5](#).
 - Make sure the Microsoft SmartScreen Filter has been turned off. For details, see the [Microsoft documentation](#).
- Copy the NV4LGSetup.exe file to the target LoadRunner Professional or LoadRunner Enterprise Host machine.
- Run the installation with administrator privileges.
- Run the following command together with the required command line options:

```
NV4LGSetup.exe /s /v"/qn <command_line_options>"
```

```
Example: NV4LGSetup.exe /s /v"/qn PORT=8182"
```

Command line options:

Option	Description	Required/Optional	Default value
PORT=<port number>	The port used to connect to NV for Load Generator.	REQUIRED	8182
INSTALLDIR="\<path to installation folder>\"	The location where the application files will be installed.	OPTIONAL	C:\Program Files\OpenTexts\NV
ENABLE_REMOTE=<TRUE FALSE>	Opens the port in the firewall. Required for remote access to the NV statistics and the NV Network Editor.	OPTIONAL	TRUE

Option	Description	Required/Optional	Default value
REBOOT_IF_NEED=<TRUE FALSE>	If a reboot is required, automatically reboots the computer after installation completes. Even if the FALSE value is used, you will need to reboot the machine before NV for Load Generator is operational.	OPTIONAL	FALSE
DATA_FOLDER="<path to data dir>"	The location where temporary internal application data and user data is saved.	OPTIONAL	C:\ProgramData\OpenText\NV

Silently uninstall Network Virtualization on Windows

To uninstall an NV component silently, you must be logged in as administrator.

At the command line, enter the command for the component you want to uninstall:

NV component	Uninstall command
NV for LoadRunner Enterprise	<code>NV4PCSetup.exe /s /removeonly /v"/qn PORT=<port number> REBOOT_IF_NEED=<TRUE FALSE>"</code>
NV for Controller	<code>NV4ControllerSetup.exe /s /removeonly /v"/qn PORT=<port number> REBOOT_IF_NEED=<TRUE FALSE>"</code>
NV for Load Generator	<code>NV4LGSetup.exe /s /removeonly /v"/qn PORT=<port number> REBOOT_IF_NEED=<TRUE FALSE>"</code>

Note: After uninstalling, we recommend rebooting the machine.

Install NV for Load Generator on Linux

This section describes how to install and uninstall NV for Load Generator on a Linux machine.

Note:

- Starting from NV 2023 R1, NV for Load Generator is no longer supported on Linux machines.
- NV Insights is not supported for tests run on Linux.



Installation prerequisites

To install the prerequisites:

1. Install Oracle Java JRE or Azul Zulu OpenJDK if not already installed. For supported versions, see "[System requirements](#)" on page 5.

Note:

- For NV 2022 R2 and later, you must install Zulu OpenJDK 11 on your Linux machines that are running NV, and update the Java default path to Zulu 11.
- For distributions that support NV, see the relevant version of the Supported Protocols guide available from [Support Matrix](#).

Zulu

Install from repository
(including dependencies)

Red Hat/Oracle Enterprise Linux:

- a. Download the zulu.repo file from:
<http://repos.azulsystems.com/rhel/zulu.repo>
- b. Copy:

```
cp zulu.repo /etc/yum.repos.d/
```

- c. Install Zulu:

NV versions earlier than 2022 R2:

```
yum install zulu-8
```

NV 2022 R2 and later:

```
yum install zulu-11  
ln -sf /usr/lib/jvm/zulu-11/ default
```

Ubuntu:

```
apt-add-repository 'deb  
http://repos.azulsystems.com/ ubuntu  
stable main'  
  
apt-get update  
  
apt-get install zulu-8
```

Install from package
(without dependencies)
(Useful if the target
computer does not have
Internet access)

• Red Hat/SUSE/Oracle Enterprise Linux:

Download and install the .RPM package:
[http://www.azul.com/downloads/zulu/zulu-
linux/](http://www.azul.com/downloads/zulu/zulu-linux/)

```
rpm -i <zulu-8 package>.rpm
```

• Ubuntu:

Download and install the .DEB package:
[http://www.azul.com/downloads/zulu/zulu-
linux/](http://www.azul.com/downloads/zulu/zulu-linux/)

```
dpkg -i <zulu-8 package>.deb
```

2. Set the default Java path:

Zulu	NV versions earlier than 2022 R2: <pre>mkdir /usr/java (Only if /usr/java does not exist) cd /usr/java rm default ln -sf /usr/lib/jvm/<zulu-8 package name>/jre default</pre> NV 2022 R2 and later: Update the Java path to point to Zulu 11 by removing the existing link: <pre>rm -f /usr/java/default</pre>
Oracle Java	Confirm the default path: <pre>readlink -f /usr/java/default/</pre> Sample output: <pre>/usr/java/jdk1.8.0_131/jre/</pre>

3. Install GCC:

- **Red Hat/Oracle Enterprise Linux:**

```
yum install gcc
```

- **SUSE:**

```
zypper install gcc
```

- **Ubuntu:**

```
apt-get install gcc
```

4. Install kernel-devel/linux-headers:

- **Red Hat/Oracle Enterprise Linux:**

```
yum install -y kernel-devel-$(uname -r)
```

- **SUSE:**

```
zypper install kernel-default-devel
```

- **Ubuntu:**

```
dpkg -s linux-headers-$(uname -r)
```

5. Install the ed line editor on **Red Hat/Oracle Enterprise Linux:**

```
yum install ed
```

6. For all **Ubuntu** distributions that do not include the make command by default—for example, 16.04—install build-essential:

```
apt-get install build-essential
```

Installation switches

You can use these command-line switches when installing and configuring Network Virtualization.

```
./NVLoadGenerator-2020.0.0.xxxx.noarch.rpm.bin [-i|-r|-u|-v] [-s] [-a] [-h] [-l]
```

Switch	Description
-i --install	Install the NV for Load Generator package.
-r --remove	Uninstall the NV for Load Generator package.
-u --upgrade	Uninstall the previous version and install the new version.
-v --version	Print version.
-s --silent	Silent install/uninstall of the NV for Load Generator package. Note: After installation, you need to run 'service nvd setting' to configure Network Virtualization. Relevant only with: -i, -r, -u

Switch	Description
-a --accepteula	Accept End User License Agreement (EULA). Required for silent installation or upgrade. Relevant only with: -i, -u
-l	Ignore load generator verification.
-h --help	Print this help.

Installing NV for Load Generator on Linux

1. Make sure that:

- All [prerequisites](#) are met.
- You are installing with root (superuser) permissions.

2. Grant execute permission:

- **Red Hat or SUSE:**

```
chmod +x NVLoadGenerator-2020.0.0.xxxx.noarch.rpm.bin
```

- **Ubuntu:**

```
chmod +x NVLoadGenerator-2020.0.0.xxxx.deb.bin
```

3. Start the NV for Load Generator installation (the installation files are located in the following folder **<LoadRunner installation package>\MF_LG_2020_Linux_64bit/NV4LG**):

- **Red Hat or SUSE:**

```
./NVLoadGenerator-2020.0.0.2061.noarch.rpm.bin -i -l
```

- **Ubuntu:**

```
./NVLoadGenerator-2020.0.0.2061.deb.bin -i -l
```

4. Read the EULA, using the space bar to scroll down. Press **y** to accept the EULA.

5. Specify the Network Virtualization data folder.

Default: /etc/opt/nv/LG/RunResults

Note: To specify a non-default data folder, the folder must already exist.

6. Specify the connection port for NV for Load Generator.

- **On NV for Load Generator:** The port is used to retrieve Network Virtualization statistics.
- **On other components:** The port is used for internal Network Virtualization communication on the machine.

Default: 8182

7. Enable remote connections to open the port in the firewall, if needed.

Default: y

Uninstalling NV for Load Generator on Linux

1. Run the following with root (superuser) permissions:

- **Red Hat or SUSE:**

```
rpm -e NVLoadGenerator
```

- **Ubuntu:**

```
dpkg -r nvloadgenerator
```

2. At the uninstall prompt, press 'y' to permanently remove NV for Load Generator.

Install NV for Load Generator silently on Linux

This section describes how to install NV for Load Generator silently on a Linux machine. For a list of switches, see ["Installation switches" on page 24](#).

To install NV for Load Generator silently on Linux:

1. Grant execute permission:

- **Red Hat or SUSE:**

```
chmod +x NVLoadGenerator-2020.0.0.xxxx.noarch.rpm.bin
```

- **Ubuntu:**

```
chmod +x NVLoadGenerator-2020.0.0.xxxx.deb.bin
```

2. Run:

```
./NVLoadGenerator-2020.0.0.2061.deb.bin -i -s -a -l
```

3. Start the configuration wizard by running:

- **Red Hat or Ubuntu:**

```
service nvd setting
```

- **SUSE:**

```
/etc/init.d/nvd setting
```

4. Specify the Network Virtualization data folder.

Default: /etc/opt/nv/LG/RunResults

Note: To specify a non-default data folder, the folder must already exist.

5. Specify the connection port for NV for Load Generator.

- **On NV for Load Generator:** The port is used to retrieve Network Virtualization statistics.

- **On other components:** The port is used for internal Network Virtualization communication on the machine.

Default: 8182

6. Enable remote connections to open the port in the firewall, if needed.

Default: y

Installation logs on Linux

Installation logs are located under **/opt/NVLoadGenerator-X.XX.X.XXXX/logs/**.

For example:

- **Installation log.** /opt/NVLoadGenerator-2020.0.0.1234/logs/nv_deploy.log
- **Driver log.** /opt/NVLoadGenerator-2020.0.0.1234/logs/simdrv_build.log

Post-installation tasks



After installing NV components, you need to configure the active adapter.

For details, see the relevant sections of the [Network Virtualization for LoadRunner Help](http://admhelp.microfocus.com/nv/en/nv-perform) (<http://admhelp.microfocus.com/nv/en/nv-perform>).

Note: When you set up the LoadRunner Professional/LoadRunner Enterprise testing environment, make sure that the LoadRunner Professional Controller or the LoadRunner Enterprise Host can use port 8182 (default) to communicate with all load generators that will run NV. If this communication is not enabled, the LoadRunner Professional Controller, LoadRunner Enterprise client, and Analysis will not be able to display the "Network Virtualization Charts".

Network Virtualization Installation Guide

Welcome to Network Virtualization for LoadRunner