



HP NV Location Editor

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For Windows and Linux

User Guide

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Chapter 1: HP NV Location Editor Introduction

HP NV Location Editor allows you to create network impairment profiles for use in software testing. These impairment profiles allow your testing lab to emulate the network conditions that software users experience in real-world use.

Chapter 2: Installing the NV Location Editor

The NV Location Editor can be installed on either Windows or Linux.

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Installing NV Location Editor for Windows

System Requirements

The minimum requirements for NV Location Editor are as follows:

Processor	Processor 1.7 GHz
Memory	2 GB RAM
Hard Disk	2 GB of free disk space
Desktop Operating System (English Version only)	Windows 7 SP1 (32/64 bit) Windows Server 2008 SP2 (32/ 64 bit) Windows Server 2008 R2 SP1 (64 bit)
Browsers	Firefox Chrome Internet Explorer 9.0 and higher Safari 7 and higher

Prerequisites

- Java Runtime Environment 6 Update 24 (32 bit) and higher or Java Runtime Environment 7 Update 25 (32 bit) and higher
- Microsoft .NET Framework 4.0 Full

Note:

- If no JRE is found during installation, JRE 7 Update 25 is installed.
- The NV Location Editor may be installed without the NV Test Manager.

Installing the Location Editor

To install the NV Location Editor:

From your installation package, run the **NVSetupWizard.exe** setup file (as an administrator), select **NV Location Editor**, click **Install**, and follow the on-line directions.

Installing NV Location Editor for Linux

In HP Network Virtualization for Mobile for Linux, the Location Editor is installed as part of the NV Test Manager installation, or as a standalone application on a separate machine.

System Requirements

The minimum requirements for Location Editor are as follows:

Processor	Processor 1.7 GHz
Memory	2 GB RAM
Hard Disk	2 GB of free disk space
Browsers	Firefox Chrome Internet Explorer 9.0 and higher Safari 7 and higher

Prerequisites

- Java Runtime Environment (32/64 bit) 6 update 24 or higher
- Or:
- Java Runtime Environment (32/64 bit) 7 update 21 or higher
 - For 64 bit OS: 32 bit compatibility libraries

Installing the Prerequisites for NV Location Editor for Linux

1. Download from the Oracle website, and install the Java Runtime Environment:

For RedHat-based OS:

```
yum install -y jre-7u25-linux-x64.rpm or  
yum install -y jre-7u25-linux-i586.rpm
```

For Debian-based OS:

```
mkdir -p /usr/java  
cd /usr/java  
tar xzf jre-7u25-linux-x64.tar.gz  
ln -s jre-7u25-linux-x64 default
```

2. For 64 bit OS, install the 32 bit compatibility for the running kernel:

For RedHat-based OS:

```
yum install -y glibc.i686 libgcc.i686 libstdc++.i686
```

For Debian-based OS:

```
apt-get -y install ia32-libs
```

Installing the Location Editor

Supported Operating Systems

- CentOS 6.4 x64 and x32
- RedHat 6.3 x64
- CentOS 5.5 x32
- CentOS 5.10 x64

- Fedora 8 x64
- Ubuntu 10.04.4 x32
- Ubuntu SRV12 x32

The NV Test Manager supports kernel releases up to 3.2.x.

RedHat-based Operating Systems (such as RedHat, CentOS, Fedora)

To install the Location Editor:

1. Locate the file: NV-LE-9.x_x.rpm
2. At the Linux prompt run:

```
rpm -i NV-LE-9.x_x.rpm
```

Debian-based Operating Systems (Debian and Ubuntu)

To install the Location Editor:

1. Locate the file: nv-le-9.x_xx.deb
2. At the Linux prompt run:

```
dpkg -i nv-le-9.x_xx.deb
```

Note: The system time, time zone and daylight savings settings must be synchronized.

Chapter 3: NV Location Editor Licensing

The NV Location Editor does not require a license to use. However, if you plan on importing network profiles from the NV Global Library, you must add a license for the NV Global Library. You add this license from the NV License Manager.

For more information about accessing the NV License Manager and applying licenses, see "[Network Virtualization for Mobile Licensing](#)" below.

Network Virtualization for Mobile Licensing

Network Virtualization for Mobile licenses are managed from the NV License Manager. The NV License Manager is installed automatically on each computer that has NV Server, NV Test Manager, NV Analytics, or NV Location Editor.

This topic includes:

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Licensing Overview

The following licensing methods are available for the Network Virtualization for Mobile products:

- Fixed licenses
- Floating licenses
- Trial licenses

Fixed licenses

When using fixed licenses, HP sends you a license key for each computer that has a Network Virtualization for Mobile product installed (NV Test Manager, NV Agent, NV Analytics, or NV Global Library). The license is created for a specific Network Virtualization for Mobile product on a specific computer, and cannot be transferred to any other computer.

Fixed licenses are useful when you have not installed NV Server and you are therefore using a standalone installation of NV Test Manager or NV Analytics.

Floating licenses

You can use floating licenses only if NV Server is installed. When using floating licenses, the NV Server acts as a licensing server. Each NV Test Manager or NV Analytics that you install can check out licenses from the license server. When you are finished using the licenses, you return the licenses to the license server so that they can be used by other NV Test Manager or NV Analytics installations.

The advantage of floating licenses is that you can install Network Virtualization for Mobile on as many computers as you like, but you need licenses for only those computers that are actively using Network Virtualization for Mobile components.

Note: When using floating licenses, the license server still requires a fixed license.

Trial licenses

Each Network Virtualization for Mobile product is installed with a two-day trial license. The trial license gives access to all product functionality. The trial period begins the first time you log in to the product.

Caution: If you install any Network Virtualization for Mobile product on a virtual machine, do not clone the machine after the trial license has started.

Accessing the NV License Manager

You can access the NV License Manager in the following ways:

- From the Windows **Start** menu, select **All Programs > HP Software > NV for Mobile > NV License Manager**.
- From a web browser, navigate to the following URL:

```
http://<hostname>:<port>/shunra/license/
```

For example:

```
http://198.51.100.24:8182/shunra/license/
```

Note:

- If secured communication was selected when the NV Mobile components were installed, the URL begins with `https://`.
- If you used the default port during installation, the port number is 8182. To change the port, see "Changing the NV Test Manager Port" in the *NV for Mobile User Guide*.

- From within the NV Server or NV Test Manager, click the **License** link.

Using Fixed Licenses

When using fixed licenses, you must apply a license key to every computer that has one of the Network Virtualization for Mobile components installed on it.


Note: When using floating licenses, you must still apply a fixed license to the license server (see ["Using Floating Licenses" below](#) for more information).

To apply a fixed license key:

1. Open the NV License Manager on the desired computer.
2. Click the appropriate **Update license** button.
3. Click **Update via: > File**.
4. Click **Download the Product Key** and save the .c2v file in a convenient location.
5. Click **Contact HP to obtain a new license** to connect to the HP Licensing site, and do one of the following:
 - If you have a valid license Entitlement Order Number (EON), enter your EON to activate your license.
 - To obtain a new license, click **Contact HP Licensing** to locate a Regional Licensing Support Center.

Your license activation request will be routed to the HP licensing team for processing. The licensing team will contact you to request the .c2v file, and send you a .v2c license key file.

Note: The .v2c license key you receive from HP can be used only on the computer on which you generated the .c2v file.

6. When you receive the .v2c license file, click the folder icon  that appears to the right of the **License File** box, locate and upload the .v2c file.
7. Click **Update**. The updated license details are displayed in the NV License Manager main page.

Using Floating Licenses

When using floating licenses, licenses are held by the license server and are checked out as necessary by your NV Test Manager and NV Analytics machines. A license is checked out for a specified number of days, at the end of which it is automatically returned to the license server. A license can be returned early, if desired.

What do you want to do?

- ["Set up your license server" below](#)
- ["Check out a license" below](#)
- ["Return a license" below](#)
- ["Change the maximum number of days a license can be checked out" on the next page](#)

Set up your license server

The license server is installed automatically along with the NV Server. To begin using the license server, you must upload a bundle license key that includes your floating licenses. This bundle license key is a fixed license, and the instructions for uploading it are detailed under ["Using Fixed Licenses" on the previous page](#). Note that this bundle license includes a fixed license for the NV Server.

Note: You apply the bundle license using the NV License Manager of the machine where the NV Server is installed.

Check out a license

To check out a license:

Note: The machine that checks out a license must have access to the license server over TCP port 1947.

1. Open the NV License Manager on the machine that needs to check out a license. For details, see ["Accessing the NV License Manager" on page 11](#).
2. Click the appropriate **Update License** button.
3. Choose **Update via: License server**.
4. In the **Local server address** field, select the machine where the license server is installed. If the license server does not appear in the list, enter its IP address.
5. In the **License duration (days)** field, choose for how long to check out the license. By default, the maximum number of days a license can be checked out is 14.
6. Click **Checkout license**. The license is checked out from the license server.

Return a license

To return a checked-out license:

1. Open the NV License Manager on the machine that needs to return a license.
2. Click the **Update License** button.
3. Choose **Update via: Local licensing server**.
4. Click **Return license**. The license is returned to the license server.

Change the maximum number of days a license can be checked out

You can change the maximum number of days that a license can be checked out. To do so:

1. Log into the computer that hosts the license server (NV Server).
2. Open the Sentinel Admin Control Center at the following URL:

```
http://localhost:1947
```

3. From the **Options** menu, click **Configuration**.
4. Click the **Detachable Licenses** tab.
5. In the **Max. Detach Duration** field, enter the maximum number of days that a license can be checked out.
6. Click the **Submit** button.

Viewing Current License Usage

If you are using floating licenses, the NV License Manager shows you the total number of available and in-use licenses, as well as a list of computers that have checked out licenses.

For a report of floating licenses for all product types, view this report on the NV Server.

Chapter 4: Integrating the NV Location Editor UI With Your Software

The location editor must be integrated into your software's UI before you can use it to create locations.

For complete integration instructions, see **Location Editor Services: API for UI Users** in the *Network Virtualization for Mobile API Guide*.

Chapter 5: Defining Virtual Locations

You define virtual locations from the NV Location Editor UI. The way you access the UI depends upon how you've integrated the NV Location Editor into your software.

Defining Virtual Locations includes:

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Defining Network Virtualization Conditions

In the NV Location Editor, select one of the following Virtualization methods to provide network conditions:


- ["Importing a Network Profile From the NV Global Library" below](#)
- ["Creating a Custom Network Profile" on the next page](#)
- ["Importing a User Defined Network Profile From an .ntxx File" on page 19](#)

Importing a Network Profile From the NV Global Library



You can import recordings of mobile and broadband network conditions from the NV Global Library. The NV Global Library is comprised of a regularly updated, pre-populated set of more than 20 million real-world data points of point-to-point network conditions, recorded around the world. You must have a license to use the NV Global Library. See ["NV Location Editor Licensing" on page 10](#) for more information.

Note: Internet access required.

To import a recording:

1. From the Virtualization tab, choose Import from Library.
2. Click the link **Import from NV Global Library**.
3. Follow the 3-step wizard to import the prerecorded network conditions:
 - a. In Step 1 of the Global Library wizard, specify the **Client Location** and the **Server Location**. These locations are typically the cities or states in which the client and server are located.
 - b. Click the **Next** button .
 - c. In Step 2 [**Connection Properties**], specify the technology of the network between the client and server:
 - **Technology.** The technology on which the network is based.
 - **Carrier.** The carrier that operates the network.
 - **Time.** Specify if the network communication occurs during business hours or outside of business hours.

Note: The wizard displays only those options that are available for the network client and server locations that you specified.

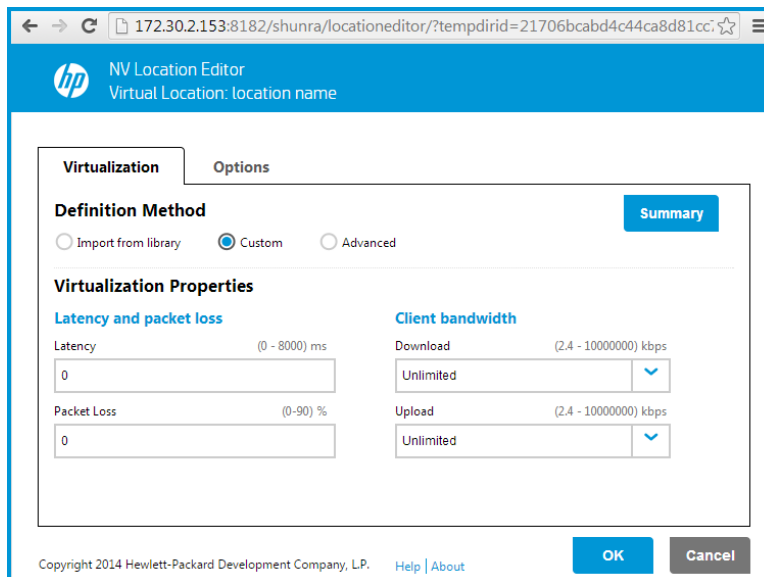
- d. Click the **Next** button .
- e. In Step 3 [**Finish**], specify:
 - o The **Communication Quality** of the connection (determines packet loss)
 - o The connection **Bandwidth** (for WiFi connections only)
 - o A **Profile Name**
- f. Click the **Finish** button .

Creating a Custom Network Profile

Use the Custom settings to manually define the network conditions for latency, packet loss and the Client's bandwidth.

To define a custom network profile:

1. In the Virtualization tab, select the **Custom** radio button.



The screenshot shows the NV Location Editor interface. The browser address bar displays the URL: 172.30.2.153:8182/shunra/locationeditor/?tempdirid=21706bcabd4c44ca8d81cc. The page title is "NV Location Editor" and the subtitle is "Virtual Location: location name". The interface has two tabs: "Virtualization" (selected) and "Options". Under "Virtualization", there are three radio buttons: "Import from library", "Custom" (selected), and "Advanced". A "Summary" button is located to the right. Below this, the "Virtualization Properties" section is divided into two columns. The left column, titled "Latency and packet loss", has a "Latency" field (0 - 8000) ms with a value of 0 and a "Packet Loss" field (0-90) % with a value of 0. The right column, titled "Client bandwidth", has a "Download" field (2.4 - 10000000) kbps with a dropdown menu set to "Unlimited" and an "Upload" field (2.4 - 10000000) kbps with a dropdown menu set to "Unlimited". At the bottom, there are "OK" and "Cancel" buttons, and a footer with "Copyright 2014 Hewlett-Packard Development Company, LP. Help | About".

2. Enter values for some or all of the Virtualization properties:

- **Latency:** Defines the time it takes an IP packet to cross the WAN. The valid range is 0 – 8000 msec.
 - **Packet Loss:** Defines the chance of losing IP packets while data travels though the WAN. The valid range is 0 – 100%.
 - **Upload and Download Bandwidth:** To limit the bandwidth to the capacity of a specific WAN link, select a bandwidth from the Bandwidth Limitation drop-down list, or type a range from 2.4 – 10,000,000 kbps.
3. To view a summary of the settings, click **Summary**.

Importing a User Defined Network Profile From an .ntxx File

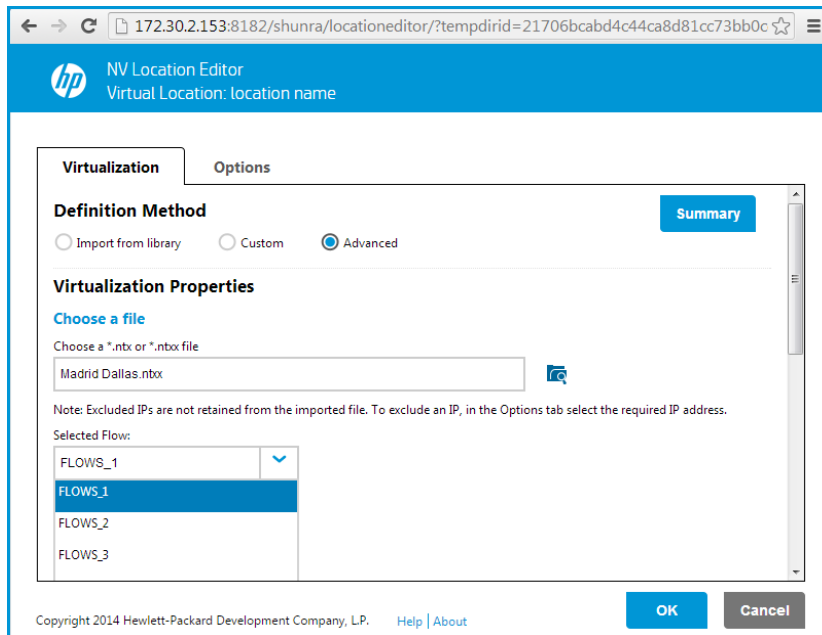
You can create virtual locations from **test configuration** files (*.ntxx) or from **network recording** files (*.ntx). Test configuration files contain network virtualization parameters including latency, bandwidth and packet loss. These files are created in the NV Test Manager. Network recording files contain actual network conditions recorded over time. They are created by HP Network Capture or HP Network Capture Express.

An imported .ntxx file may contain multiple flows. When creating a virtual location, you select the appropriate flow. For more information about .ntxx files, refer to the *Network Virtualization for Mobile User Guide*.

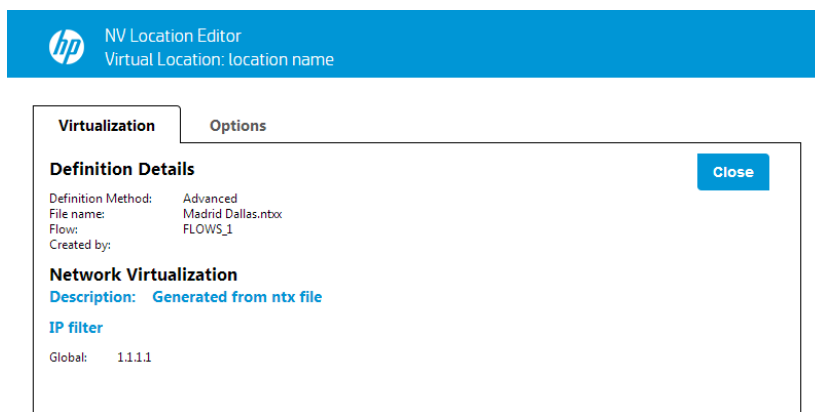
To import a test configuration or network recording file:

1. In the Virtualization tab, select the Advanced radio button.

Note: IP addresses from the imported file are not retained.



2. Click the Browse icon to import an .ntx or .ntxx file from a shared network drive and select the file from the Browse window. If the imported file contains more than one flow, select the appropriate flow for your new virtual location.
3. To view a summary of the settings, click **Summary**.



Setting Network Virtualization Options

To access network virtualization options, click the **Options** tab.

The following sections explain the additional options you have when creating your virtual location:

- ["Defining Bandwidth Allocation" below](#)
- ["Enabling Packet Capture" below](#)
- ["Excluding IP Addresses" below](#)

Defining Bandwidth Allocation

Bandwidth allocation determines whether each client-server connection has its own dedicated bandwidth, or whether bandwidth is shared by all connections. Under **Bandwidth Allocation**, choose your desired option:

- Each client has their own bandwidth
- Share bandwidth between all clients

Enabling Packet Capture

Packet capture is required for NV Analytics, which provides in-depth analysis and optimization recommendations. When NV Analytics is not required, it is recommended not to enable Packet Capture because it requires a substantial memory allocation and disk space.

Under **Packets**, click the **ON** button if you need to save packet data for analysis. Click the **OFF** button if you don't need this data.

Note: If you need to capture packets, you must enable packet capture from Global Settings. Otherwise, the **ON** button is disabled. See ["Defining Global Settings" on page 22](#) for more information.

Excluding IP Addresses

Use the **IP Filter** to exclude specific IPs from the Destination IP ranges defined when starting the emulation, that would be adversely affected by network virtualization. When a machine is excluded from the network virtualization, network traffic to that machine does not suffer any network effects and will not be included in the network analysis results.

To exclude specific IP addresses per virtual location:

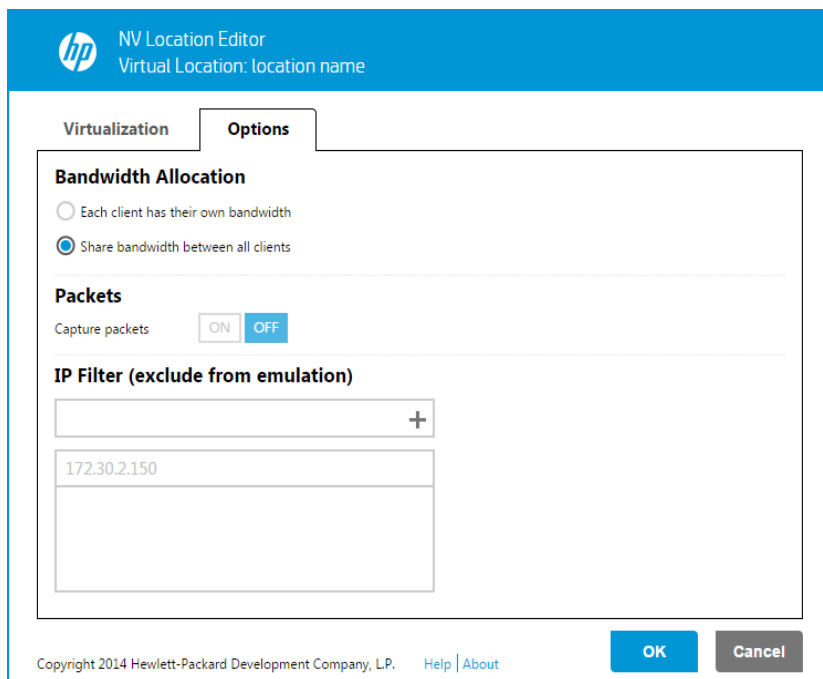
1. In the Options tab, in the IP Filter area, type the required IP address and click the "+" sign.
2. Repeat all the IP addresses you wish to exclude.

Note: IP Address that have been excluded in the Global Settings are displayed in gray.

If you need to remove an IP address you've entered, click the X button next to the desired IP.

Chapter 6: Defining Global Settings

These settings control options for all virtual locations participating in a test. Your software documentation should explain how to access Global Settings.



Enabling Packet Capture

Packet capture is required to conduct analysis using NV Analytics. If you disable packet capture from Global Settings, then any virtual location you create using these settings will not be able to enable packet capture. In addition, packet capture has to be enabled for each virtual location in the Options tab. See ["Setting Network Virtualization Options" on page 20](#) for more information.

The default maximum packet list size is 300 MB. Note that the packet list size cannot be more than 25% of the RAM of the machine.

Under **Packet Capture**, click the **ON** button to enable packet capture or the **OFF** button to disable packet capture. If enabled, specify the total packet list size and the recording method.

Configuring IP Filters

This setting excludes specific IP addresses from all virtual locations. To exclude an IP address from a specific Virtual Location see ["Excluding IP Addresses" on page 21](#).

To exclude IP addresses from all virtual locations:

1. In the Global Settings window, in the IP Filter area, type the required IP address and click the "+" sign.
2. Repeat all the IP addresses you wish to exclude.

Note: Note: IP Address that have been excluded in the Global Settings are displayed in gray in the Virtual Location Options tab.

If you need to remove an IP address you've entered, click the X button next to the desired IP.

