HP OpenView Network Node Manager and Performance Insight Integration

For the HP-UX, Solaris, Linux, and Windows operating systems

Software Version: 5.20

User Guide

Document Release Date: April 2007
Software Release Date: April 2007

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1 Introducing the NNM and OVPI Integration Module

Overview

The NNM and OVPI Integration Module creates tight linkages between HP OpenView Network Node Manager (NNM) and HP OpenView Performance Insight (OVPI). By joining fault management with performance management, the Integration Module enhances problem diagnostic capabilities.

Features and Benefits

The following list outlines the features of the NNM and OVPI Integration Module and its benefits to you:

- It provides additional performance data from NNM, which contributes to faster and easier resolution of network-based service level problems.
- It shares and synchronizes detailed topology information between NNM and OVPI databases to better enable NNM and OVPI to monitor and manage your environment.
- It can forward OVPI threshold traps to a specified NNM management station (or set of NNM management stations).
- It enables you to launch OVPI reports directly from an NNM map or the NNM alarm browser. Reports display information pertinent to the node or alarm from which the action is invoked.
- It can integrate other NNM Smart Plug-in and OpenView Performance Insight products, such as the NNM Event Report Pack, to further enhance the management and monitoring of networks.

Configuration Points

NNM Node Synchronization with OVPI

The initial node synchronization takes place after you run the NNM and OVPI integration wizard. For more information, Installing Integration Components on OVPI on page 16.

If you want to synchronize the nodes at a later time, you can either run the NNM and OVPI integration wizard or automatically schedule the NNM and OVPI integration. For more information, see Automatic Scheduling of the NNM and OVPI Integration on page 18.

NNM Trap Destination for OVPI Threshold Traps

When OVPI report packs containing threshold packages are installed, such as MPLS VPN, OVPI can generate threshold traps specific to that package. The OVPI thresholds feature forwards OVPI-generated threshold traps to designated NNM management stations to display in the alarm browser. NNM places these threshold traps in the OVPI Threshold Alarms category of the NNM alarm browser.

During the installation of the Integration Module, a default trap destination is defined. You must modify this default configuration to point to the NNM management stations that will receive the threshold traps. For details, see Configuring an NNM Trap Destination for OVPI Threshold Traps on page 20.

Launching OVPI Reports from NNM

The NNM and OVPI Integration Module provides you with the capability to launch performance reports about nodes in NNM. Reports display information pertinent to the node or alarm from which the action is invoked.

You can launch OVPI performance reports from the following NNM user interfaces:

- From the NNM alarms browser. See Launching Reports from the Native NNM Alarm Browser on page 9.
- From Dynamic Views. See Launching Reports from NNM Dynamic Views on page 11.
- From NNM maps. See Launching Reports from an NNM Map on page 12.

Use the OVPI Report Launchpad window to view a list of reports based on the node information from a selected device or alarm. Then select and launch the desired report from the Report Launchpad window.

Sources of Additional Information

The following documents are sources for additional information:

- *NNM: Creating and Using Registration Files*
- *NNM: Managing Your Network*
- *OVPI: HP OpenView Performance Insight Administration Guide*
- *OVPI: HP OpenView Performance Insight Reference Guide*
- *OVPI: HP OpenView Performance Insight Guide to Building and Viewing Reports*
- *OVPI: HP OpenView Performance Insight Installation and Upgrade Guide for Oracle Databases*
- *OVPI: HP OpenView Performance Insight Installation and Upgrade Guide for Sybase Databases*
- *OVPI Reporting Solutions: Interface Reporting Report Pack User Guide*
- *OVPI Reporting Solutions: Threshold and Event Generation Module User Guide*

2 Launching Device-Specific Reports

The NNM and OVPI Integration Module supports the launching of OVPI performance reports from several NNM user interfaces, including:

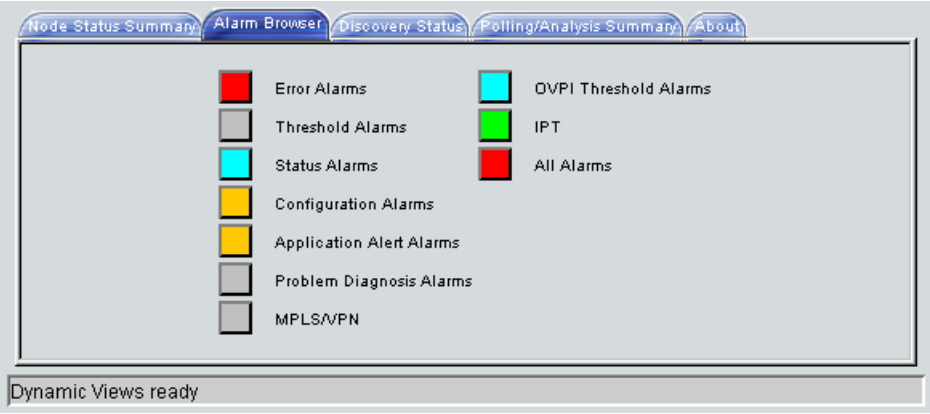
- Native NNM alarm browser
- NNM Extended Topology dynamic view
- NNM submap (ovw)

A launched report contains information specific to the node that was selected (if launching from a map or view) or the node that caused the alarm (if launching from the alarm browser).

Launching Reports from the Native NNM Alarm Browser

A key feature of the NNM and OVPI Integration Module is the creation of an alarm category, OVPI Threshold Alarms, in the Alarm Categories window of the NNM alarm browser. See Figure 1 on page 9.

Figure 1 OVPI Threshold Alarm Category of the NNM Alarm Browser.



You can view alarms received by the NNM management station by double-clicking the **OVPI Threshold Alarms** category to open the OVPI Threshold Alarms Browser.

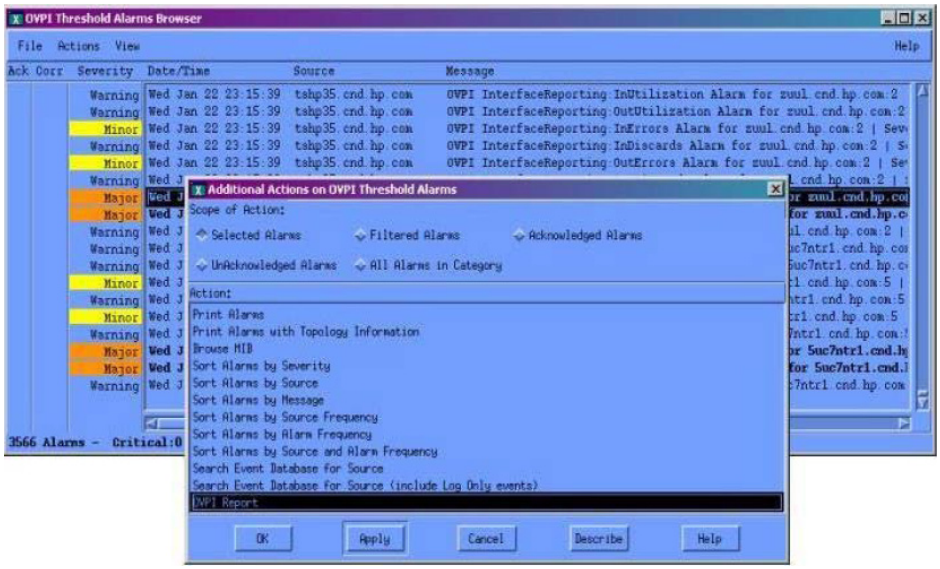
Launching OVPI performance reports from an OVPI threshold alarm is available only from the native NNM alarm browser. In Dynamic Views, you can view threshold traps in the OVPI Threshold Alarms Browser, however, menus for launching OVPI reports are not available.

To launch an OVPI performance report from an alarm in the Threshold Alarms Browser, following these steps:

1 Select an alarm in the alarm browser.

2 Click **Actions:Additional Actions**, and then select **OVPI Report**. Figure 2 on page 10 depicts the OVPI Threshold Alarm Browser containing OVPI threshold alarms and also shows the OVPI Report action selected.

Figure 2 OVPI Report from Threshold Alarm Browser.



The OVPI report launch action is defined for all OVPI threshold alarms. The MIB definition for the OVPI threshold event can be found at:

UNIX: `$OV_NEWCONFIG/OVPI_INTEGRATION/hp-ovpi.mib`

Windows: `<install_dir>\conf\OVPI_INTEGRATION\hp-ovpi.mib`

3 The result of launching the OVPI Report action depends on how the node that caused the alarm is configured.

- Launching an OVPI report for a node that has an assigned OVPI OID causes the report specific to that OID to launch.

  The `OvpiRptLaunch.conf` configuration file contains the assignments of OVPI reports to OVPI OIDs, and is located at:

  UNIX: `$OV_NEWCONFIG/OvpiRptLauncher.conf`

  Windows: `<install_dir>\conf\OvpiRptLauncher.conf`

- Launching an OVPI report for a node that does not have an OVPI OID causes the Report Launchpad window to launch, as shown in Figure 3 on page 11.

Figure 3 The Report Launchpad Window

The report launch menu lists items for nodes that are known to NNM as Routers, Bridges, Hubs, or Connectors.

4 From the Report Launchpad window, select the desired report to launch.

A launched report contains information specific to the node that caused the alarm.

Launching Reports from NNM Dynamic Views

To launch a performance report from an NNM Extended Topology dynamic view, do the following:

1 Select a node.

2 Use either the Performance menu or the OVPI Launch Pad shortcut menu (right-click the node):

- Click **Performance: OV Performance Insight**, as illustrated in Figure 4 on page 12.

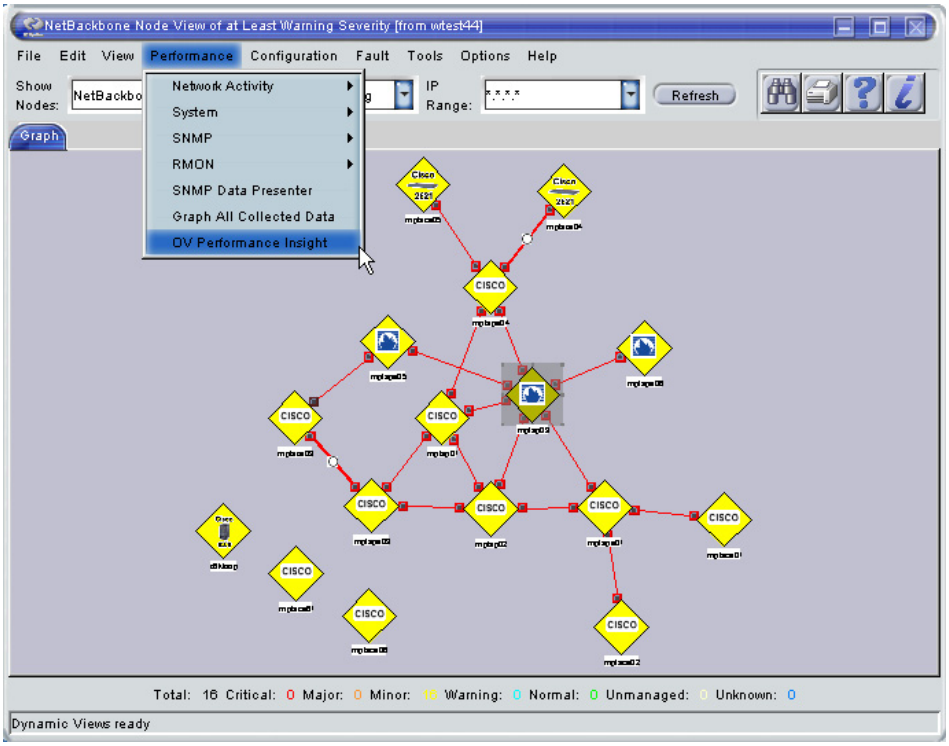
  The Report Launchpad window opens, as shown in Figure 3 on page 11.

- Right-click, and select **OVPI Launch Pad**.

3 Select the desired report to launch.

The launched report contains information specific to the node that was selected.

Figure 4 Launching OVPI Reports from Dynamic Views



Launching Reports from an NNM Map

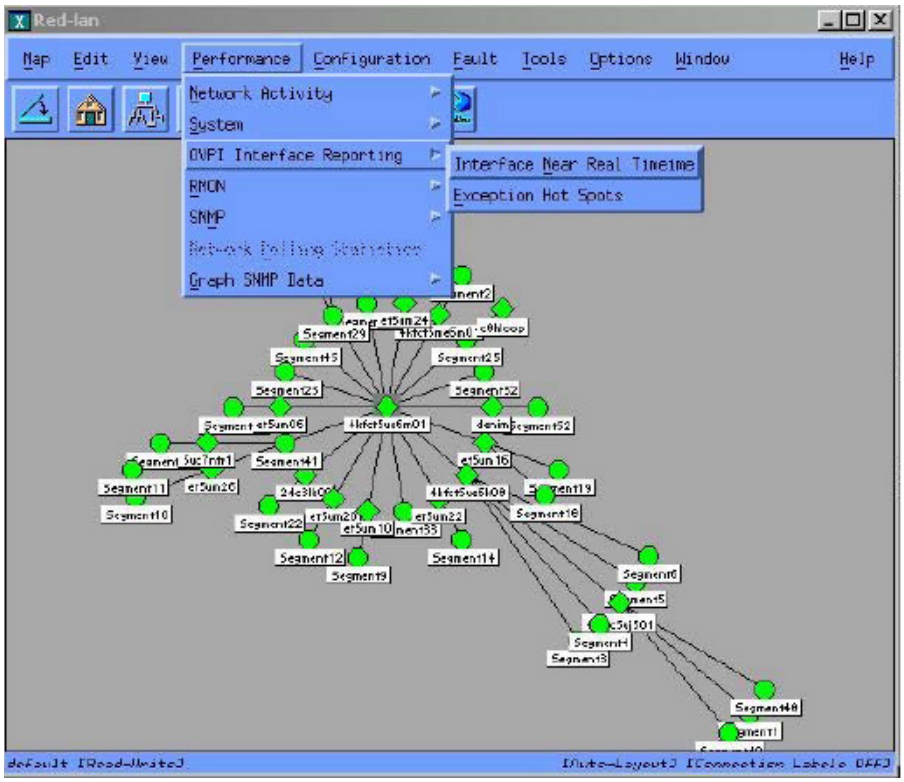
To launch an OVPI performance report from an NNM map, do the following:

1 Select a node in the NNM map.

2 Use either the Performance menu or the report launcher shortcut menu (right-click the node):

- Click **Performance: OVPI Report Launcher** as shown in Figure 5 on page 13.
- Right-click, and then select **OVPI Report Launcher**.

Figure 5 Launching OVPI Reports from NNM Maps



When you launch a report, NNM notifies OVPI of the device name. OVPI, in return, launches a Report Launchpad window that displays a list of appropriate reports for that device.

3 From the Report Launchpad window, select the desired report to launch. See Figure 3 on page 11.

The launched report contains information specific to the node that was selected.

3 Installing the Integration Module

Preinstallation Steps

You must install the NNM integration components on the NNM server before installing the OVPI integration components on the OVPI server. The reason is that OVPI synchronizes the device list by accessing components on the NNM management station.

Before installing the Integration Module, verify that you have installed the following software and all its prerequisites and patches:

- OpenView Performance Insight 5.20
- OpenView Network Node Manager:
  - NNM 7.5
  - The latest consolidated patch

Service packs and patches are available at:
http://support.openview.hp.com

If you encounter problems during installation, see Troubleshooting on page 26.

Installing the Integration Module on NNM

The NNM and OVPI Integration module is shipped with NNM 7.51 version.

The NNM and OVPI integration module is by default in passive mode. After you install NNM and OVPI run the `install.ovpl` script to complete the integration. The `install.ovpl` script configures the NNM and OVPI Integration module. This script is located at the following locations:

- For HP-UX and Solaris

  `$OV_MAIN_PATH/newconfig/OVNNM-RUN/OVPI_INTEGRATION/install.ovpl`

- For Windows

  `$OV_MAIN_PATH/conf/OVPI_INTEGRATION/install.ovpl`

When you run the `install.ovpl` script it will prompt you to enter the fully-qualified name of the OVPI server and the port number of OVPI web server.

For more information about the `install.ovpl` script refer to The install.ovpl Script on page 29.

Installing Integration Components on OVPI

The core components of NNM and OVPI integration module is now shipped along with OVPI 5.2.

To install integration components on OVPI, follow these steps:

1. Locate the `NNMPI_Wizard` file, which is stored in the following location:

   `DPIPE_HOME``/bin`

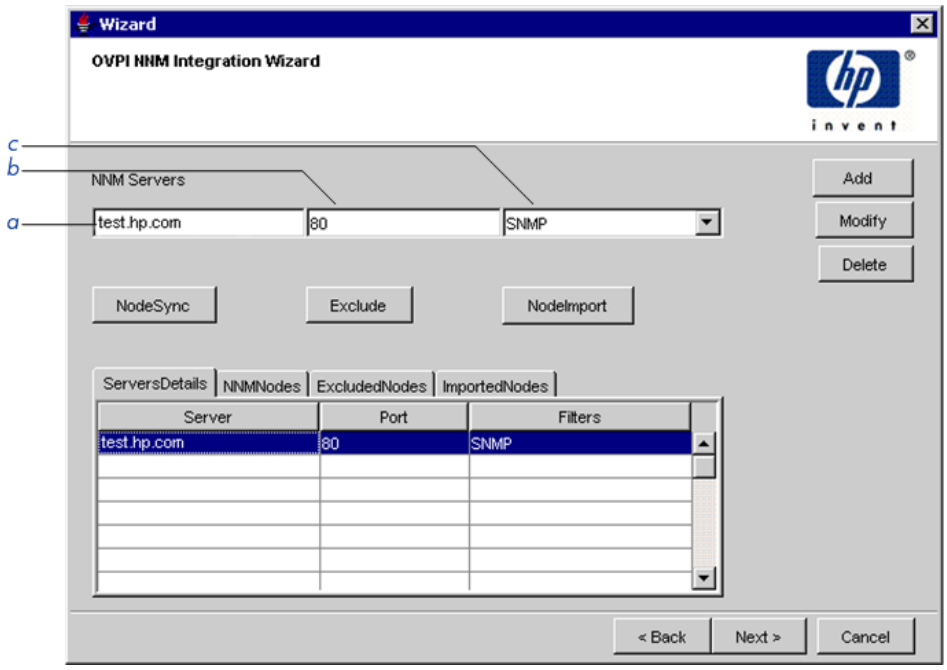
   In this instance, *`DPIPE_HOME`* is the directory in which you installed OVPI.

2. Start the NNM and OVPI integration wizard:

   UNIX: **`$NNMPI_Wizard`**

   Windows: Double-click `NNMPI_Wizard.exe` file.

The OVPI NNM Integration Wizard opens.



Legend

a NNM Server box

b Port box

c Filter list

3 Type the hostname or IP address of the NNM Server in the NNM Server box.

4 Type the port number in the Port box.

5 From the drop-down list, select one of the following filters:

- **SNMP**. Imports all SNMP nodes.
- **NON SNMP**. Imports all non-SNMP nodes.
- **ALL**. Imports both SNMP and non-SNMP nodes.

6 Click **Add**.

The server details appear in the ServerDetails tab. The details are stored in the `nnm_node_src.txt` file. See Table 1 on page 18 for details. Use the **Modify** and **Delete** buttons to modify or delete the server details.

7 Click **NodeSync**. The following occurs:

- A list of NNM nodes is obtained from the NNM server. The list is stored in the `nnm_node_list.txt` file. Table 1 on page 18 for details.
- The specified filters are applied. The nodes that are present after applying the filter are stored in the `nm_node_list_filtered.txt` file. See Table 1 on page 18 for details.
- The NNM nodes that are not already present in OVPI appear in the NNMNodes tab.

8 If you want to exclude the import of any NNM node to OVPI, select the node from the NNMNodes tab and click **Exclude**. The nodes that you exclude appear in the ExcludedNodes tab. The excluded nodes are stored in the `nnm_nodes_exclude.txt` file. See Table 1 on page 18 for details.

9 Click **NodeImport**. The following occurs:

- The NNM and OVPI integration wizard imports the NNM nodes that are not excluded.
- The imported NNM nodes appear in the ImportedNodes tab. The imported nodes are stored in the `nnm_nodes_import.txt` file. See Table 1 on page 18 for details.

Table 1 Files Created by NNM and OVPI Integration Wizard

File Name	Description	Location
`nnm_node_src.txt`	Contains the details of NNM server, port, and filter. This file is required for automatic scheduling of NNM and OVPI integration module.	`OVPI_HOME/lib`
`nnm_node_list.txt`	Contains a list of NNM nodes obtained from the NNM server.	`OVPI_HOME/lib`
`nm_node_list_filtered.txt`	Contains a list of nodes present after applying the filter.	`OVPI_HOME/lib`
`nnm_nodes_exclude.txt`	Contains a list of excluded nodes.	`OVPI_HOME/lib`
`nnm_nodes_import.txt`	Contains a list of NNM nodes imported into OVPI.	`OVPI_HOME/lib`
`NNMPI_Wizard.log`	Contains messages pertaining to the operation of NNM and OVPI integration wizard.	`OVPI_HOME/log`
`NNMPI_Cmd.log`	Contains messages pertaining to the operation of `nnmpi_cmd` command.	`OVPI_HOME/log`

Automatic Scheduling of the NNM and OVPI Integration

You can schedule the process of importing NNM nodes to OVPI, to run at regular intervals by appending the following line at the end of the `trendtimer.sched` file.

```
24:00+1:00 - - {DPIPE_HOME}/bin/nnmpi_cmd
```

The `nnmpi_cmd` requires the `nnm_node_src.txt` and `nnm_nodes_exclude.txt` files. These files are created when you run the NNM and OVPI Integration wizard. The operations of `nnmpi_cmd` command are present in the `NNMPI_Cmd.log` file.

Post-Installation Steps

After the installation of the NNM and OVPI Integration Module, you must perform the following configuration steps before OVPI threshold alarms can populate the NNM alarm browser and OVPI reports can be generated from NNM nodes:

- Specify the NNM management station to be used as the trap destination for OVPI threshold traps.

  For information on how to enter data in the SNMP Trap Destinations List configuration window, see Configuring an NNM Trap Destination for OVPI Threshold Traps on page 20.

- Install other Report Packs of interest to you. For example, to monitor MPLS threshold violation traps, install the suite of MPLS report packs and datapipes, including the MPLS VPN Report Pack and the MPLS Thresholds Report Pack. For more information about the OVPI Report Packs, see the individual Report Pack user guides.

Configuring an NNM Trap Destination for OVPI Threshold Traps

During the installation of the OVPI Threshold package, a trap destination for OVPI-generated threshold traps is defined. By default, the OVPI Threshold package sends traps to the localhost.

Configure an NNM Trap Destination on UNIX

To modify the default trap destination on an OVPI server running a UNIX operating system, follow these steps:

1. As a trendadm user, start the OVPI administrator utility:

   `$DPIPE_HOME/bin/piadmin`

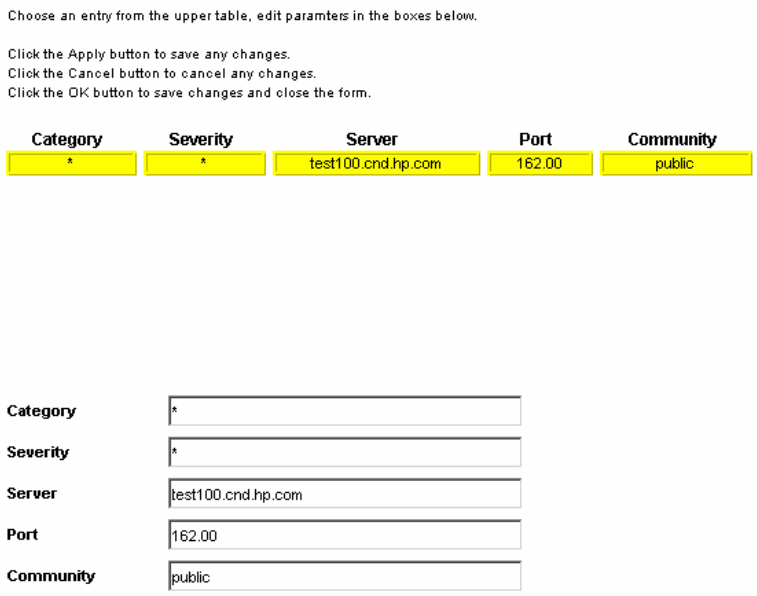
2. Click **Objects** in the left-hand pane.
3. Double-click **Update SNMP Trap Destination**. The Thresholds window opens.
4. Set the OVPI trap destination to the IP hostname and SNMP port number of the NNM management station to which the traps are to be forwarded, as shown in Figure 3-2 on page 37.

Configure an NNM Trap Destination on Windows

To modify the default NNM trap destination on an OVPI server running a Windows operating system, follow these steps:

1. As a user with administrative privileges, start the OVPI administrator utility by selecting **Start:Programs>HP OpenView>Performance Insight>Management Console**.
2. Click the **Objects** icon in the left-hand pane.
3. From the General Tasks pane, double-click `Update SNMP Trap Destination`. The Thresholds window opens.
4. From the Thresholds window, as shown in Figure 6, enter the hostname and SNMP port number of the NNM management station to which the traps are to be forwarded in the Server and Port text entry boxes, respectively.
5. Click **Apply** for the changes to take affect.

Figure 6 Thresholds: Update SNMP Trap Destination Window



Configure Multiple NNM Trap Destinations

Typically, you need only one NNM management station to accept OVPI-generated threshold traps, however, multiple NNM management stations can be configured.

To configure multiple trap destinations for OVPI-generated threshold traps, follow these steps:

1 Start the OVPI administrator utility by executing the following command:

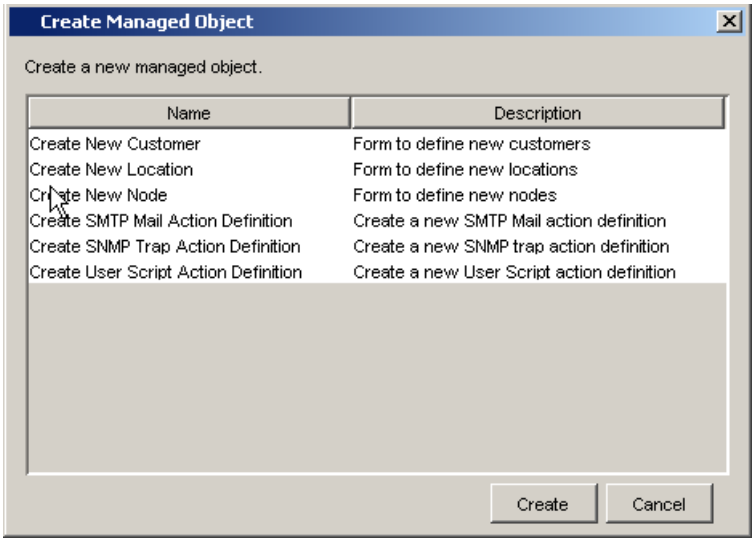
UNIX (as user `trendadm`): **`$DPIPE_HOME/bin/piadmin`**

Windows: **Start:Programs>HP OpenView>Performance Insight>Management Console**

2 Click the **Objects** icon in the left-hand pane.

3 Click **File:New** to open the Create a New Managed Object window as shown in Figure 7.

Figure 7 Create a New Managed Object Window

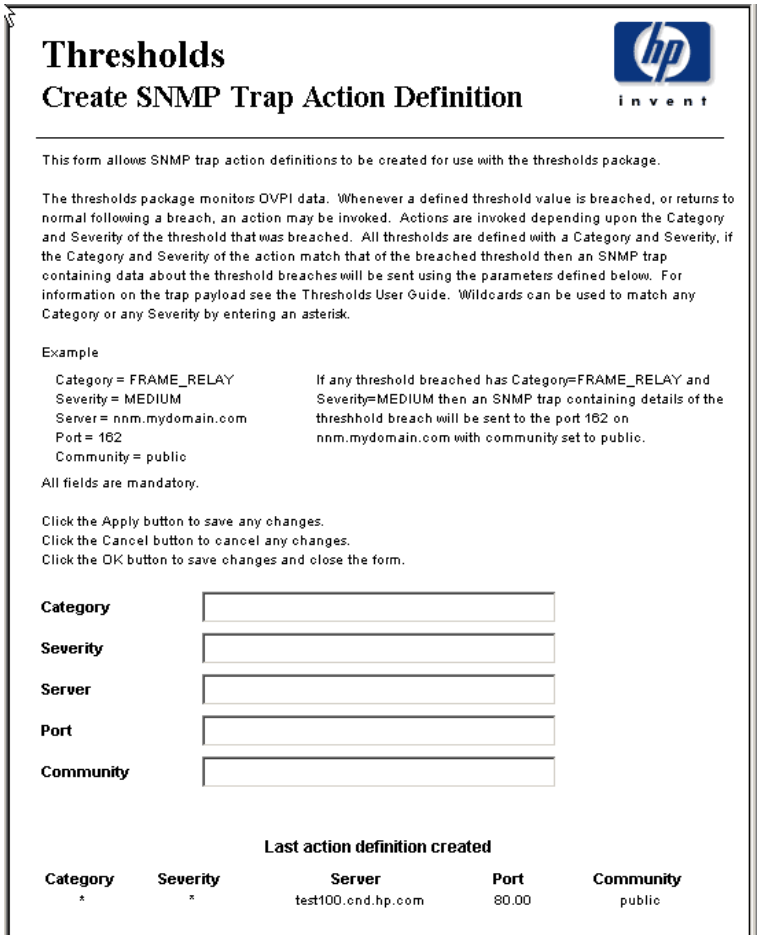


4 From the list, select Create SNMP Trap Action Definition.

5 Click **Create** to display the Thresholds:Create SNMP Trap Action Definition form. See Figure 8 on page 22.

6 Enter the host name and SNMP port number of the NNM management station to which OVPI traps have to be forwarded.

Figure 8 Trap Action Destination Form



Uninstalling the NNM and OVPI Integration Module

To uninstall the NNM and OVPI Integration Module, you must uninstall OVPI. For more information about uninstalling OVPI, see *HP Performance Insight Installation and Upgrade Guide for Oracle Databases* or *Installation and Upgrade Guide for Sybase Databases*.

4 Verifying the Installation

This section describes the process for checking if your system is configured properly.

Verifying NNM Node Synchronization

To verify devices have been imported into OVPI from NNM through the NNM node synchronization, follow these steps:

1. Start the OVPI administrator utility:

   UNIX: **`$DPIPE_HOME/bin/piadmin`**

   Windows: click **Start:Programs>HP OpenView>Performance Insight>Management Console**; or run

   `%DPIPE_HOME%\bin\piadmin`

2. Select **Polling Policies**.
3. Click **Edit:Nodes** to open the Nodes window.

   The Nodes window displays all nodes known to OVPI for data collection, and should contain nodes imported from NNM.

Verifying Report Launching

To verify that OVPI reports can be launched from NNM, try one of the following report launching utilities:

1. Verify that you can launch a report from the NNM alarm browser by selecting an OVPI threshold alarm and launching a report with the **Actions:Additional Actions** menu.
2. Verify that you can launch a report from a view in Dynamic Views by selecting a node in the view and using the **Performance:OVPI Launch Pad** menu to launch an OVPI performance report.
3. Verify that you can launch a report from an NNM map by selecting a node and using the **Performance** menu to launch an OVPI report.

Troubleshooting

Node Synchronization is not Working

If no NNM devices are being imported into OVPI from NNM via NNM Device Synchronization, follow these steps:

1. Verify that the NNM management station from which device information is to be imported is running and accepting requests on the port specified during the installation of the `NNM_Device_Sync` package.

   To verify NNM management station is accepting requests by using its assigned port, enter the following URL in a web browser:

   http://<*hostname*>:<*port*>/OvCgi/nodeList.ovpl

   where *hostname* is the name of the NNM management station, and *port* is the HTTP port number assigned to the NNM management station during installation of the `NNM_Device_Sync` package. For NNM management stations running UNIX, the port number should be 3443. For NNM management stations running Windows, the port number should be 80.

   Note that the output appearing in the web browser is encrypted.
2. Verify that the Trend timer process is running. If it is not, restart it.
3. Verify that there is an entry for `SyncNodeList` in the `trendtimer.sched` file located at:

   UNIX: `$DPIPE_HOME/lib/`

   Windows: `%DPIPE_HOME%\lib`

   If no entry exists, device synchronization is not taking place. The cause for the missing entry is most likely a failure during installation.
4. Check `$TREND_LOG/trend.log` for errors.
5. Check web server log for error:

   UNIX: `/var/opt/OV/log/httpd_error_log`

   Windows: System Events

Launched Reports Contain no Data

If this condition occurs, verify that the NNM device synchronization components are functioning by using the procedures described in Node Synchronization is not Working on page 26.

NNM Device Sync Installation Fails

Common installation failures include the following:

- All NNM node sources specified by the user are not reachable
- The NNM and OVPI Integration Module was not installed on those NNM management stations.
- The wrong HTTP port number was specified for the NNM management station during the installation of the `NNM_Device_Sync` package.

Details of the failure can be found in the `$DPIPE_HOME/log/trend.log` file.

NNM Device Sync Fails for Some of the NNM Node Sources

This may occur if the NNM node is not reachable, or if the NNM and OVPI Integration Module is not installed on that NNM management station for which the NNM Device Sync failed. The details of the failure can be found in the `$DPIPE_HOME/log/trend.log` file.

Unable to Open NNM Event reports on Windows

This problem occurs only when NNM is running on a Windows operating system.

When using the NNM and OVPI Integration Module in conjunction with the OpenView Performance Insight NNM Event Report Pack, NNM may not be able to access its version of Perl. As a result, NNM Event reports may not be generated properly.

On the NNM management station, modify the Windows PATH environment variable so that the path to NNM's copy of Perl is listed first. When NNM is installed in its default location, the following must be added to the beginning of the Windows `PATH` environment variable:

```
C:\Program Files\HP OpenView\bin\Perl\bin
```

Additional Troubleshooting Resources

For additional troubleshooting information, see the log files created by the NNM and OVPI integration wizard. Table 1 on page 18 lists the files created by the NNM and OVPI integration wizard.

You can also refer to the latest *NNM and OVPI Integration Module Release Notes* available on the web at
http://ovweb.external.hp.com/lpe/doc_serv under the NNM and OVPI Integration Module product category.

5 Reference

The install.ovpl Script

The Perl install script, `install.ovpl`, first installs the HPOvIco3.01.00.1 (OpenView Interconnect) package on the NNM management station. The script then modifies Application Registration Files (ARF) with the node name and port information of the OVPI server.

It then places these files in the correct location on the NNM management station. This configuration enables node-specific launching of OVPI reports from the NNM management station.

The script prompts you for the hostname of the OVPI server and the port number on which that server receives HTTP requests. See Table 2 on page 29 for a complete list of command line options for `install.ovpl`. For the standard installation, run the script without any options.

➤ Run this script with the version of Perl shipped with NNM.

Table 2 Command Line Options for install.ovpl

install.ovpl option	Description
No options ***<default>***	If no options are specified, install.ovpl updates every ARF file and browser action file in the `OVPI_INTEGRATION` directory and places those files in their appropriate locations.
`-force all`	By default, install.ovpl does not replace ARF files on repeated invocations to guard against accidentally overwriting already configured versions. The use of the force option with the all argument causes install.ovpl to reconfigure and re-place the ARF files located in the OVPI_INTEGRATION directory. This option is useful when modifying every ARF to point to a different OVPI server, or if the HTTP port number on the OVPI server has changed.
`-force` ***<file.arf>***	Using the ***<file.arf>*** argument with the force option causes install.ovpl to configure and place the specified ARF file only. This option is useful when launching different reports on different OVPI servers.

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