HP NV Predictor

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User Guide

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Contents

Chapter 1: NV Predictor overview

HP NV Predictor is a flexible analytical tool that predicts the performance degradation effects when an application under test is operated under various network conditions. NV Predictor analyzes test results from HP LoadRunner and HP Performance Center tests that include network virtualization, and generates reports for SLO compliance and baseline measurements. These customizable reports display a comprehensive analysis of application performance, by virtual location.

How it works:

1. Use HP LoadRunner or HP Performance Center to conduct a performance test that includes one non-virtual location and one or more virtual locations.

2. Run the test. Result data is generated automatically during the test run, and saved as a standard results file or an HP LoadRunner Analysis file.

3. Import the results file into NV Predictor and generate the reports.

Chapter 2: Install NV Predictor

NV Predictor can be installed on the HP LoadRunner Controller computer, HP Performance Center computer, or on any other computer on which HP LoadRunner Analysis is installed.

> **Note:** NV Predictor does not support LoadRunner Controller or LoadRunner Analysis installed with a language pack other than English.

System Requirements

Before installing NV Predictor, make sure that the target computer meets the following minimum requirements:

Memory:	1 GB RAM (recommended)
Operating System:	Supported operating system for the HP LoadRunner or HP Performance Center machine.
Virtual Machine:	VMware Workstation 6.0 or later (recommended)
	VMware ESX 3.0 or later (supported)

Prerequisites

On the HP LoadRunner Controller:

- HP LoadRunner Controller 12.50
- HP NV for Controller 12.50
- Microsoft Office 2007, 2010, or 2013 (Word and Excel)

On the HP Performance Center Host:

- HP Performance Center 12.50
- HP NV for Controller 12.50
- Microsoft Office 2007, 2010, or 2013 (Word and Excel)

On an HP LoadRunner Analysis host:

- HP LoadRunner Analysis 12.50
- Microsoft Office 2007, 2010, or 2013 (Word and Excel)

Installing NV Predictor

Run the **NVPredictorSetup.exe** file as an administrator, and follow the instructions in the online setup wizard.

Uninstalling NV Predictor

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

Chapter 3: Create reports

After running a test in LoadRunner or Performance Center, you use NV Predictor to process the test results and generate a report.

> **Note:** The input files for NV Predictor can be either the raw results files [with an .lrr extension], or results files that have been processed by HP LoadRunner Analysis [with an .lra extension].

To generate a report with NV Predictor

1. Create an HP LoadRunner or HP Performance Center test that includes NV virtual locations. It is recommended to include at least two virtual locations, including one "local location" with no network virtualization (to differentiate between networking and other performance issues).

2. Run the HP LoadRunner or HP Performance Center test and wait until all the results are collated.

3. For HP Performance Center users only:

   a. Download and unzip the RawResults.zip file for the test.

4. In NV Predictor, click **File > Load LoadRunner Analysis** or click the **Load LoadRunner Analysis** button on the NV Predictor toolbar.

5. Locate and select the results file for your test (e.g. Results_178.lra or Test_178.lrr)

Launching NV Predictor automatically

If you are running a test on the HP LoadRunner Controller, NV Predictor can be configured to launch automatically after the results are collated. See "Configure NV Predictor to run automatically after analysis" on page 11. NV Predictor will then open the test results and automatically create an NV Predictor Analysis Report after each test run. To modify the location of the test results, see "Define global settings" on page 10.

Chapter 4: Analyze results

After generating a NV Predictor report, you can modify various input parameters and then view how your SLOs are affected by the changing input parameters.

To modify report input parameters:

1. When NV Predictor is finished processing (a progress bar indicates the advancement), open the generated report in MS Word by double-clicking the top message in the **Event Log** (or selecting **File > Open Last Report**).

   > **Note:** If NV Predictor does not open automatically, it can be opened from the **Start** menu: **HP Software > HP Network Virtualization > HP NV Predictor > NV Predictor**.

   The Event Log refreshes with each action, including errors. To view the details of an event, double-click the row in the event log.

2. Once your first analysis is completed, modify classifications and settings as required to assess various scenarios. The classifications are always displayed as percentage increase from the performance of a local user (a user without network virtualization) or from Service Level Objective (SLO).

   a. To modify the classifications select **Options > Classifications**, see "Update results with classifications" on the next page.

   b. To modify the metrics used in the SLO calculation (Transaction Response Time, Bandwidth Utilization, etc.) select **Options > Key Performance Indicators**, see "Update results with KPIs" on the next page.

3. Once your settings are customized, you can generate a new report from the same test results without reloading the HP LoadRunner or HP Performance Center results:

   a. To manually override any outlier transaction response times, select **File > Modify Location Data**. For details, see "Modify locations" below.

   b. Depending on the settings, NV Predictor may save the generated report in a designated location along with the MS Excel file that was used to generate the report. In addition, NV Predictor exports the report data in CVS format to allow for integration with third party applications. For further details, see "Define global settings" on page 10.

   > **Note:** NV Predictor uses Microsoft Word templates to generate the reports. You can create new templates and modify the templates, but make sure to keep the required merge fields in the templates.

Note that all charts in the NV Predictor report are embedded Microsoft Excel objects; you can change their layout, colors and charts type in the report itself without regenerating a new report.

Modify locations

After running a test, you can choose to specify custom values to override the Transaction Response Time (TRT) for some transactions for specific locations.

To specify an override value for a transaction:

1. Select **File > Modify Location Data**.
2. In the Modify Locations dialog box, select **Override Location Data**, and then select a transaction.
3. In the **Override** column, type the required value.

Update results with classifications

SLO classifications match service levels experienced by users to measurable categories. This categorization assists in rating various aspects of application performance and user experience. All the fields in this dialog box are editable, enabling you to modify the name of each category and the associated values.

The upper table compares each transaction to the defined SLO for that transaction, either the default SLO of 3 seconds, or a custom value or an override as defined in Key Performance Indicators dialog box. The lower table compares each remote Location to the non-virtual location baseline.

To modify the classifications:

1. Click **Options > Classifications** to open the Classifications dialog box.
2. Select the classification or the percentage value and replace the label. The value in each row must be lower than the next row, for example, the 'Excellent' value cannot have a higher 'Max Increase %' than the 'Good' value.
3. Regenerate the reports to view the effect of the updated values.

Update results with KPIs

Some or all of the Key Performance Indicators can be enabled to modify the SLO in the "Increase from Service Level Objective Classifications" in the Classification dialog box:

- Include Throughput Performance
- Include Hits per Second Performance
- Include Errors per Second Performance
- Include Bandwidth Utilization Performance (includes the Bandwidth Utilization options available in the network virtualization settings. To learn more about bandwidth options, see the *Network Virtualization for LoadRunner and Performance Center User Guide.*)

To enable and modify the KPI values:

1. Click **Options > Key Performance Indicators** to open the Key Performance Indicators dialog box.
2. Under **Key Performance Indicators Service Level Objectives**, select the required option, such as "Include Hits per Second Performance".
3. Enter the required values, and if required, modify any fields in the tables, then click **OK**.
4. Regenerate the reports to view the effect of the updated values.

Select transactions

You can specify that the NV Predictor report include only some of the transactions that are included in the imported results file. You can search for specific instances of the transactions in the **Filter** area, scroll through the list of transactions and include the required transactions, or choose automatic transaction selection.

To choose specific transactions to include in a report:

1. Click **Options > Select Transactions**.
2. Select **Automatic selection** or **Manual selection**. For manual selection, select the transactions to include in the reports.

Chapter 5: Define global settings

You can specify the following settings for NV Predictor:

- **Include Think Time**: Includes Vuser think-time in the NV Predictor reports. See the LoadRunner User Guide to learn more about Vuser think time.
- **Export results as .csv files**: Creates .csv files that contain the information that is included in the NV Predictor reports. These files can be used for further analysis using third party applications
- **Overwrite existing reports**: Overwrites existing reports to reduce disk space usage.
- **Automatically add "Local" Location**: If a test was run without a "local" location, i.e. a location in which the test is conducted without any network virtualization, a local user can be added during analysis to provide a "baseline" location in each graph and table.
- **Results and template directories:** Lets you specify where the NV Predictor templates are located, where the results files are saved, and the location that can be used by NV Predictor for temporary file storage.

To change the reports directory:

a. Select **Options > Global Settings**.

b. In the Global Settings dialog box, in the **Reports Directory** field, type the path of the location where NV Predictor will save the reports.

To change the templates directory:

a. Select **Options > Global Settings**.

b. In the Global Settings dialog box, in the **Templates Directory** field, type the path where the NV Predictor templates are located.

To change the temporary analysis directory:

a. Select **Options > Global Settings**.

b. In the Global Settings dialog box, in the **Temporary Analysis Directory** field, type the path of the location for the NV Predictor temporary analysis files.

Chapter 6: Configure NV Predictor to run automatically after analysis

You can configure NV Predictor to run automatically after analyzing the test results.

Note: This functionality is available only for HP LoadRunner installations, not for HP PC installations.

1. In HP LoadRunner Controller, click **Tools > Options**.
2. Click the **Execution** tab.
3. In the **Post Collate Command** box, add the following:

   PredictorLauncher.exe "%ResultDir%"

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