opentext™

Network Virtualization

Software version: All versions

Installation Guide

Document release date: April 2024

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Contents

Welcome to this guide

Welcome to the Network Virtualization Installation guide. This guide describes the system prerequisites and installation process for Network Virtualization.

Before you install

Network Virtualization can be used as a standalone testing tool, or integrated with other OpenText testing tools.

- If you are using Network Virtualization as a **standalone testing tool**, review "Setting up the testing environment" on page 9.

- If you are **integrating** Network Virtualization with one of the following OpenText products, refer to the Network Virtualization sections in their online Help. Due to integration requirements, it is possible that the Network Virtualization installation and configuration instructions are different from the instructions in the Network Virtualization Installation Guide.

  - For integration with Digital Lab, see Integration with Digital Lab in the Network Virtualization Help Center.

  - For integration with UFT One, see the UFT One Help Center.

  - For integration with Service Virtualization, see the Service Virtualization Help Center.

  - For integration with LoadRunner Professional or LoadRunner Enterprise, you use the Network Virtualization version that is included in the LoadRunner Professional or LoadRunner Enterprise package. For details, see the Network Virtualization for LoadRunner Help Center.

The Network Virtualization installation package includes the following applications:

Application	Required/Optional
NV Test Manager	Required.
NV Server (optional)	Optional when using NV as a standalone testing tool. Not used when integrating with other OpenText testing tools.

System requirements for NV Test Manager

The requirements for NV Test Manager are as follows:

Processor	**Minimum:** Quad core 2.5 GHz **Recommended:** Intel Core i7 3 GHz or stronger
Memory	**Minimum:** 4 GB RAM **Recommended:** 8 GB RAM
Hard Disk (free disk space)	**For installation:** 300 MB **For test results:** 50 GB, depending on the amount and number of tests
Network Adapter	• Ethernet (recommended) • Wireless **For NV Virtual Appliance solution for Linux:** 1 Gigabit Ethernet adapter and/or 10 Gigabit Ethernet adapter
Supported Browsers	• Internet Explorer 10 or later • Microsoft Edge • Firefox • Chrome
Operating System (Only 64-bit OS versions are supported)	

Windows	• Windows 7 SP1
	• Windows 8
	• Windows 8.1
	• Windows 10
	• Windows Server 2008 R2 SP1
	• Windows Server 2012
	• Windows Server 2012 R2
	• Windows Server 2016
	Windows software prerequisites:
	• Windows updates:
	• KB2919442 x64 (if applicable)
	• KB2919355 x64
	• KB2999226 x64
	(The following are automatically installed during the NV Test Manager installation, if not already installed.)
	• Visual C++ Redistributable for Visual Studio 2015
	• .NET Framework 4+ (4.5.2 will be installed)
	Note: If Visual C++ 2017 Redistributable is already installed Visual C++ 2015 Redistributable will not be installed. **Resolution:** Remove Visual C++ 2017 Redistributable prior to installation. For more details, see the Microsoft documentation.

Linux	*<Operating System> (<Last tested kernel>)*
	• CentOS 6.6+ (2.6.32-696.3.2.el6.x86_64)
	• CentOS 7.0+ (3.10.0-514.el7.x86_64)
	• Red Hat 6.6+ (2.6.32-696.3.2.el6.x86_64)
	• Red Hat 7.0+ (3.10.0-514.el7.x86_64)
	• Suse 12+ (4.4.21-69-default)
	• Ubuntu 14.04 LTS: (3.13.0-123-generic x86_64)
	• Ubuntu 16.04 LTS: (4.4.0-83-generic x86_64)
	Prerequisites for NV Test Manager on Linux
	• Azul Zulu OpenJDK v8 64-bit
	• Oracle Java JRE v8 64-bit
	Development tools to build kernel modules:
	• GCC
	• kernel-devel/linux-headers for the running kernel
	• ed editor
	For details, see "Installing NV Test Manager on Linux" on page 25.

> **Virtual Environments:** The architectures provided by virtualization vendors are rapidly evolving. Network Virtualization 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 Network Virtualization-approved hardware requirements. If you follow Network Virtualization system requirements to create the virtual machine, Network Virtualization 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 machines' measurements and lead to false results.

Setting up the testing environment

When running tests with Network Virtualization, the traffic of the Application Under Test (AUT) must flow through NV Test Manager.

To enable the required flow of network traffic, select one of the available configuration options, according to your needs.

- "Configuration 1: Set up NV as a desktop client" below
- "Configuration 2: Set up NV as a proxy" on page 12

Configuration 1: Set up NV as a desktop client

In this configuration, NV Test Manager is installed on each testing client. This may be significant when testing a web browser or thick client program running on Windows or Linux. If the AUT cannot operate locally on the same client as NV Test Manager, then an alternative configuration must be used. This may occur when testing mobile apps or where the AUT does not operate on a supported Windows or Linux platform.
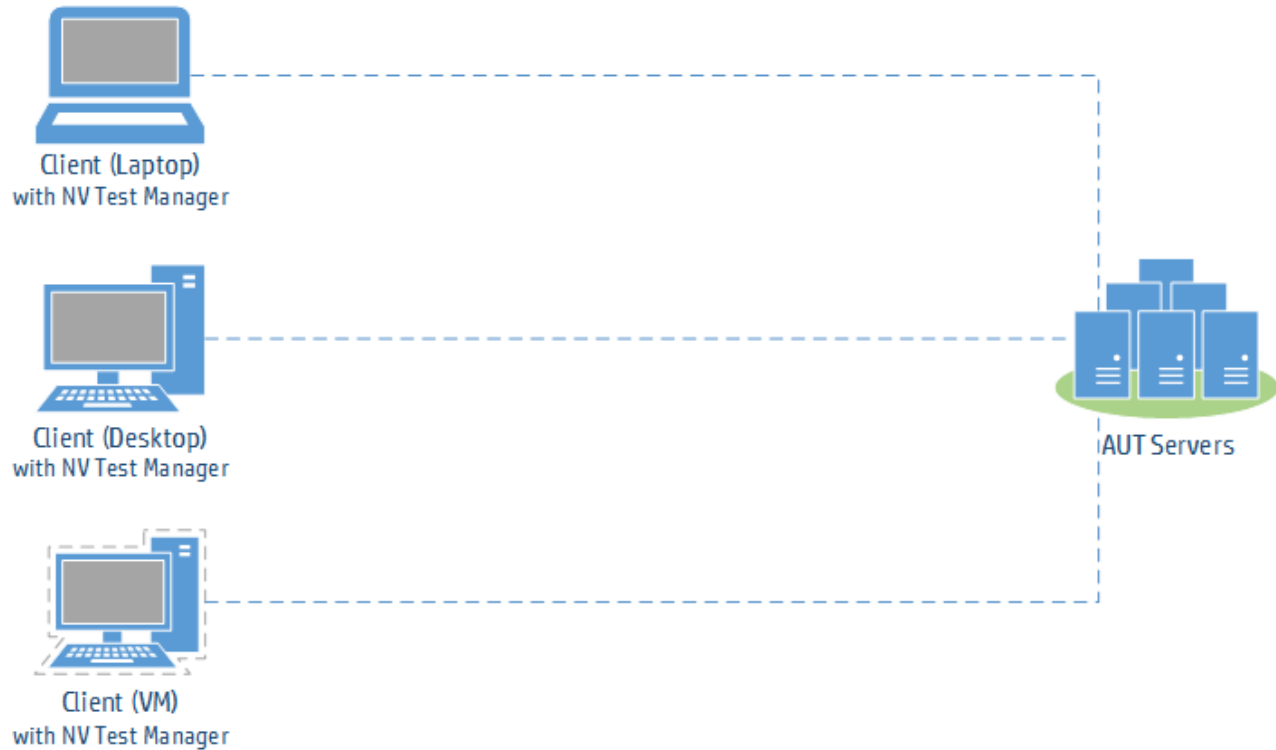
To set up NV as a desktop client

1. Install NV Test Manager on each client. For details, see "Before you install" on page 5.

   If your application uses HTTPS, do one of the following:

   - During installation, enable the NV Proxy.

   - After installation, enable the NV Proxy in the NV Test Manager Settings.

2. Install the NV proxy certificate.

   Internet Explorer and Chrome:

   a. Navigate to the **<installation_directory>\NV\conf** folder and double-click **hpenv.cer** or **mfnv.cer**.

   b. Select **Install > Local Machine** (if available) and click **Next**.

   c. In the Certificate Store page, select **Place all certificates in the following store** and click **Browse**.

   d. Select **Trusted root certification authorities** and complete the wizard.

Firefox:

a. Open Firefox **Options**.

b. Select **Advanced > Certificates** and click **View Certificates**.

c. Under **Authorities**, click **Import**.

d. Browse to and select **hpenv.cer** or **mfnv.cer** in the **<installation_ directory>\NV\conf** folder.

e. Select **Trust this CA to identify websites**.

Other clients:

Install the certificate on the client. For example, for a Java client, install the certificate in the Java KeyStore.

3. Configure the client to use the NV proxy.

Internet Explorer and Chrome:

a. Open Windows' Internet Options from the Control Panel, Internet Explorer, or Chrome.

b. Go to **Connections > LAN settings**.

c. Select **Use a proxy server for your LAN** and enter the proxy:

   ○ **Address:** 127.0.0.1

   ○ **Port:** NV proxy port (8888 by default)

d. If the application server is on the same network, clear **Bypass proxy server for local address**.

e. Select **Advanced** > **Use the same proxy server for all protocols**.

 f. Under **Exceptions**, enter **localhost;127.0.0.1**.

Firefox:

a. Open Firefox Options.

b. Select **Advanced > Network**, and click (Connection) **Settings**.

c. In the Connection Settings dialog box, do one of the following:

- Select **Manual proxy configuration:**

  - Enter the **HTTP proxy** (NV Test Manager) IP address and port 8888 (by default).

  - Select **Use this proxy server for all protocols**.

  - In the **No Proxy for** box, enter **localhost**.

- Select **Use system proxy settings** and specify the proxy settings as described in "Internet Explorer and Chrome:" on page 14.

Other clients:

Configure the client to use the NV proxy.

- **Address:** 127.0.0.1

- **Port:** NV proxy port (8888 by default)

4. Configure the upstream proxy.

   Required when the application server is behind a proxy, for example, when the application server is on the cloud, and NV Test Manager is on the LAN behind the corporate proxy.

   a. Open NV Test Manager and select **Settings**.

   b. Configure the upstream proxy address and port.

Configuration 2: Set up NV as a proxy

In this configuration, NV Test Manager is installed on a single machine in the testing lab with its proxy enabled. The clients are configured to use the NV proxy. When the AUT traffic flows through the NV Test Manager, the specified real world network conditions are emulated.

This configuration supports testing applications where the client cannot operate on the same platform as NV Test Manager. This may occur with on-device testing of mobile and mobile-web applications or desktop testing of web applications. This is the preferred method for on-device mobile testing.

Client (test devices) network

Client (Laptop)
configured to use the proxy

Client (Desktop)
configured to use the proxy

Client (VM)
configured to use the proxy

Client (Smartphone)
configured to use the proxy

Client (Tablet)
configured to use the proxy

Wireless access point

NV Test Manager
proxy server installed

AUT Servers
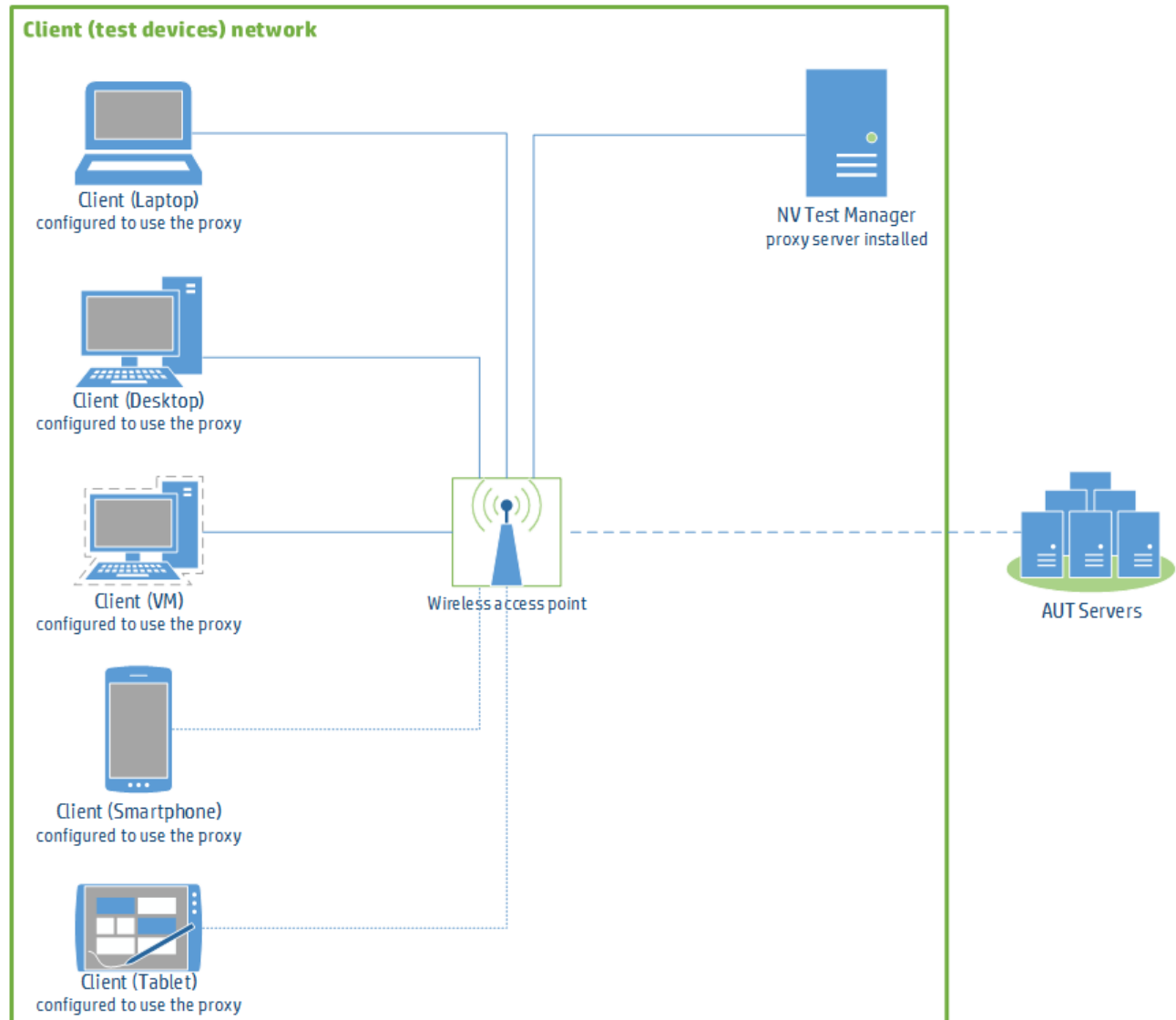
Note:

- Make sure that **Client Isolation** is disabled on the wireless router. The wireless network must allow devices to use another device on the network as a proxy. In this case, the test devices use the NV Test Manager workstation as a proxy.

- Make sure that no Network Address Translation (NAT) device is placed between the clients and the NV Test Manager host machine.

- If a proxy is configured on a mobile device, mobile web applications always use that proxy because they run in a browser. Native applications, however, might ignore the device's proxy settings.

To set up NV as a proxy:

1. Install NV Test Manager.

   For details, see "Before you install" on page 5. During installation, make sure to enable the NV Proxy if the AUT uses HTTPS or is a mobile application. Alternatively, you can enable the proxy in the Settings tab of the Test Manager.

   > **Note:** Some test devices may fail to reach the proxy when using the proxy's host name. Therefore, we recommend that you assign a static IP address to the NV Test Manager machine and use the assigned address when configuring the test devices with the proxy.

2. Install the proxy's SSL certificate on the client testing devices.

   This enables the AUT to communicate through the proxy.

   a. Connect the device to the wireless network.

   b. Make sure that the proxy is configured on the device (for details, see step 3 below).

   c. Browse to: **<http/https>://<NV Test Manager address>:<NV Test Manager port; 8182 by default>/hpenv.cer** or **mfnv.cer**.

   d. Download and install the certificate.

      ○ On **Windows**, install the certificate to the Trusted Root Certification Authorities store.

      ○ On **iOS 10.3** and later, browse to **Settings > General > About > Certificate Trust Settings**, and enable full trust for the certificate.

      Alternatively, install your company's self-signed certificate.

3. Configure the client test devices to use the proxy server:

   Internet Explorer and Chrome:

   a. Open Windows' Internet Options from the Control Panel, Internet Explorer, or Chrome.

   b. Go to **Connections > LAN settings**.

    c. Select **Use a proxy server for your LAN** and enter the proxy (NV Test Manager) IP address and port 8888 (by default).

Firefox:

a. Open Firefox Options.

b. Select **Advanced > Network**, and click (Connection) **Settings**.

c. Do one of the following:

    ○ Select **Manual proxy configuration:**

        • Enter the proxy (NV Test Manager) IP address and port 8888 (by default).

        • Select **Use this proxy server for all protocols**.

        • In the **No Proxy for** box, enter **localhost**.

    ○ Select **Use system proxy settings** and specify the proxy settings as described in "Internet Explorer and Chrome:" on the previous page.

iOS:

a. Click **Settings > Wi-Fi**.

b. Select the **i** next to the wireless network name to display its properties.

c. Select **Manual** and enter the proxy IP address and port 8888 (by default).

Android:

a. Click **Settings > Wi-Fi**.

b. Long press the wireless network name, select **Modify network**, and then click **Advanced options**.

c. Select **Manual** and enter the proxy IP address and port 8888 (by default).

4. Verify that each client test device communicate successfully through the proxy.

    a. From Test Manager, start a Quick Test. In both the **Include** section of **Client IPs** and the **Exclude** section of **Server IPs**, select the IP of the device configured to use the proxy.

b. On the device, browse to a website. Verify a website that uses HTTPS, if needed.

c. In Test Manager, switch to the **Statistics** tab and make sure that the throughput is **not** 0.

NV Virtual Appliance solution for Linux

The NV Virtual Appliance solution enables you to impair network traffic that passes through a server on which Network Virtualization is installed. This is especially useful where NV Test Manager cannot be installed on the clients or servers in the testing environment, as well as in high-throughput and complex environments.

Network operation modes

You set up Network Virtualization with NV Virtual Appliance using one of the following network operation modes:

Operation mode	Description
NV as a router	Uses standard Linux kernel routing.
NV as a bridge	Traffic is mirrored between multiple NICs concurrently. Uses standard Linux bridge configuration.
NV as a VLAN router/switch	Uses VLAN trunking.

The NV Virtual Appliance solution consists of a dedicated physical server that is deployed with Linux and NV Test Manager, OpenText's Network Virtualization software. Network Virtualization is then used to impair network traffic that you route through the server.

To learn more, see NV Virtual Appliance solution in the Network Virtualization Help Center.

> **Note:** The NV Virtual Appliance solution requires a **Virtual Appliance** license. For details, see the licensing section in the Network Virtualization Help Center.

Operation modes

During the NV Test Manager installation, you select the operation mode.

Mode	Description
Standalone mode	In standalone mode, NV Test Manager authenticates user logins locally, and all data storage is local. Multiple users can log on simultaneously using the same credentials.
Server mode	In server mode, NV Test Manager connects to NV Server, which manages user authentication. Data is stored locally, but can also be uploaded to, and downloaded from NV Server.

Installing NV Test Manager on Windows

This section provides information about installing NV Test Manager on Windows systems.

> **Note:** Make sure to review "Before you install" on page 5, which provides information on the Network Virtualization installation package, and on integrating Network Virtualization with other OpenText testing tools.

This section includes:

Upgrade NV Test Manager on Windows

Upgrading from Network Virtualization 9.x

To keep test data from Network Virtualization 9.x, make sure to do the following:

1. During uninstallation of 9.x, select the option to retain the data folder.
2. During installation of 9.13, make sure to use the same data folder that was used for 9.x.

Upgrading from a Shunra network virtualization product (prior to Network Virtualization 9.00)

Tests from previous versions of Network Virtualization products are not compatible with Network Virtualization version 9.13. Even if you select to maintain the test data when you uninstall a previous version, the tests will not be included in the list of existing tests in NV Test Manager version 9.13.

Before you install any Network Virtualization version 9.13 components, uninstall any existing Shunra applications.

Alternatively, to maintain access to tests from a previous version, do not uninstall the previous version, and install NV Test Manager version 9.13 on a different computer.

Install NV Test Manager on Windows

This section describes how to install NV Test Manager on Windows. If .NET 4 or later is not already installed on the machine, the installation process installs Microsoft .NET Framework 4.5.2 - Full.

To install NV Test Manager:

1. Prerequisites:

   - Review the system requirements, as described in "System requirements for NV Test Manager" on page 6.

   - Make sure to install NV Test Manager on a different machine from the NV Server and/or AutoPass License Server.

2. On the NV Test Manager computer, run the **NVSetupWizard.exe** setup file (as an administrator), select **NV Test Manager**, click **Install**, and follow the onscreen directions.

   During the NV Test Manager installation, you must select the operation mode. For details, see "Operation modes" on page 17.

Post-installation

You can perform the following optional steps after NV Test Manager is installed.

- If during installation you chose the option to use a secure connection, download the NV SSL certificate and install it on the Test Manager machine to prevent SSL warnings when opening Test Manager:

  a. Browse to: **https://<NV Test Manager address>:<NV Test Manager port (by default 8182>/hpenv.cer** or **mfnv.cer**.

  b. Download and install the certificate. On Windows, install the certificate to the "Trusted Root Certification Authorities" store.

- Specify the NV Test Manager settings. For details, see the Network Virtualization Help Center.

Uninstall NV Test Manager on Windows

In the Microsoft Windows Control Panel, click **Uninstall a program**, select **NV Test Manager**, and then click **Uninstall**.

> **Note:** During the process of uninstalling NV Test Manager, be sure to select to retain the data folder if you plan to reinstall later.

Silently install NV Test Manager on Windows

NV Test Manager can be installed (and uninstalled) silently. The installation process varies slightly depending on whether it is a standalone NV Test Manager installation or a server-based installation.

To install NV Test Manager silently:

1. Make sure that all system requirements are met before beginning the installation. For details, see "System requirements for NV Test Manager" on page 6.

2. Copy **<NV installation package>/Windows/Setups/NVTestManagerSetup.exe** to the target machine.

   Make sure to install NV Test Manager on a different machine from the NV Server and/or AutoPass License Server.

3. Run the installation with administrator privileges in one of the operating modes. For details about each mode, see "Installing NV Test Manager on Windows" on page 18.

   Standalone mode

Installation command	`NVTestManagerSetup.exe /s /v"/qn command_line_options"`

Command line options * indicates a mandatory command line option	* `ADMIN_NAME=<administrator user name>` The user name for the NV Test Manager user. * `ADMIN_PASS=<administrator password>` The password for the NV Test Manager user. * `PORT=<port number>` The port used to connect to NV Test Manager. `INSTALLDIR=\"<path to installation folder>\"` The location where the application files will be installed. `DATA_FOLDER=\"<path to data folder>\"` The location where internal application data and user data is saved. `ENABLE_REMOTE=TRUE	FALSE` Opens the port in the Windows firewall. **Default:**`TRUE`</li><li>`REBOOT_IF_NEED=TRUE	FALSE` If a reboot is needed, automatically reboots the computer after installation completes. **Default:**`TRUE`</li><li>`SECURE_CONNECTION=TRUE	FALSE` Uses secured communication (HTTPS) to connect to NV Test Manager. **Default:**`TRUE`

> **Example:**
>
> ```
> NVTestManagerSetup.exe /s /v"/qn PORT=8182 ENABLE_REMOTE=TRUE
> DATA_FOLDER=\"C:\ProgramData\OpenText\NV\"
> INSTALLDIR=\"C:\Program Files\OpenText\NV\" ADMIN_NAME=NVuser
> ADMIN_PASS=Admin123 REBOOT_IF_NEED=TRUE SECURE_
> CONNECTION=TRUE"
> ```

Server mode

Installation command	`NVTestManagerSetup.exe /s /v"/qn command_` `line_options"`

Command line options	• * `PORT=<port number>`
Command line options * indicates a mandatory command line option	• * `PORT=<port number>` The port used to connect to NV Test Manager. • `INSTALLDIR=\"<path to installation folder>\"` The location where the application files will be installed. • `DATA_FOLDER=\"<path to data folder>\"` The location where internal application data and user data is saved. • `ENABLE_REMOTE=TRUE | FALSE` Opens the port in the Windows firewall. **Default:** `TRUE` • `REBOOT_IF_NEED=TRUE | FALSE` If a reboot is needed, automatically reboots the computer after installation completes. **Default:** `TRUE` • `SECURE_CONNECTION=TRUE | FALSE` Uses secured communication (HTTPS) to connect to NV Test Manager. **Default:** `TRUE` • * `SERVER_PORT=<port number>` The NV Server port. • * `SERVER_ADDRESS=<NV Server hostname or IP address>`

Example:

```
NVTestManagerSetup.exe /s /v"/qn PORT=8182 ENABLE_REMOTE=TRUE
INSTALLDIR=\"C:\Program Files\OpenText\NV\" SERVER_
ADDRESS=NVSERVER SERVER_PORT=8443 REBOOT_IF_NEED=TRUE SECURE_
CONNECTION=TRUE"
```

Silently uninstall NV Test Manager on Windows

This section describes how to uninstall NV Test Manager silently on a Windows machine.

To uninstall NV Test Manager silently on Windows:

1. Make sure that the **<NV installation package>/Windows/Setups/NVTestManagerSetup.exe** file is on the target machine.

2. Run the installation with administrator privileges in one of the operating modes.

Uninstall command	`NVTestManagerSetup.exe /s /removeonly /v"/qn command_line_options"`
Command line options (Optional)	• `REBOOT_IF_NEED=TRUE	FALSE` If a reboot is needed, automatically reboots the computer after uninstall completes. **Default:**`TRUE` • `FORCE_REBOOT=TRUE	FALSE` Automatically reboots the computer after uninstall completes, whether or not a reboot is needed. **Default:**`FALSE` • `DELETE_DATA=TRUE	FALSE` Deletes all stored NV Test Manager data. **Default:** `FALSE`

> **Example:** This example uses the default values for all the options, so the system will reboot if needed.
>
> `NVTestManagerSetup.exe /s /removeonly /v"/qn"`

Installation log files on Windows

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

Installing NV Test Manager on Linux

This section describes how to install, configure, and set up NV Test Manager for Linux.

> **Note:** Make sure to review "Before you install" on page 5, which provides information on the Network Virtualization installation package, and on integrating Network Virtualization with other OpenText testing tools.

- "Prerequisites" below
- "Upgrade NV Test Manager for Linux" on page 28
- "Install NV Test Manager on Linux" on page 29
- "Install NV Test Manager silently on Linux" on page 32
- "Installation switches" on page 34

Prerequisites

To install the prerequisites:

1. Install Oracle Java JRE or Azul Zulu OpenJDK, if not already installed. For supported versions, see "System requirements for NV Test Manager" on page 6.

Zulu	

Install from repository (including dependencies)	**Red Hat:**
	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:
	`yum install zulu-8`
	
	Ubuntu:
	<code>apt-add-repository 'deb
   http://repos.azulsystems.com/ ubuntu
   stable main'

apt-get update

apt-get install zulu-8</code>

Install from package (without dependencies)
(Useful if the target computer does not have Internet access)
	• **Red Hat and SUSE:**
	Download and install the .RPM package:
	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/
	`dpkg -i <zulu-8 package>.deb`

2. Set the default Java path:

Zulu	<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>

Oracle Java	Confirm the default path:
	
	```readlink -f /usr/java/default/```
	
	Sample output:
	
	```/usr/java/jdk1.8.0_131/jre/```

3. Install GCC:

   • **Red Hat:**

   ```
   yum install gcc
   ```

   • **SUSE:**

   ```
   zypper install gcc
   ```

   • **Ubuntu:**

   ```
   apt-get install gcc
   ```

4. Install kernel-devel/linux-headers:

   • **Red Hat:**

   ```
   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**:

```
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
```

Upgrade NV Test Manager for Linux

This section describes how to upgrade NV Test Manager on a Linux machine.

> **Caution:**
> - **Data.** The upgrade process for NV Test Manager overwrites your existing test data. We recommend backing up your data before starting the upgrade.
> - **License.** The upgrade process for NV Test Manager removes your existing license. To replace the license:
>   a. Log in to the Software Licenses and Downloads (SLD) portal.
>   b. Under **Rehosts**, reactivate your license according to the online instructions.

To upgrade NV Test Manager on Linux:

1. Back up the NV **RunResults** data folder:

```
cp -r /opt/nv-9.xx-x.<build number>/RunResults/ <backup_
location>
```

For example: **cp -r /opt/nv-9.10-0.325/RunResults/ /opt/**

2. Install NV Test Manager 9.13 according to the instructions in "Install NV Test Manager on Linux" on the next page.

3. Restore the NV **RunResults** data folder:

    a. Stop the NV service:

    ```
    service nvd stop
    ```

    b. Copy the backed up data to the NV Test Manager data folder (by default , **/etc/opt/nv/TM/RunResults**):

    ```
    cp -r <backup_location>/RunResults /<NV Test Manager data
    folder specified during installation>/
    ```

    For example: **cp -r /opt/RunResults/ /etc/opt/nv/TM/RunResults/**

    c. Start the NV service:

    ```
    service nvd start
    ```

Install NV Test Manager on Linux

This section describes how to install and uninstall NV Test Manager on a Linux machine.

> **Note:**
>
> - Make sure to install NV Test Manager on a different machine from the AutoPass License Server
> - Installation must be done with root (superuser) permissions.
> - When installing NV Test Manager for Linux on virtual machines, do not clone the machine after the trial license has started.

To install NV Test Manager on Linux:

1. Grant `execute` permission:

    - **Red Hat/Centos/SUSE:**

    ```
    chmod +x NVTestManager-9.13.0.XXXX.noarch.rpm.bin
    ```

- **Ubuntu:**

```
chmod +x NVTestManager-9.13.0.XXXX.deb.bin
```

2. Start the NV Test Manager installation:

   - **Red Hat/Centos/SUSE:**

```
./NVTestManager-9.13.0.XXXX.noarch.rpm.bin -i
```

   - **Ubuntu:**

```
./NVTestManager-9.13.0.XXXX.deb.bin -i
```

3. Read the EULA, using the space bar to scroll down.

4. Press 'y' to accept the EULA.

5. Specify the Network Virtualization data folder.
   Default:`/etc/opt/nv/TM/RunResults`

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

6. Specify the connection port for NV Test Manager.
   Default: 8182

7. Specify whether to use a secure connection (HTTPS). [y/n]
   Default: y

8. Enable remote connections (open the port in the firewall). [y/n]
   Default: y

9. Specify whether to use NV Server. (Select only if you need to install and use NV Server.) [y/n]
   Default: n

10. If you selected **y** in the previous step, do one of the following:

    - If you plan to use **Standalone mode** (as described in "Operation modes" on page 17), specify the following:

      i. User name (6-30 characters using a-z, A-Z, 0-9, -, _)

      ii. Password (8-30 characters from at least 3 of the following groups:
         a-z, A-Z, 0-9, - ,_)

- If you plan to use **Server mode** (as described in), enter the serverNV Server address:

    i. NV Server hostname/FQDN/IP Address

    ii. NV Server port [1-65535] (default=8443)

11. Enable the NV proxy [y/n]

    Default: y

12. If you selected **y** in the previous step, do the following:

    a. Specify a proxy port [1-65535].
    Default: 8888

    b. Enable proxy authentication (not recommended) [y/n]
    Default: n

    c. Allow Network Virtualization to analyze secured communication (HTTPS) by functioning as a man-in-the-middle proxy? [y/n]
    Default: y

    d. Define upstream proxy (required, for example, when the application server is on the cloud, and Network Virtualization is on the LAN behind the corporate proxy) [y/n]
    Default: n

    e. If you selected **y** in the previous step, do the following:

        i. Specify the upstream proxy address.

        ii. Specify the upstream proxy port.

To uninstall NV Test Manager on Linux using the installation package:

- **Red Hat/Centos/SUSE:**

```
./NVTestManager-9.13.0.XXXX.noarch.rpm.bin -r
```

- **Ubuntu:**

```
./ NVTestManager-9.13.0.XXXX.deb.bin -r
```

To uninstall NV Test Manager on Linux without using the installation package:

- **Red Hat/Centos/SUSE:**

```
rpm -e NVTestManager
```

- **Ubuntu:**

```
dpkg -r nvtestmanager
```

Install NV Test Manager silently on Linux

This section describes how to install and uninstall NV Test Manager silently on a Linux machine. For a list of switches, see "Installation switches" on page 34.

To install NV Test Manager silently on Linux:

1. Grant `execute` permission:

   - **Red Hat, CentOS, or SUSE:**

   ```
   chmod +x NVTestManager-9.13.0.XXXX.noarch.rpm.bin
   ```

   - **Ubuntu:**

   ```
   chmod +x NVTestManager-9.13.0.XXXX.deb.bin
   ```

2. Install NV Test Manager:

   - **Red Hat/Centos/SUSE:**

   ```
   ./NVTestManager-9.13.0.XXXX.noarch.rpm.bin -i -s -a
   ```

   - **Ubuntu:**

   ```
   ./NVTestManager-9.13.0.XXXX.deb.bin -i -s -a
   ```

3. Configure NV Test Manager:

- **Red Hat/Centos/Ubuntu:**

```
service nvd setting
```

- **SUSE:**

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

4. Specify the Network Virtualization data folder.

   Default:`/etc/opt/nv/TM/RunResults`

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

5. Specify the connection port for NV Test Manager.

   Default: 8182

6. Specify whether to use a secure connection (HTTPS). [y/n]

   Default: y

7. Enable remote connections (open the port in the firewall). [y/n]

   Default: y

8. Specify whether to use NV Server. (Select only if you need to install and use NV Server.) [y/n]

   Default: n

9. If you selected **y** in the previous step, do one of the following:

   - If you plan to use **Standalone mode** (as described in "Operation modes" on page 17), specify the following:

     i. User name (6-30 characters using a-z, A-Z, 0-9, -, _)

     ii. Password (8-30 characters from at least 3 of the following groups: a-z, A-Z, 0-9, - ,_)

   - If you plan to use **Server mode** (as described in "Operation modes" on page 17), enter the serverNV Server address:

     i. NV Server hostname/FQDN/IP Address

     ii. NV Server port [1-65535] (default=8443)

10. Enable the NV proxy [y/n]

    Default: y

11. If you selected **y** in the previous step, do the following:

    a. Specify a proxy port [1-65535].
       Default: 8888

    b. Enable proxy authentication (not recommended) [y/n]
       Default: n

    c. Allow Network Virtualization to analyze secured communication (HTTPS) by functioning as a man-in-the-middle proxy? [y/n]
       Default: y

    d. Define upstream proxy (required, for example, when the application server is on the cloud, and Network Virtualization is on the LAN behind the corporate proxy) [y/n]
       Default: n

    e. If you selected **y** in the previous step, do the following:

       i. Specify the upstream proxy address.

       ii. Specify the upstream proxy port.

To uninstall NV Test Manager silently on Linux:

Run:

- **Red Hat, CentOS, and SUSE:**

```
./NVTestManager-9.13.0.XXXX.noarch.rpm.bin -r -s
```

- **Ubuntu:**

```
./NVTestManager-9.13.0.XXXX.deb.bin -r -s
```

Installation switches

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

```
./NVTestManager-9.13.0.XXXX.noarch.rpm.bin [-i|-r|-u|-v] [-s] [-a]
[-h]
```

Switch	Description
`-i --install`	Install the NV Test Manager package.
`-r --remove`	Uninstall the NV Test Manager package.
`-u --upgrade`	Uninstall the previous version and install the new version.
`-v --version`	Print version.
`-s --silent`	Silent install/uninstall of the NV Test Manager package. **Note:** After installation, you need to run `'service nvd setting'` to configure Network Virtualization. **Relevant only with:** `-i`, `-r`, `-u`
`-a --accepteula`	Accept End User License Agreement (EULA). Required for silent installation or upgrade. **Relevant only with:** `-i`, `-u`
`-h --help`	Print this help.

Installing licenses

After installing NV Test Manager, you need to install licenses. For details, see the Licensing section of the Network Virtualization Help Center.

Installing NV Server

This section describes how to install NV Server.

> **Note:** Make sure to review "Before you install" on page 5, which provides information on the Network Virtualization installation package, and on integrating Network Virtualization with other OpenText testing tools.

This section includes:

- "System Requirements" below
- "Upgrading to NV Server version All versions" on the next page
- "Install NV Server" on the next page
- "Installation log files" on page 39
- "Uninstall NV Server" on page 39

> **Note:** For details on configuring NV Server, see the Network Virtualization Help Center.

System Requirements

The minimum requirements for NV Server are as follows:

Processor	Quad core 2.5 GHz or stronger
Memory	4 GB RAM
Hard Disk	50 GB of free disk space
Operating System (Only 64-bit OS versions are supported)	• Windows Server 2008 R2 SP1 • Windows Server 2012 • Windows Server 2012 R2
Supported Browsers	• Internet Explorer 9.0 or later • Microsoft Edge • Firefox • Chrome

Upgrading to NV Server version All versions

Upgrading from Network Virtualization 9.x

To keep test data from Network Virtualization 9.x, make sure to do the following:

1. During uninstallation of 9.x, select the option to retain the data folder.

2. During installation of 9.13, make sure to use the same data folder that was used for 9.x.

Upgrading from a Shunra network virtualization product (prior to Network Virtualization 9.00)

Tests from previous versions of Network Virtualization products are not compatible with Network Virtualization version 9.13. Even if you select to maintain the test data when you uninstall a previous version, the tests will not be included in the list of existing tests in NV Test Manager version 9.13.

Before you install any Network Virtualization version 9.13 components, uninstall any existing Shunra applications.

Alternatively, to maintain access to tests from a previous version, do not uninstall the previous version, and install NV Test Manager version 9.13 on a different computer.

Install NV Server

> **Note:** Make sure to install NV Server on a different machine from NV Test Manager.

On the NV Server computer, run the **NVSetupWizard.exe** setup file (as an administrator), select **NV Server**, click **Install**, and follow the on-line directions.

During the installation, you will be required to:

- enter a username and password that can be used to access the NV Server. You can change both the username and the password after installing NV Server.

- specify the Destination folder and the Data folder. The NV Server application files are installed in the Destination folder. After installation, the NV Server will store all data in the Data folder.

> **Note:** For better performance, make sure that the destination folder and the data folder are located on the same hard drive.

Installation log files

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

Uninstall NV Server

In the Microsoft Windows Control Panel, click **Uninstall a program**, select **NV Server**, and then click **Uninstall**.

> **Note:** During the process of uninstalling NV Server, be sure to select to retain the data folder if you plan to reinstall later.

Silent installation of NV Server

1. Make sure that you are logged on as an Administrator and that all "System Requirements" on page 37 are met.

2. Copy the **NVServerSetup.exe** file to a convenient location.

3. From the Windows Start menu, click **All Programs > Accessories**, right-click **Command Prompt**, and then click **Run as administrator**.

4. In the Command Prompt window, navigate to the location of the file copied in step 1, and enter the following command together with the required command line options:

> **Installation command:**
>
> NVServerSetup.exe /s /v"/qn command_line_options"
>
> **Command line options** [* indicates a mandatory command line option]:
>
> - * ADMIN_NAME=administrator username
> - * ADMIN_PASS=administrator password
> - DATA_FOLDER=\"<path to data folder>\"
>   The location where internal application data and user data is saved.
>   Default is C:\ProgramData\HPE\NVServer.
> - INSTALLDIR=\"<path to the installation folder>\"
>   The location where the application files will be installed.
>   By default, <installation_folder> is C:\Program Files\HPE\NV\.
> - ENABLE_REMOTE=TRUE | FALSE
>   Opens the port in the firewall.
>   Default is TRUE.
> - REBOOT_IF_NEED=TRUE | FALSE
>   If a reboot is needed, automatically reboots the computer after installation completes.
>   **Note:** The machine must reboot before starting NV Server.
>   Default is TRUE.

> **Example:**
> ```
> NVServerSetup.exe /s /v"/qn ENABLE_REMOTE=TRUE
> INSTALLDIR=\"C:\Program Files\HPE\NV\" ADMIN_NAME=User12 ADMIN_
> PASS=Admin123 REBOOT_IF_NEED=TRUE"
> ```

Silent un-installation of NV Server

1. Make sure that you are logged on as an Administrator.

2. Copy the **NVServerSetup.exe** file to a convenient location.

3. From the Windows Start menu, click **All Programs > Accessories**, right-click **Command Prompt**, and then click **Run as administrator**.

4. In the Command Prompt window, navigate to the location of the file copied in step 1, and enter the following command together with the required command line options:

Installation command:

NVServerSetup.exe /s /removeonly /v"/qn command_line_options"

Command line options [All the command line options are optional]:

- REBOOT_IF_NEED=TRUE | FALSE

  If a reboot is needed, automatically reboots the computer after uninstall completes.

  Default is TRUE.

- FORCE_REBOOT=TRUE | FALSE

  Automatically reboots the computer after uninstall completes, whether or not a reboot is needed.

  Default is FALSE.

- DELETE_DATA=TRUE | FALSE

  Deletes all stored NV Server data, including the NV Server repository.

  Default is FALSE.

Example:
```
NVServerSetup.exe /s /removeonly /v"/qn"
```

This example uses the default values for all of the options, ensuring that the server repository data is not deleted and that the system reboots if needed.