

# **SNMP Integration Guide**

**6311658-07**

**Ver. 7, Rel. 0**

**Quantum.**

SNMP Integration Guide, 6311658-07, Ver. 7, Rel. 0, December 2003. Made in USA.

Quantum Corporation provides this publication “as is” without warranty of any kind, either express or implied, including but not limited to the implied warranties of merchantability or fitness for a particular purpose. Quantum Corporation may revise this publication from time to time without notice.

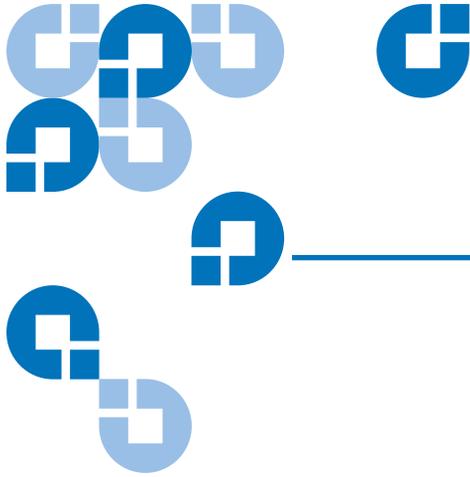
#### **COPYRIGHT STATEMENT**

Copyright 2003 by Quantum Corporation. All rights reserved.

Your right to copy this manual is limited by copyright law. Making copies or adaptations without prior written authorization of Quantum Corporation is prohibited by law and constitutes a punishable violation of the law.

#### **TRADEMARK STATEMENT**

Prism Storage Architecture is a trademark of Quantum Corporation. Other trademarks may be mentioned herein which belong to other companies.



# Contents

---

---

**Preface**

**ix**

---

<b>Chapter 1</b>	<b>Unicenter TND on Windows NT/2000</b>	<b>1</b>
	Overview .....	1
	System Requirements on Windows NT/2000 .....	2
	Level of Security .....	2
	Activating SNMP Traps .....	3
	Pre-Installation Steps .....	4
	Installing the SNMP Integration Software .....	5
	Setting Up Unicenter TND .....	8
	Following Up: Testing the Library Icon.....	10
	Uninstalling SNMP Integration Software .....	11
	Uninstalling Software from Windows NT 4.0 .....	11
	Uninstalling Software from Windows 2000.....	12
	Troubleshooting .....	12

<b>Chapter 2</b>	<b>OpenView NNM on Windows NT/2000</b>	<b>13</b>
	Overview .....	13
	System Requirements on Windows NT/2000.....	14
	Level of Security .....	14
	Installing SNMP Integration Software .....	15
	Installing Software from a CD.....	15
	Duplicate IP Addresses .....	17
	Setting Up OpenView NNM .....	18
	Changing Symbol Type.....	19
	Configuring Status Source .....	20
	Configuring Object Attributes.....	21
	Following Up: Testing the Library Icon.....	22
	Uninstalling Library Integration Software .....	23
	Uninstalling Software from Windows NT 4.0 .....	23
	Uninstalling Software from Windows 2000 .....	24
	Troubleshooting.....	24
<b>Chapter 3</b>	<b>OpenView NNM on Solaris</b>	<b>25</b>
	Overview .....	25
	System Requirements on Solaris .....	26
	Level of Security .....	26
	Installing SNMP Integration Software .....	26
	Installing Software from a CD.....	27
	Installation Output Script .....	27
	Duplicate IP Addresses .....	28
	Setting Up OpenView NNM .....	28
	Configuring Object Attributes.....	29
	Following Up: Testing the Library Icon.....	31
	Uninstalling Library Integration Software .....	31
	Uninstalling Software .....	32
	Troubleshooting.....	32
<b>Appendix A</b>	<b>Configuring the SNMP Management Web Page</b>	<b>33</b>
	PX720.....	33
	P-Series and M-Series .....	35
	DX-Series .....	37

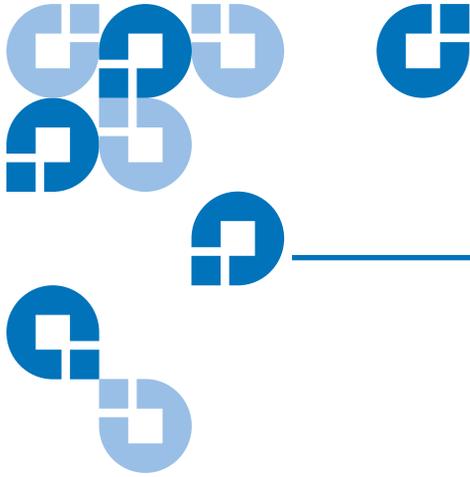
---

**Glossary** **39**

---

**Index** **43**



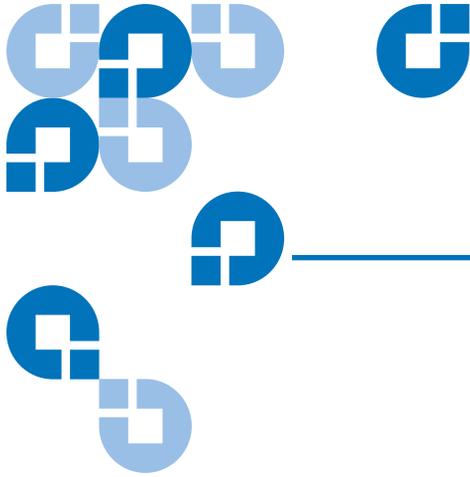


# Figures

---

Figure 1	Component Activation Flags Tab .....	3
Figure 2	Server Preferences Tab .....	4
Figure 3	SNMP Integration Installation Dialog Box .....	5
Figure 4	Welcome Dialog Box .....	6
Figure 5	Software License Agreement Dialog Box.....	6
Figure 6	Update TND Repository Information Dialog Box.....	7
Figure 7	Setup Complete Dialog Box .....	8
Figure 8	2-D Map .....	9
Figure 9	SNMP Integration Installation Dialog Box .....	15
Figure 10	Welcome Dialog Box.....	16
Figure 11	Software License Agreement Dialog Box.....	16
Figure 12	Setup Complete Dialog Box .....	17
Figure 13	Subnet Map .....	19
Figure 14	Change Symbol Type Dialog Box .....	20
Figure 15	Symbol Properties Dialog Box.....	21
Figure 16	Object Properties Dialog Box .....	21
Figure 17	Attributes Dialog Box .....	22

Figure 18	Subnet Map - Truncated View .....	29
Figure 19	Object Properties Window .....	30
Figure 20	Object Attributes Window.....	30
Figure 21	PX720 SNMP Configuration Section.....	34
Figure 22	SNMP Configuration Page .....	36
Figure 23	DX-Series SNMP Page.....	38



# Preface

---

This manual describes how to use the SNMP Integration Kit to integrate Quantum Libraries and DX-Series Enhanced Data Protection Systems with the following third party network management software packages:

- Unicenter Network and Systems Management<sup>®</sup> 3.0 (appears as Unicenter TND) of Computer Associates<sup>™</sup> (CA), supported on Windows NT<sup>®</sup> and Windows<sup>®</sup> 2000
- OpenView<sup>®</sup> Network Node Manager<sup>™</sup> (NNM) of Hewlett Packard (HP), supported on Windows NT, Windows 2000, and Sun Solaris environments

Supported libraries include:

- M-Series (M1500, M1800, and M2500) equipped with MC300
- P-Series (P4000, P7000, P2000, and P3000) equipped with MC350
- DX-Series (DX30 and DX100)
- PX720

Throughout this document, “library” refers to all supported products.

---

**Audience**

The intended audience for this manual is network system administrators.

---

**Purpose**

The following topics are covered for each third party network management software integration:

- System requirements, includes the hardware and software components that are required to be installed and to run properly.
- Pre-installation steps for the SNMP software
- Installing the SNMP software from a CD or from the internet.
- Setting up third party management software after installation
- Configuring the management console Web pages
- Testing the library icon
- Troubleshooting
- Removing library integration software

---

**Document Organization**

The manual is organized as follows:

- [Chapter 1, Unicenter TND on Windows NT/2000](#), describes the system requirements and installation of Unicenter TND on a Windows platform.
- [Chapter 2, OpenView NNM on Windows NT/2000](#), describes the system requirements and installation of OpenView NNM on a Windows platform.
- [Chapter 3, OpenView NNM on Solaris](#), describes the system requirements and installation of OpenView NNM on a Solaris platform.
- [Appendix A, Configuring the SNMP Management Web Page](#), describes how to configure the SNMP Management Web page.

This document concludes with a glossary and an index.

## Notational Conventions

This manual uses the following conventions:

**Note:** Notes emphasize important information related to the main topic.

## Related Documents

Documents related to the SNMP integration software are shown below:

### Quantum Documentation

Document No.	Document Title	Document Description
6311631	<i>MC300 Prism Management Card User's Guide</i>	This manual provides server management instructions for the MC300 Prism Management Card for M-Series libraries.
6473025	<i>MC350 Prism Management Card User's Guide</i>	This manual provides server management instructions for the MC350 Prism Management Card for P-Series libraries.
6444601	<i>PX720 User's Guide</i>	This guide contains sections on installation, operation, and diagnostic software.
6513501	<i>DX-Series User's Guide</i>	This guide contains sections on installation, operation, and diagnostic software.

Refer to the appropriate product manuals for information about your tape drive and cartridges.

---

## Contacts

Quantum company contacts are listed below.

### Quantum Corporate Headquarters

To order documentation on Quantum products contact:

Quantum Corporation  
P.O. Box 57100  
Irvine, CA 92619-7100  
(949) 856-7800  
(800) 284-5101

### Technical Publications

To comment on existing documentation send e-mail to:

doc-comments@quantum.com

### Quantum Home Page

Visit the Quantum home page at:

<http://www.quantum.com>

### Customer Support

The Quantum Customer Support Department provides a 24-hour help desk that can be reached at:

North/South America:	(949) 725-2100 or (800) 284-5101
Asia/Pacific Rim:	(International Code) +61 7 3839 0988
Europe/Middle East/Africa:	(International Code) +44 (0) 1256 848748

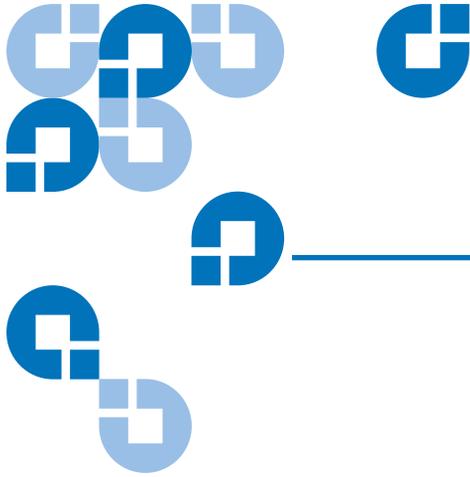
Send faxes for the Customer Support Department to:

North/South America:	(949) 725-2176
Asia/Pacific Rim:	(International Code) +61 7 3839 0955
Europe/Middle East/Africa:	(International Code) +44 (0) 1256 848777

Send e-mail for the Customer Support Department to:

North/South America:	<a href="http://www.quantum.com/askaquestion">www.quantum.com/askaquestion</a>
Asia/Pacific Rim:	<a href="mailto:apachelp@quantum.com">apachelp@quantum.com</a>
Europe/Middle East/Africa:	<a href="mailto:eurohelp@quantum.com">eurohelp@quantum.com</a>





# Chapter 1

## Unicenter TND on Windows NT/2000

---

---

### Overview

Computer Associates (CA) Unicenter TND is a network management tool allowing network administrators to graphically view their networks and the nodes attached to the network. This allows the network administrator to assess the health of these devices, as well as take corrective action if necessary.

In order for Quantum Libraries to display as actual library icons in the network management software, you must install the SNMP Integration Kit.

The SNMP Integration with Unicenter TND will:

- Install the Quantum Library MIB file
- Install the Quantum Library icon files
- Create an Quantum Library class
- Update the message map and action tables

SNMP integration with Unicenter TND consists of the following tasks:

- [Installing the SNMP Integration Software](#)
- [Setting Up Unicenter TND](#)
- [Following Up: Testing the Library Icon](#)

---

## System Requirements on Windows NT/2000

The SNMP integration with Unicenter TND on NT/2000 requires the following hardware and software components to run properly. These include:

- Microsoft Windows 2000 or Windows NT (server or workstation), installed and running
- Hard disk drive with at least 10 MB of available space
- CD-ROM drive
- Internet browser: Microsoft® Internet Explorer version 5.0 or 5.5, or Netscape® Communicator version 4.7x
- SNMP and SNMP trap services active and running
- Unicenter TNG Framework version 2.1 or higher installed with SNMP traps activated (see [Activating SNMP Traps](#))

---

### Level of Security

In Unicenter TNG Framework 2.1, the level of security required to integrate the library is the same level of security required to install and operate Unicenter TND. This is typically the System Administrator (sa) level. The security entry is case sensitive.

In Unicenter TNG Framework 2.4 or higher, the level of security required to integrate the library is the same level of security required to install and operate Unicenter TND. This is typically the user name and password for logging into the computer network.

<p><b>Note:</b> Before beginning, verify that SNMP service is running (see <b>Start/Control Panel/Services</b>).</p>
--

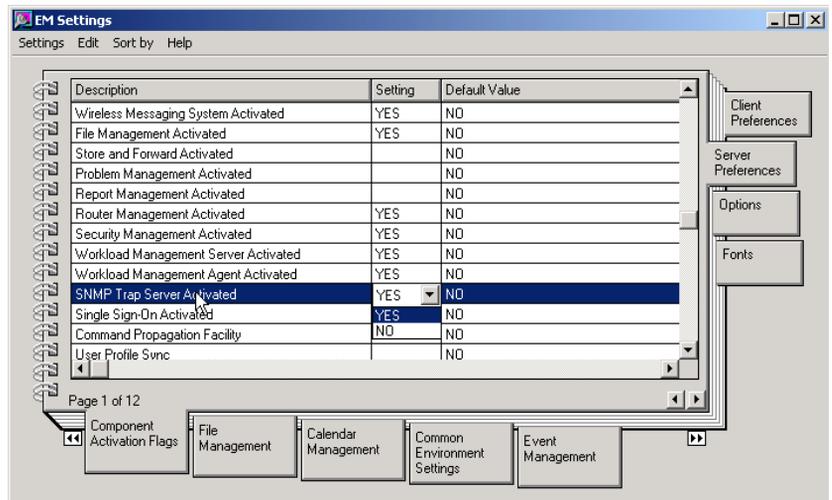
## Activating SNMP Traps

To activate the SNMP traps:

- 1 Click **Start** and select **Programs/Unicenter TND/Enterprise Management/EM Classics/Windows NT/Configuration**.
- 2 Click **Settings** icon.

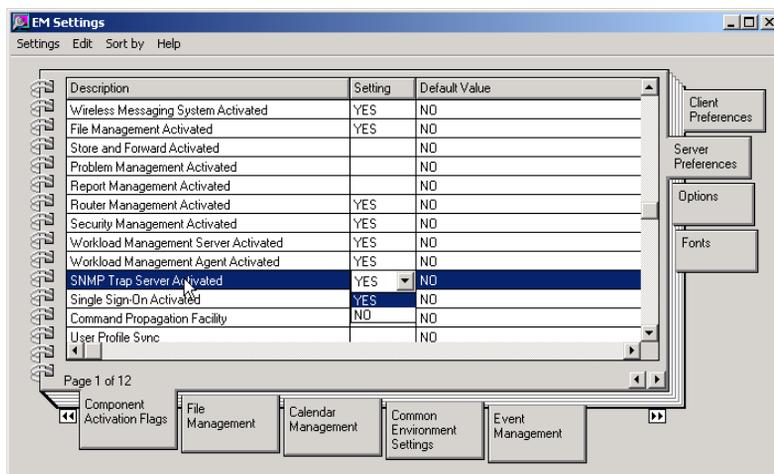
The **EM Settings** dialog box appears with the **Component Activation Flags** tab activated (see [figure 1](#)).

Figure 1 Component Activation Flags Tab



- 3 Change the **Setting** to **Yes** for the **SNMP Trap Server Activated** flag.
- 4 Select the **Server Preferences** tab (see [figure 2](#)).

Figure 2 Server  
Preferences Tab



- 5 Set preference to **Yes** for **SNMP Trap Server Activated**.
- 6 Exit the **Unicenter TND Settings** dialog box.
- 7 Reboot the PC for the changes to take effect.

## Pre-Installation Steps

Before installing the SNMP integration software, edit the `c:\winnt\system32\drivers\etc\hosts` file and add the library node(s):

<IP Address> <Library Name>

<Library Name> is derived from the library name and the domain name specified in the **Network Configuration** section of your library's management Web page.

For example, if the library name is BLD5 and the domain is **mycompany.eng**, the library name in the `/etc/hosts` file will be **BLD5.mycompany.eng**.

## Installing the SNMP Integration Software

You can install the SNMP integration software by downloading it or by installing it from a CD. Download the integration software from the Quantum Customer Support Web site at:

**[www.quantum.com/softwaredownloads](http://www.quantum.com/softwaredownloads)**

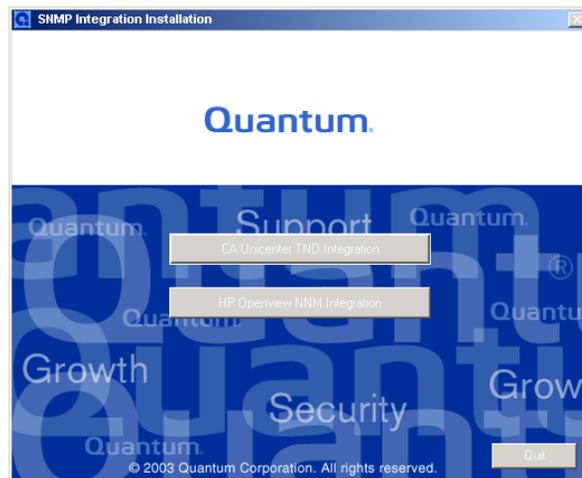
**Note:** Install Unicenter TND before installing the integration software. If Unicenter TND is not installed, the integration procedure will abort.

To install the SNMP integration software from a CD:

- 1 Insert the SNMP Integration CD into the CD-ROM drive of the computer that contains the Unicenter TND software.

If Autoplay is enabled, Windows automatically displays the Library SNMP Integration Installation screen (see [figure 3](#)). This screen allows you to perform Unicenter TND Integration or HP OpenView NNM Integration.

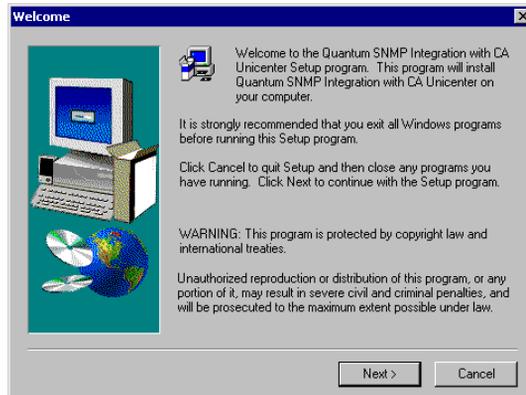
Figure 3 SNMP  
Integration Installation  
Dialog Box



- 2 Click **CA Unicenter TND Integration**.

The **Welcome** dialog box displays (see [figure 4](#)).

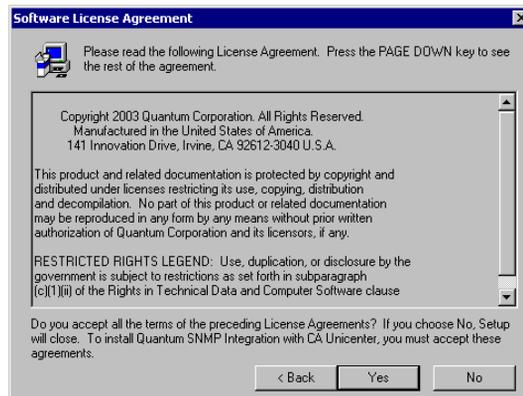
Figure 4 Welcome Dialog Box



3 Click **Next** on the **Welcome** dialog box.

The **Software License Agreement** dialog box displays (see [figure 5](#)).

Figure 5 Software License Agreement Dialog Box



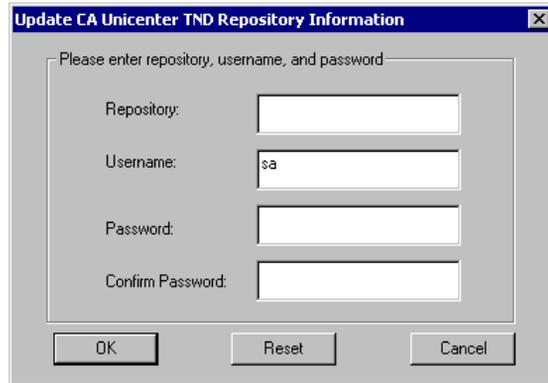
4 Read the **Software License Agreement**.

5 Click **Yes** to indicate that you accept the terms of this agreement.

The **Update TND Repository Information** dialog box displays (see [figure 6](#)).

**Note:** If you click **No** on the **Software License Agreement** dialog box, the wizard program terminates.

Figure 6 Update TND  
Repository Information  
Dialog Box



**Note:** Depending on the version of Unicenter TNG Framework you are using, the information in the text boxes may vary. In version 2.1, the repository name should be entered in the form NAME\_TNGDB. In version 2.4, the repository name should be entered in the form UNIDB\_NAME. The NAME portion should be the name of the host computer.

- 6 Enter the SQL server into the **Repository** box.
- 7 Enter **sa** for System Administrator in the **Username** box.
- 8 Leave the **Password** and **Confirm Password** boxes blank if Unicenter TND was installed without using a password.

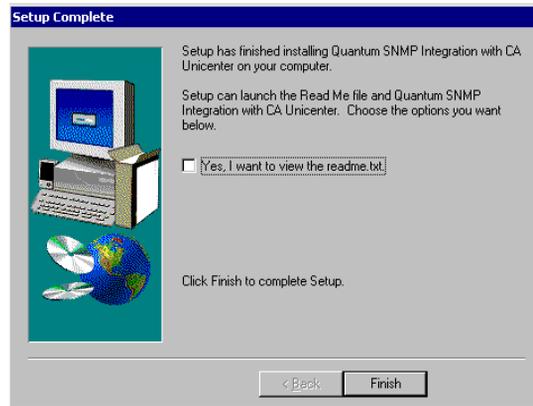
To return settings in this dialog box to their previously saved values, click **Reset**. To exit the dialog box without saving any changes, click **Cancel**.

**Note:** If Unicenter TND was installed using a password, the same password should be used in this step.

- 9 Click **OK** to save your settings.

The **Setup Complete** dialog box displays (see [figure 7](#)).

Figure 7 Setup  
Complete Dialog Box



- 10 To display the readme.txt file, select the **Yes, I want to view the readme.txt** check box.
- 11 Click **Finish**.  
Your library is now integrated with the Unicenter TND software.

---

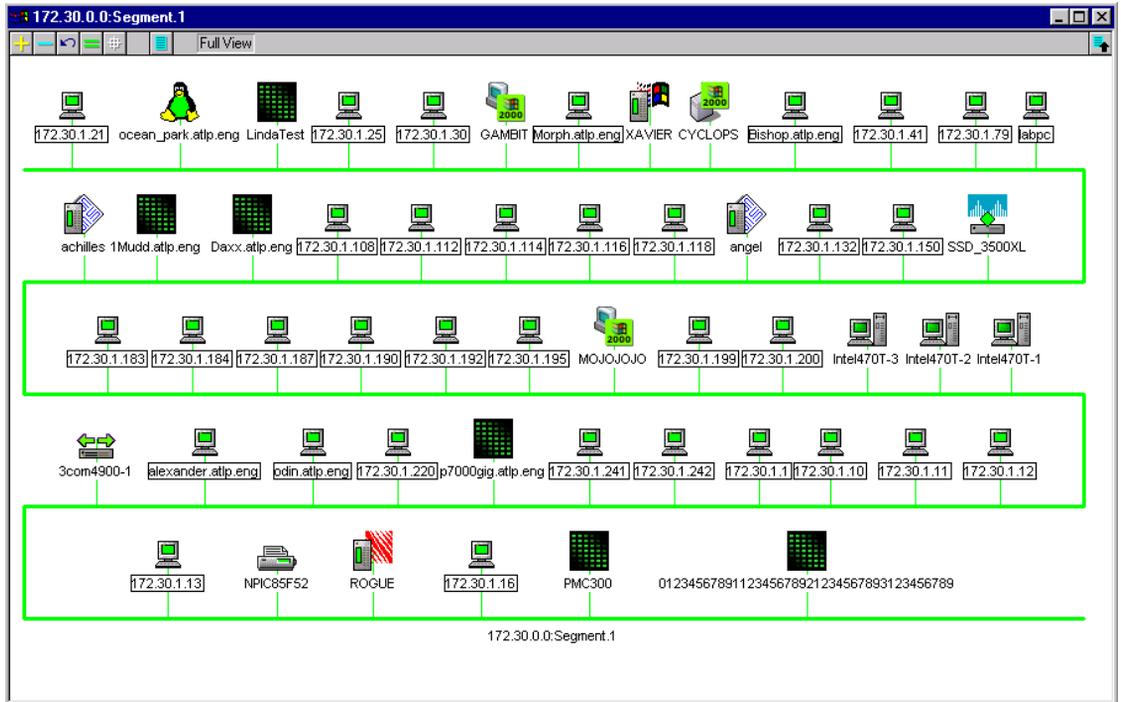
## Setting Up Unicenter TND

After installing the integration software, set up the Unicenter TND by reclassifying the library node. To set up Unicenter TND:

- 1 On the start menu under **Programs**:
  - a Select **Unicenter TND**
  - b Select **Worldview**
  - c Click on **2-D Map**

The **2-D Map** displays (see [figure 8](#)).

Figure 8 2-D Map



- 2 In the **2-D Map**, navigate to the network where the library devices are located.
- 3 Right-click on the object (library) and select delete.  
The object is removed from the submap.

- 4 From a DOS prompt:
  - for an M-Series or P-Series, type:  
`dscvrone -i <PMC IP Address> -h ATLLIB`
  - for a DX30 type:  
`dscvrone -i <PMC IP Address> -h DX30`
  - for a DX100 type:  
`dscvrone -i <PMC IP Address> -h DX100`
  - for a PX720 type:  
`dscvrone -i <PMC IP Address> -h PX720`
- 5 Press <Enter>.

This command discovers the library and inserts it into the map.

**Note:** For Unicenter TNG Framework 2.1, the object will appear in the existing segment. For Unicenter TNG Framework 2.4, the object may appear in another segment. To place the object in the appropriate segment, refer to the Unicenter TND documentation.

The library icon will appear in the map. The color and shape of the icon reflects the health of the library. This allows the network administrator to take corrective action if necessary.

Configure the SNMP subsystem of your library (see [appendix A](#)).

---

## Following Up: Testing the Library Icon

To test the library icon:

**Note:** Prior to conducting this test, verify that no library processes are running.

- 1 Open a 2D-map in Unicenter TND.
- 2 Navigate to the submap where the reclassified library node resides.

**3** Take the library offline.

After a few moments, the library icon turns red indicating that the library is unavailable.

**4** Put the library on-line.

**5** Verify that the library Home page displays by right-clicking the library icon.

Once the library achieves the on-line state as observed on the library, the library icon on the 2D-map turns green indicating the library is available.

- M-Series, P-Series, and PX720 may take up to 20 minutes to achieve an on-line state
- DX-Series will immediately accomplish an on-line state

Testing is now complete.

---

## Uninstalling SNMP Integration Software

This section explains how to uninstall the library integration software from your computer.

---

### Uninstalling Software from Windows NT 4.0

To remove the library integration software using Windows NT 4.0:

- 1** Log into Windows NT with Administrator privileges.
- 2** Click **Start**, then point to **Settings**.
- 3** Click **Control Panel**.  
Windows NT opens the **Control Panel** dialog box.
- 4** Double-click the **Add/Remove Programs** icon.
- 5** On the **Install/Uninstall** tab, select **Quantum SNMP Integration with CA Unicenter** from the list of software that can be automatically removed.
- 6** Click **Add/Remove**.
- 7** Click **Yes**.

When the library integration software has been removed from your computer, Windows NT displays the message, Uninstall successfully completed.

8 Click **OK**.

---

## Uninstalling Software from Windows 2000

To remove the library integration software using Windows 2000:

- 1 Log into Windows 2000 with Administrator privileges.
- 2 Click **Start**, then point to **Settings**.
- 3 Click **Control Panel**.
- 4 Double-click the **Add/Remove Programs** icon.
- 5 Select **Quantum SNMP Integration with CA Unicenter** from the list of currently installed programs.
- 6 Click **Change/Remove**.
- 7 Click **Yes**.

---

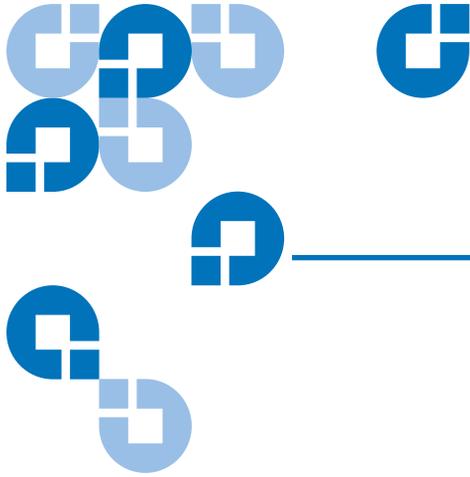
## Troubleshooting

The following troubleshooting information contains possible problems and resolutions for Unicenter TND.

**Problem: The “dscvrone” command did not perform as expected (library was not discovered correctly).**

Resolution: This problem may occur if you have added an SNMP community name through the Community Management section of the SNMP Configuration web page for your library. The community name must also be defined in Unicenter TND. Refer to the Unicenter TND documentation for information on how to use community names.

<p><b>Note:</b> If the community name is placed in Unplaced Objects, delete it before running the <b>dscvrone</b> command.</p>
--



## Chapter 2

# OpenView NNM on Windows NT/2000

---

---

## Overview

OpenView Network Node Manager (NNM) is one of the leading system monitoring tools for the Windows NT and 2000 platforms. This network management tool allows network administrators to graphically view their networks and the nodes attached to the network. This allows the system administrator to assess the health of these devices and take corrective action if necessary.

In order for Quantum Libraries to display as actual library icons in the network management software, you must install the SNMP Integration Kit. The SNMP Integration Kit will:

- Load the Quantum Library MIB file
- Update the **oid\_to\_sym** file for the Quantum Library object
- Copy the icon file
- Copy the symbol registration file
- Copy the application registration file
- Update the Events Table

SNMP integration with OpenView NNM consists of the following tasks:

- [Installing SNMP Integration Software](#)
- [Setting Up OpenView NNM](#)

---

## System Requirements on Windows NT/2000

The SNMP integration with OpenView NNM on NT/2000 requires the following hardware and software components to run properly. These include:

- Microsoft Windows NT or Windows 2000 (server or workstation), installed and running
- Hard disk drive with at least 10 MB of available space
- CD-ROM drive
- Internet browser: Internet Explorer version 5.0 or 5.5, or Netscape Communicator version 4.7x
- SNMP and SNMP trap service active and running
- OpenView NNM version 6.1 or above installed with SNMP traps activated

---

### Level of Security

The level of security required to integrate the library is the same level of security required to install and operate OpenView NNM. This is typically System Administrator (sa) level. The security entry is case sensitive.

**Note:** Before beginning, verify that SNMP service is running. To verify, go to **Start/Control Panel/Services**.

## Installing SNMP Integration Software

You may download the integration software from the Quantum Customer Support Web site at [www.quantum.com/softwaredownloads](http://www.quantum.com/softwaredownloads) or install it from the CD.

**Note:** Install OpenView NNM before installing the integration software. If OpenView NNM is not installed, the integration procedure will abort.

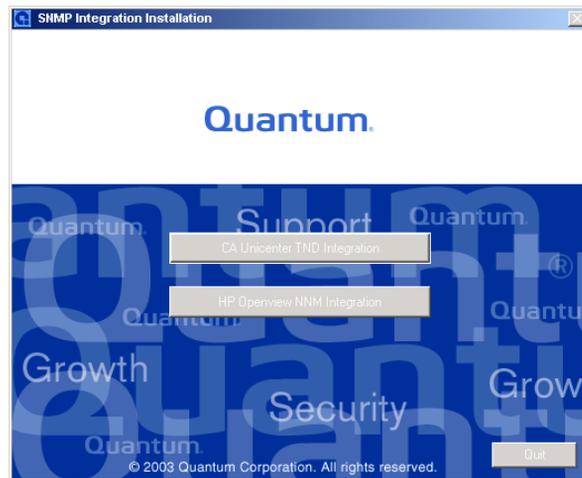
### Installing Software from a CD

To install the integration software from a CD:

- 1 Close the OpenView NNM application.
- 2 Insert the SNMP Integration CD into the CD-ROM drive of the computer where the OpenView NNM software is installed.

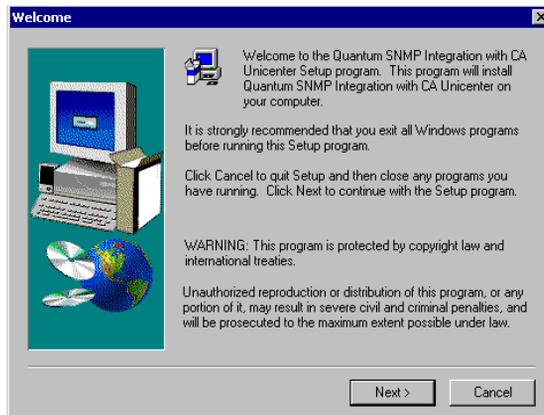
If Autoplay is enabled, Windows automatically displays a dialog box allowing you to select **CA Unicenter TND Integration** or **HP Openview NNM Integration** for installation (see [figure 9](#)).

Figure 9 SNMP Integration Installation Dialog Box



- 3 Click **HP Openview Integration**. The **Welcome** dialog box displays (see [figure 10](#)).

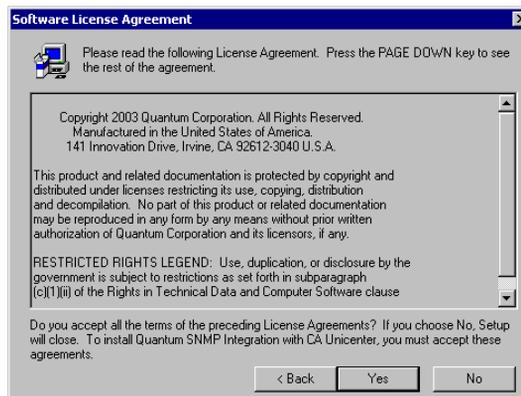
Figure 10 Welcome Dialog Box



4 Click **Next** on the **Welcome** dialog box.

The **Software License Agreement** dialog box displays (see [figure 11](#)).

Figure 11 Software License Agreement Dialog Box



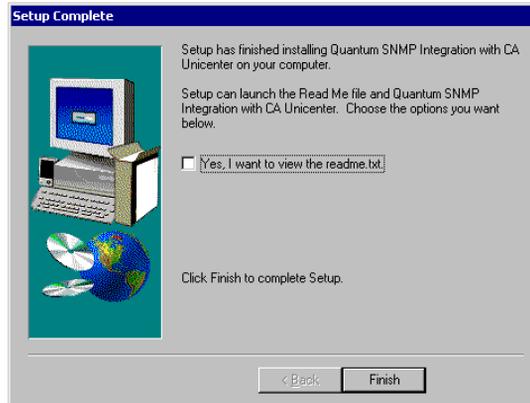
5 Read the Software License Agreement.

6 Click **Yes** on this dialog box to indicate that you accept the terms of this agreement.

The **Setup Complete** dialog box appears (see [figure 12](#)).

**Note:** If you click **No** on the **Software License Agreement** dialog box, the wizard program terminates.

Figure 12 Setup Complete Dialog Box



- 7 To display the readme.txt file, select the **Yes, I want to view the readme.txt** check box.
- 8 Click **Finish**.
- 9 Your library is now integrated with the OpenView NNM software.

---

## Duplicate IP Addresses

As a final step in the SNMP integration with HP OpenView NNM, an entry needs to be added to the HP OpenView nodiscover file. This entry is necessary to ensure that the IP address of the second Ethernet port on the PMC is not detected as a duplicate IP address when more than one PMC is attached to a network. Before powering on the library containing the PMC, perform the duplicate IP addresses procedure.

To create duplicate IP addresses:

- 1 Determine the IP address of the PMC Ethernet port.

If the IP address of the PMC Ethernet port attached to the network begins with anything other than the number 10, the IP address of the second port is 10.0.0.254. Otherwise, the IP address of the second Ethernet port is 192.168.0.254.

- 2 Create an ASCII file. Name and place it as follows:

```
\HP Openview\NNM\conf\netmon.nodiscover
```

- 3 Add a line to the file containing only the IP address determined in [step 1](#) of this section.

For example, if the IP address of the second Ethernet port is determined to be 10.0.0.254, then add the following line to the file:

**10.0.0.254 #MC300 private network address.**

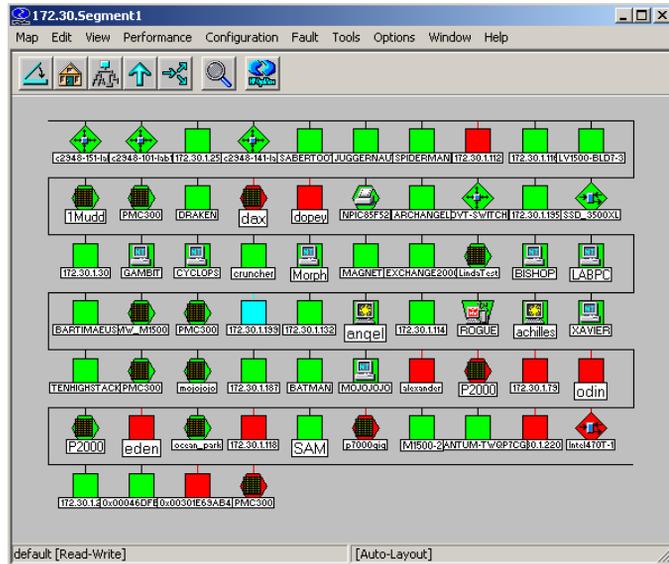
---

## Setting Up OpenView NNM

After the SNMP integration software is installed, set up OpenView NNM. To set up OpenView NNM:

- 1 If OpenView NNM is running, shutdown, and restart OpenView NNM. If OpenView NNM is not running, start OpenView NNM.
- 2 Navigate to the network where the library devices are located (see [figure 13](#)).

Figure 13 Subnet  
Map



The library node should display as an Quantum Library icon.

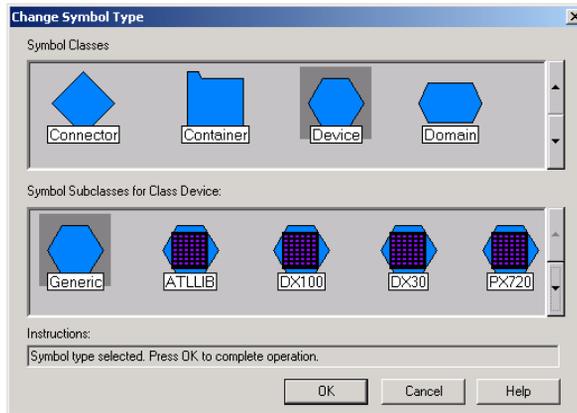
### Changing Symbol Type

If the library node does not display as an Quantum Library icon, change the symbol type. To change the symbol type:

- 1 Right-click on the library object and select **Change Symbol Type** from the pop-up menu.

The **Change Symbol Type** dialog box displays (see [figure 14](#)).

Figure 14 Change  
Symbol Type Dialog  
Box



- 2 Select **Device** in **Symbol Classes** and select the Quantum Library symbol in **Symbol Subclasses for Class Device** (see [figure 14](#)).
- 3 Click **OK**.
- 4 The Quantum Library node should change to an Quantum Library icon. Once your icon displays properly, proceed with configuring the status source and configuring the object attributes.

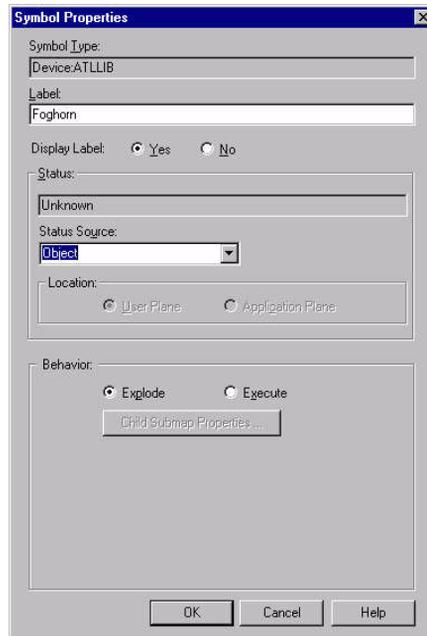
## Configuring Status Source

To configure the status source:

- 1 Select the Quantum Library icon and right-click. Select **Symbol Properties** from the pop-up menu.

The **Symbol Properties** dialog box displays (see [figure 15](#)).

Figure 15 Symbol Properties Dialog Box



- 2 Change the status source to **Object** and click **OK**.

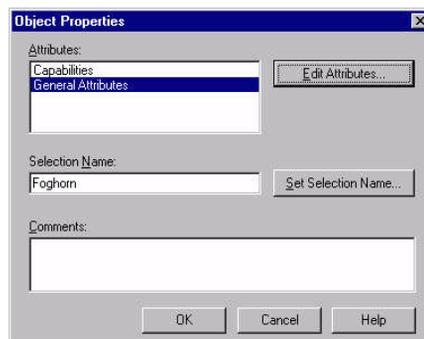
## Configuring Object Attributes

To configure library attributes:

- 1 Select the Quantum Library icon and right-click. Select **Object Properties** from the pop-up menu.

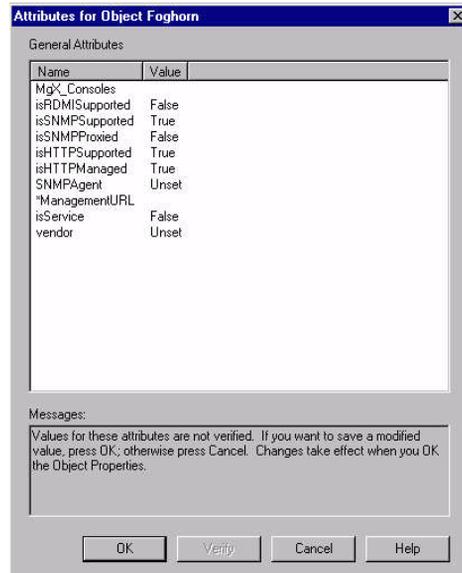
The **Object Properties** dialog box displays (see [figure 16](#)).

Figure 16 Object Properties Dialog Box



- 2 Select **General Attributes** and click **Edit Attributes**.  
The **Attributes** dialog box displays (see [figure 17](#)).

Figure 17 Attributes  
Dialog Box



- 3 The attribute **isHTTPSupported** should be set to **True**. If not, select the attribute to change the setting.
- 4 Click **OK**.

Your attributes are configured. The library icon will appear in the map. The color and/or shape of the icon reflects the health of the library. This allows the network administrator to take corrective action if necessary.

Configure the SNMP subsystem of your library (see [appendix A](#)).

---

## Following Up: Testing the Library Icon

To test the library icon:

- 1 Turn library offline.

The **Unavailable Trap Event** dialog box displays the following message: Library\_Name; The storage library has changed from an available to an unavailable state.

- 2 Click **Close**. The library icon turns red.
- 3 Turn the library on-line.

Once the library achieves the on-line state as observed on the library front panel, the library icon on OpenView NNM map turns green indicating the library is available.

- M-Series, P-Series, and PX720 may take up to 20 minutes to achieve an on-line state
- DX-Series will immediately accomplish an on-line state

Testing is now complete.

---

## Uninstalling Library Integration Software

This section explains how to uninstall the library integration software from your computer.

---

### Uninstalling Software from Windows NT 4.0

To remove the library integration software using Windows NT 4.0:

- 1 Log into Windows NT with Administrator privileges.
- 2 Click **Start**, then point to **Settings**.
- 3 Click **Control Panel**. Windows NT opens the **Control Panel** dialog box.
- 4 Double-click the **Add/Remove Programs** icon.
- 5 On the **Install/Uninstall** tab, select **HP OpenView Integration** from the list of software that can be automatically removed.
- 6 Click **Add/Remove**.
- 7 Click **Yes**. When the library integration software has been removed from your computer, Windows NT displays the message: Uninstall successfully completed.
- 8 Click **OK**.

---

## Uninstalling Software from Windows 2000

To remove the library integration software using Windows 2000:

- 1 Log into Windows 2000 with Administrator privileges.
- 2 Click **Start**, then point to **Settings**.
- 3 Click **Control Panel**.
- 4 Double-click the **Add/Remove Programs** icon.
- 5 Select **HP OpenView Integration** from the list of currently installed programs.
- 6 Click **Change/Remove**.
- 7 Click **Yes**.

---

## Troubleshooting

The following troubleshooting information contains possible problems and resolutions for OpenView NNM.

**Problem: After rebooting the system, the library object reverts to the generic device symbol.**

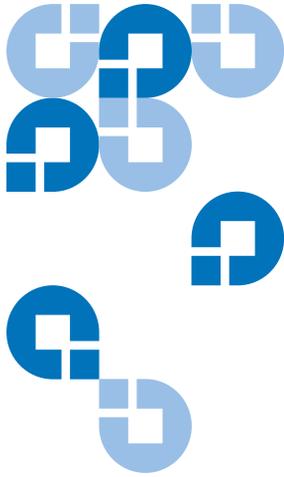
Resolution: Reclassify the object (see [Changing Symbol Type](#) on page 19).

**Problem: Double-clicking the library object causes the object status source to change to “symbol”.**

Resolution: Change the source back to object (see [Configuring Status Source](#) on page 20).

**Problem: Library object color changes to blue.**

Resolution: This does not impact library integration and no action is necessary. When the library changes condition, the color will change appropriately.



---

## Overview

OpenView Network Node Manager (NNM) is one of the leading system monitoring tools for the Solaris platform. This network management tool allows network administrators to graphically view their networks and the nodes attached to the network. This allows the network administrator to assess the health of these devices, as well as take corrective action if necessary.

In order for Quantum Libraries to display as actual library icons in the network management software, you must install the files included with the SNMP Integration Kit. The SNMP Integration Kit will:

- Load the Quantum Library MIB file
- Update the **oid\_to\_sym** and **oid\_to\_type** files for the Quantum Library object
- Copy the icon files
- Copy the symbol registration file
- Update the Events Table

SNMP integration with OpenView NNM consists of the following tasks:

- [Installing SNMP Integration Software](#)
- [Setting Up OpenView NNM](#)

---

## System Requirements on Solaris

The SNMP integration with OpenView NNM on Solaris requires the following hardware and software components to run properly:

- Sun or UNIX workstation with Sun Solaris 2.6, 2.7, or 2.8
- 10 MB free space on one hard disk drive
- CD-ROM drive
- SNMP and SNMP trap service is active and running
- OpenView NNM on Solaris installed with SNMP traps activated

---

### Level of Security

The level of security required to integrate the library is “root.”

---

## Installing SNMP Integration Software

You may download the integration software from the Quantum Customer Support Web site at [www.quantum.com/softwaredownloads](http://www.quantum.com/softwaredownloads) or install it from the CD.

**Note:** Install OpenView NNM before installing the integration software. If OpenView NNM is not installed, the integration procedure will abort.

## Installing Software from a CD

To install the integration software from a CD:

- 1 Close OpenView NNM.
- 2 Insert the SNMP Integration CD into the CD-ROM drive of the computer where the OpenView NNM software is installed.
- 3 Mount the CD-ROM drive if it is not already mounted. Assuming that the CD-ROM drive is mounted at `/cdrom/cdrom1`, run the following commands:

```
#cd /cdrom/cdrom1
#cd HPOpenview/solaris
#./install
```

## Installation Output Script

Once you have run the install command, the following output displays:

```
This installation script will install SNMP library integration for HP OpenView
V1.0.2. Please close NNM before running this script. To Continue, press "C".
To Cancel, press any key.
```

```
Starting installation...
```

```
Checking installation file...
```

```
Closing processes...
```

```
Loading MIB...
```

```
Saving files...
```

```
Current versions of files to be modified are saved in /tmp/ATLLIB
```

```
Updating oid_to_sym...
```

```
Updating oid_to_type...
```

```
Copying icon files...
```

```
Copying Symbol registration file...
```

```
Loading Events Table...
```

```
Restarting processes...
```

```
Quantum SNMP integration installation complete. Please restart NNM.
```

Your library is now integrated with OpenView NNM software.

---

## Duplicate IP Addresses

As a final step in the SNMP integration with HP OpenView NNM, an entry needs to be added to the HP OpenView nodiscover file. This entry is necessary to ensure that the IP address of the second Ethernet port on the PMC is not detected as a duplicate IP address when more than one PMC is attached to a network. Before powering on the library containing the PMC, perform the duplicate IP addresses procedure.

To create duplicate IP addresses:

- 1 Determine the IP address of the PMC Ethernet port.

If the IP address of the PMC Ethernet port attached to the network begins with anything other than the number 10, the IP address of the second port is **10.0.0.254**. Otherwise, the IP address of the second Ethernet port is **192.168.0.254**.

- 2 Create an ASCII file. Name and place it as follows:

**\$OV\_CONF/netmon.noDiscover**

- 3 Add a line to the file containing only the IP address determined in [step 1](#) of this section.

For example, if the IP address of the second Ethernet port is determined to be **10.0.0.254**, then add the following line to the file:  
**10.0.0.254 #MC300 private network address.**

---

## Setting Up OpenView NNM

After the SNMP integration software is installed, set up OpenView NNM. To set up OpenView NNM:

- 1 If OpenView NNM is running, shutdown and restart OpenView NNM.

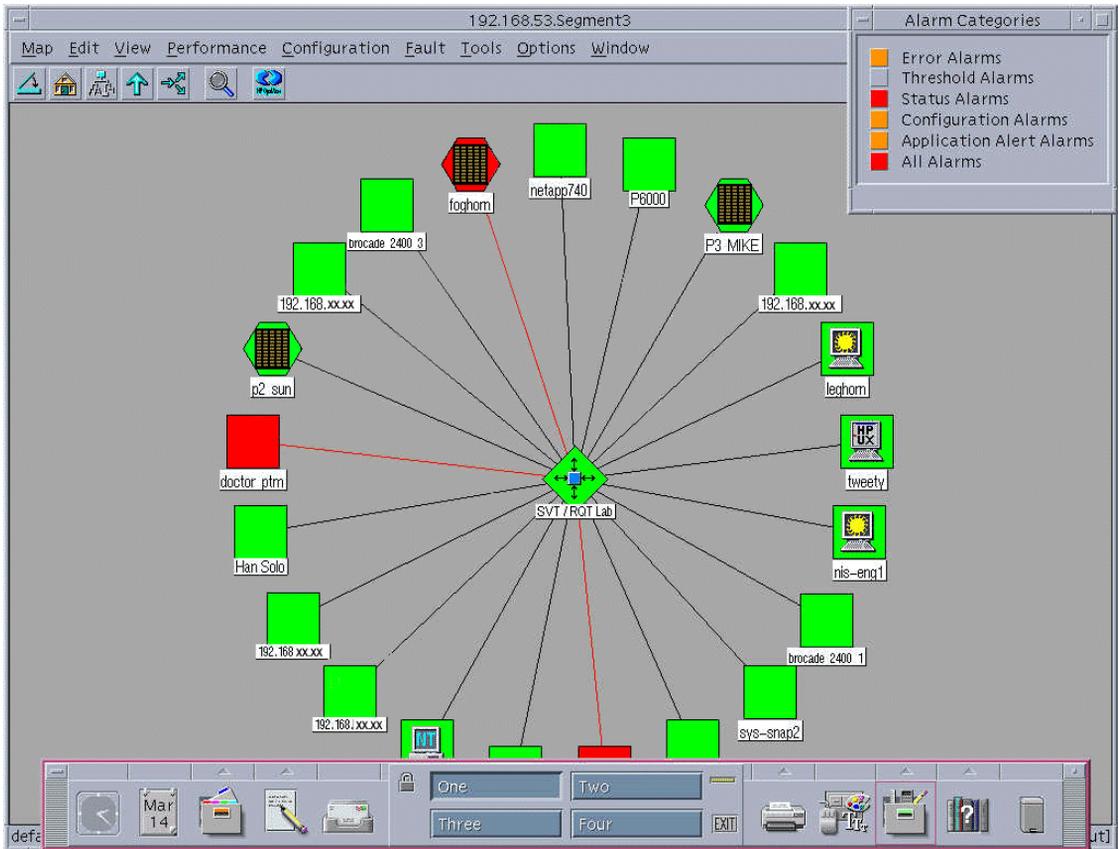
If OpenView NNM is not running, start OpenView NNM. To run OpenView NNM, type:

```
#opt/OV/bin/ovstart
```

```
#opt/OV/bin/ovw
```

- 2 Navigate to the network where the library devices are located (see [figure 18](#)).

Figure 18 Subnet  
Map - Truncated View



The library node should display as a Quantum Library icon.

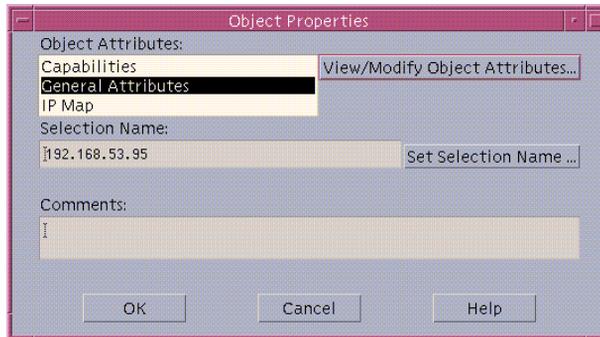
## Configuring Object Attributes

To configure object attributes:

- 1 Click **Edit** on the menu and select **Object Properties**.

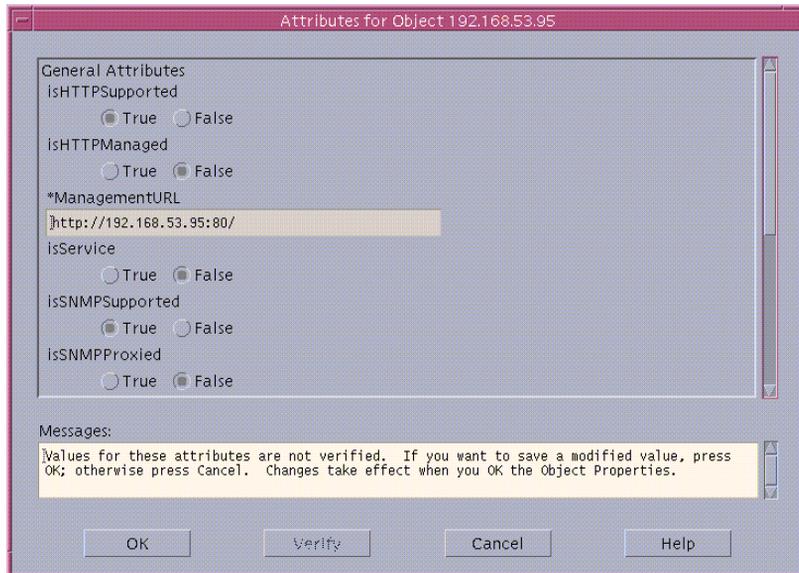
The **Object Properties** window displays (see [figure 19](#)).

Figure 19 Object Properties Window



- 2 Select **General Attributes** and click **View/Modify Object Attributes**.  
The **Attributes** window displays (see [figure 20](#)).

Figure 20 Object Attributes Window



- 3 Click **True** for the **isHTTPSupported** attribute.
- 4 Click **OK**.

Your attributes are now configured.

Configure the SNMP subsystem of your library (see [appendix A](#)).

---

## Following Up: Testing the Library Icon

To test the library icon:

**Note:** Prior to conducting this test, verify that no library processes are running.

- 1 Turn the library off.

The **Unavailable Trap Event** window displays the following message:  
Library\_Name; Library has changed from available to unavailable.

- 2 Click **Close**.

The library icon turns red.

- 3 Turn the library on.

Once the library achieves the on-line state as observed on the library front panel, the library icon on the OpenView NNM map turns green indicating the library is available.

- M-Series, PX-Series, and PX720 may take up to 20 minutes to achieve an on-line state
- DX-Series will immediately accomplish an on-line state

Testing is now complete.

---

## Uninstalling Library Integration Software

This section explains how to uninstall the library integration software from your computer.

---

## Uninstalling Software

Mount the CD-ROM drive if it is not already mounted. Assuming that the CD-ROM drive is mounted at **/cdrom/cdrom1**, run the following commands:

```
#cd /cdrom/cdrom1  
#cd HPOpenview/solaris  
# ./uninstall
```

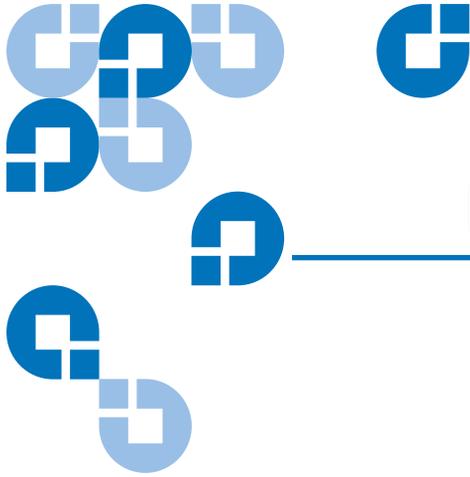
---

## Troubleshooting

The following troubleshooting information contains possible problems and resolutions for OpenView NNM.

**Problem: Library object color changes to blue.**

Resolution: This does not impact library integration and no action is necessary. When the library changes condition, the color will change appropriately.



## Appendix A

# Configuring the SNMP Management Web Page

---

This section describes how to configure the SNMP Management Web Page in Unicenter TND and OpenView NNM.

---

## PX720

To configure the SNMP Management Web Page in Unicenter TND or OpenView NNM:

- 1 Access the Library Home Page and configure the SNMP page.
  - In Unicenter TND, from the **2-D Map**, right-click on the library icon and click on **Library Home** page from the pop-up menu.
  - In OpenView NNM, select the library node, click on **Tools** and select **Web Browser, Server Home Page**. The default browser launches and displays the **Library Home** page.
- 2 A password dialog box displays.

Enter your administrator or operator user name and password and click **OK**.
- 3 Click on Setup, then Events.

The Events page displays (see [figure 22](#)).

- 4 Scroll down to the SNMP section of the Events page (see [figure 22](#)).

Figure 21 PX720  
SNMP Configuration  
Section

Click to Send Test Message: [Send Test](#)

**SNMP**

Community Names:

public-Read/Write [New...](#)  
[Edit...](#)  
[Remove](#)

Trap Destinations:

172.30.55.131  
172.30.55.133  
172.30.55.162  
172.27.3.208 [New...](#)  
[Edit...](#)  
[Remove](#)

Generate SNMP Traps on these Event Types:

- Informational
- Warning
- Critical
- No User Intervention Needed
- User Intervention Requested
- User Intervention Required

[Save](#)

- 5 In the **Generate SNMP Trap on these Event Types** section, make the following changes:
  - a Enable traps as desired.  
All traps may be enabled.
- 6 Click **Save** to save your changes.

- 7 In the **Trap Destination** section, enter the IP address where Unicenter TND or OpenView NNM is running.

**Note:** At least one trap destination must be specified.

SNMP integration is complete.

---

## P-Series and M-Series

To configure the SNMP Management Web Page in Unicenter TND or OpenView NNM:

- 1 Access the Library Home Page and configure the SNMP page.
  - In Unicenter TND, from the **2-D Map**, right-click on the library icon and click on **Library Home** page from the pop-up menu.
  - In OpenView NNM, select the library node, click on **Tools** and select **Web Browser, Server Home Page**. The default browser launches and displays the **Library Home** page.
- 2 On the **Library Home** page, in the navigation bar click on **SNMP Configuration** in the **ALERT SNMP** section.

A password dialog box displays.
- 3 Enter your administrator or operator user name and password and click **OK**.

The **SNMP Configuration** page displays (see [figure 22](#)).

Figure 22 SNMP  
Configuration Page

Quantum Prism Management Card

ALERT SNMP

SNMP Configuration

View/Change SNMP Configuration

Library Name : Library1

Location : IS Building 5

Informational Traps :  Enabled Details

Warning Traps :  Enabled Details

Failure Traps :  Enabled Details

Available Traps :  Enabled

Unavailable Traps :  Enabled

Trap Destination : 123.45.1.26

Trap Destination :

Trap Destination :

Trap Destination :

Trap Destination :

Apply Help

4 In the **View/Change SNMP Configuration** section, make the following changes:

a In the **Library Name** box, enter the library name.

**Note:** The library name must not contain any spaces.

b In the **Location** box, enter the library's location.

c Enable **Available Traps** and **Unavailable Traps**.

d Enable other traps as desired.

- e In the **Trap Destination** field, enter the IP address where the OpenView NNM is running.

**Note:** At least one trap destination must be specified.

- 5 Click **Apply** to save your changes.  
SNMP integration with OpenView NNM is complete.

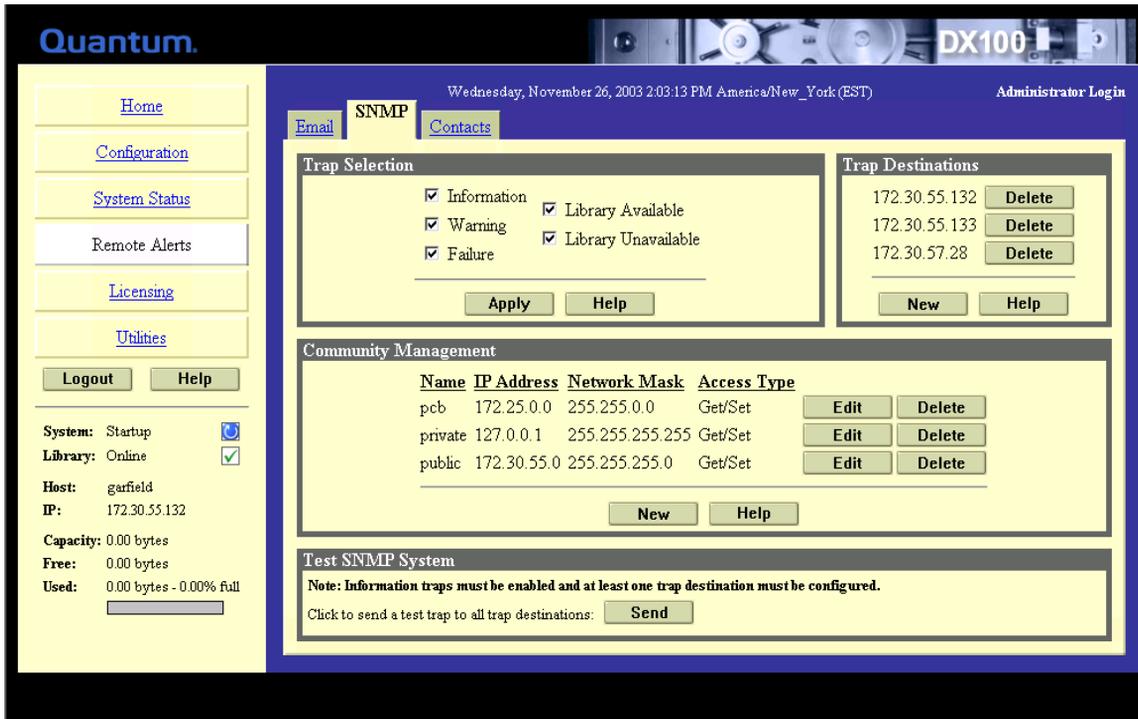
---

## DX-Series

To configure the SNMP Management Web Page in Unicenter TND or OpenView NNM:

- 1 Access the Library Home Page and configure the SNMP page.
  - In Unicenter TND, from the **2-D Map**, right-click on the library icon and click on **Library Home** page from the pop-up menu.
  - In OpenView NNM, select the library node, click on **Tools** and select **Web Browser, Server Home Page**.
- 2 A password dialog box displays.  
Enter your administrator or operator user name and password and click **OK**.  
The Home page displays.
- 3 Click on Remote Alerts, then SNMP.  
The SNMP page displays (see [figure 23](#)).

Figure 23 DX-Series  
SNMP Page

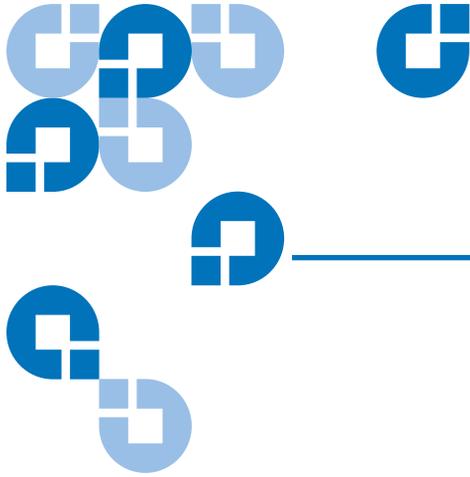


- 4 In the **Trap Selection** section, make the following changes:
  - a Enable **Library Available** and **Library Unavailable** traps.
  - b Enable other traps as desired.
  - c Click **Apply** to save your changes.
- 5 In the **Trap Destination** field, enter the IP address where Unicenter TND or OpenView NNM is running.

**Note:** At least one trap destination must be specified.

- 6 With the **Information** trap is enabled, test the SNMP trap by clicking **Send** in the **Test SNMP** section.

SNMP integration is complete.



# Glossary

---

---

## A

**Autoplay** A Windows option that provides a software response to hardware actions initiated by the user on the machine, such as the appearance of SNMP integration installation screens.

---

## B

**banner frame** The Web browser frame that extends across the top of the screen. It displays the corporate logo and software name.

---

## C

**Cancel button.** Discards changes to the properties and attributes of a page or dialog box and closes it.

**community name** An SNMP community name is the assigned name of a logical management domain on a network. The community name is used as a selector by the agent to specify the access to local or remote management information and the context of the management information. The names “public” and “private” are common default community names.

---

## D

**default gateway** The default gateway is the IP address of the system through which IP packets will be routed if the system at the source address cannot communicate directly with the system at the destination address.

**domain** In the Internet, a part of the naming hierarchy identifying a network or subnet. Syntactically, a domain name consists of a sequence of names (labels) separated by periods (dots).

---

**E** **Ethernet** A local-area network protocol using high-speed communications at 10, 100, or 1000 megabits per second.

---

**F** **frame** A distinct and separate section of a Web page, commonly divided into a banner frame, a navigation frame, and a management frame. The banner frame commonly displays title information. The navigation frame commonly displays headings which are linked to informational pages that display in the management frame.

---

**H** **hostname** The name of the server computer to which the library is attached.

---

**I** **IP address.** The IP (Internet Protocol) address for the system. This is a 32-bit binary numeric address written as four decimal numbers separated by periods. For example, the binary address 11001111.11010011.11100000.00111011 is written as 207.211.224.59.

---

**K** **key** A field used to sort data in database management systems.

---

**L** **LAN** Local Area Network. A network that connects computers that are close to each other, usually in the same building, linked by a cable.

**logical view** A logical, or hierarchical, representation of the library that shows the tape drives, storage bins, and load ports together with their partition owners.

---

**M** **Management Console** Web-based interface that allows authorized staff to configure and manage all storage options from behind a firewall or remotely from anywhere on the Internet.

**management frame** The Web browser frame on the right of the screen which displays the active page.

**MIB** Management Information Base. A hierarchical collection of objects that can be accessed via an SNMP management protocol.

---

**N**

**navigation frame** The Web browser frame on the left of the screen which displays a list of the Management Console Web pages.

**Node** A device with a direct point of access to a network.

---

**O**

**offline** Ready for communication with a diagnostic computer.

**OK button** Commits changes made to a dialog box and closes it.

**online** Ready for communications with a host.

---

**P**

**page properties** The display and configuration attributes of a page.

**partition** A division of a disk or storage area. A library partition is a “virtual library” consisting of a designated portion of a larger physical library.

**physical view** A graphical representation of the library that shows the tape drives, storage bins, and load ports together with their partition owners.

**PMC** Prism Management Card

---

**R**

**reboot** The process of restarting a computer so the operating system is reloaded.

**Reset button** Returns the values in a dialog box to the default, or previously saved, values.

**restart** The process of restarting a computer without reloading the operating system.

---

**S**

**SNMP** Simple Network Management Protocol. The Internet standard protocol that provides network management service. SNMP works by sending messages, called protocol data units (PDUs), to different parts of a network. SNMP-compliant devices, called agents, store data about themselves in Management

Information Bases (MIBs) and return this data to the SNMP requesters.

**Status Icon** The status icon is located on the **Home** Page. It indicates the library status by the background color of the icon.

---

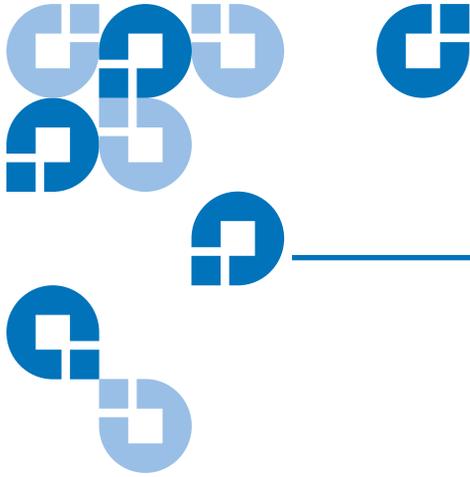
**T** **trap** A program interrupt, usually caused by some exceptional situation in the user program. In most cases, the user performs some action, then returns control to the program.

---

**U** **URL** Uniform Resource Locator. A server address used by clients, such as Web browsers, to access information over the network using HTTP and other protocols.

---

**W** **Web browser** A client application that renders HTML code in a Graphical User Interface (GUI) and uses HTTP and other Internet protocols to communicate with Web servers. For example, Netscape Navigator and Internet Explorer are Web browsers.



# Index

---

---

## I

Integration software installation  
    OpenView NNM 15  
    Unicenter TND 5  
Internet browser  
    Microsoft Internet Explorer 2  
IP Addresses 17

---

## L

Level of Security  
    OpenView NNM 14  
Levels of security  
    Unicenter TND 2

---

## M

Microsoft 2  
Microsoft Internet Explorer 2

---

## O

OpenView NNM  
    setup 18  
    system requirements 14  
Windows 2000 14  
Windows NT 14

---

## P

Pre-Installation 4

---

## R

Repository name 7

---

## S

Security levels 2

- SNMP traps
  - activating 3
- Software License Agreement
  - OpenView NNM 16
  - Unicenter TND 6
- System requirements
  - OpenView NNM with Solaris 26
  - OpenView NNM with Windows NT/2000 14
  - Unicenter TND with Windows NT/2000 2

---

## T

- Testing
  - library icon 10
- Troubleshooting
  - OpenView NNM on Solaris 32
  - OpenView NNM on Windows 24
  - SNMP Integration 12

---

## U

- Unicenter TND
  - settings (Window) 3
  - setup 8
  - system requirements (Windows) 2
- Uninstalling Library Integration Software 11