

SVA NMP Monitor for Unicenter TNG on Windows NT/2000

Getting Started

Version 3.1.1

Second Edition

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Second Edition: October 2002

This edition applies to SVA NMP Monitor software Release 3.1.1. Information in this publication is subject to change. Comments concerning the contents of this manual should be directed to:

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Chapter 1. Overview

What Is the SVA NMP Monitor for Unicenter TNG?

The StorageTek SVA NMP Monitor for Unicenter TNG is a software monitor that reports on the status of StorageTek Shared Virtual Array (SVA) servers and subsystems, based on data provided by the StorageTek SVA NMP Agent software via SNMP (Simple Network Management Protocol).

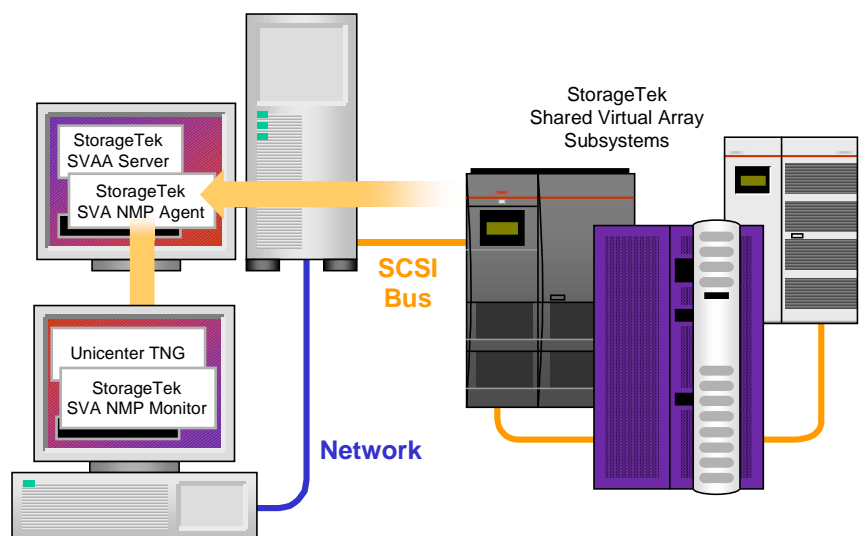
Who Will the SVA NMP Monitor Work For?

The role of the StorageTek SVA NMP Monitor for Unicenter TNG is to provide system or network administrators with the means to monitor a Shared Virtual Array via the StorageTek SVA NMP Agent.

Where Will It Work?

The StorageTek SVA NMP Monitor for Unicenter TNG operates in a client/server architecture using SNMP on the Windows NT/2000 platform.

In the configuration illustrated below, one workstation hosts the StorageTek SVA NMP Monitor with Unicenter TNG, and a remote machine is running the StorageTek SVA NMP Agent software.



Who Will Use the SVA NMP Monitor?

The StorageTek SVA NMP Monitor for Unicenter TNG is designed for system or network administrators who wish to monitor their Shared Virtual Arrays and view their status.

To access StorageTek SVA NMP Monitor for Unicenter TNG, you will need to use Unicenter TNG within which a module will have to be integrated to monitor your storage hardware architecture. You should therefore already be familiar with Unicenter TNG features.

About Unicenter TNG

Unicenter TNG manages your heterogeneous networks, systems, desktops, databases and applications. Unicenter TNG delivers a tightly integrated set of common services across multiple platforms and an intuitive user interface that can be used by any management application.

For more information about Unicenter TNG, call

1-888 Unicenter (United States only)

or visit the Unicenter TNG web site at

<http://www.cai.com>.

Chapter 2. Startup

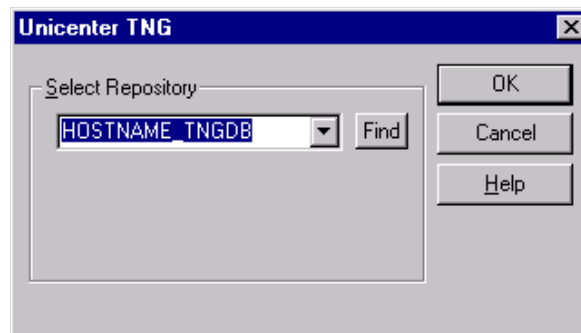
To Start the SVA NMP Monitor



Note: Ensure that the StorageTek SVA NMP Agent is installed on all hosts on which SVAA servers are running, with all connected devices online, so that the related information can be provided to the monitor.

1. **Select the Unicenter TNG 2D Map execution option in the appropriate program folder of the Start menu's Program submenu,**

You will see the Unicenter TNG repository selection box.



Note: The exact procedure for starting the Unicenter TNG 2D Map depends on whether you are using the free Unicenter TNG version, or the full Unicenter TNG solution.

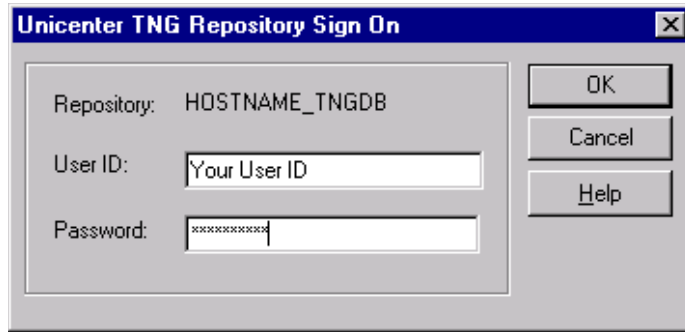
2. **From the Select Repository box, select the name of the database repository you will be using.**



Note: The default selection will be the name of the previously used repository. If you choose any repository other than the one chosen during the installation of the StorageTek SVA NMP Monitor for Unicenter TNG, you will access a Unicenter TNG repository that contains no StorageTek SVA NMP objects.

3. **Click OK to confirm your choice.**

If this is the first time you are starting up Unicenter TNG to use the StorageTek SVA NMP Monitor for Unicenter TNG, the dialog box Unicenter TNG Repository Sign On opens.



4. **Fill in the two text boxes—User ID and Password—then click OK to establish the repository connection.**

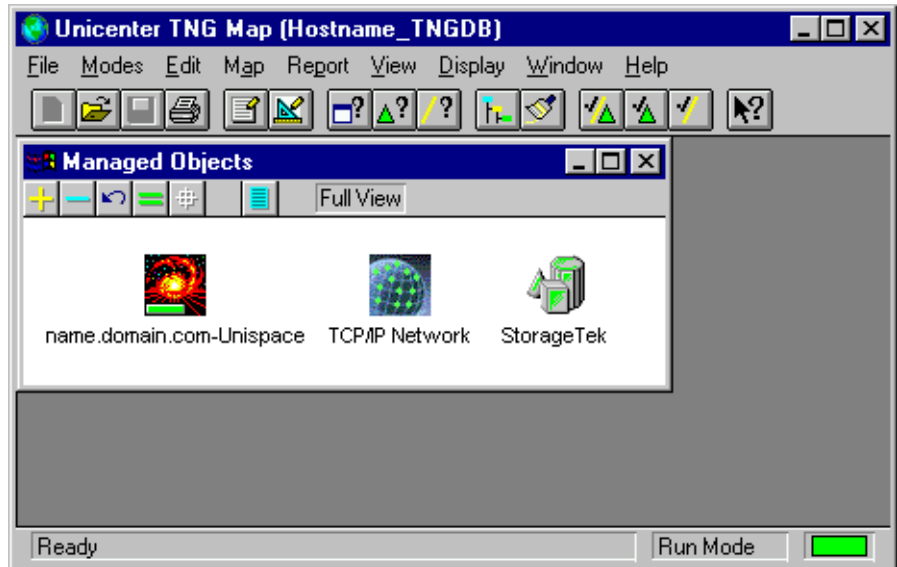


Note: At the next startup, and every time you execute the program after that, Unicenter TNG will reload the same repository, user ID, and password.

A Unicenter TNG Map box lists the elements being loaded. A progress indicator displays the percentage of completion of the loading and initialization processes.



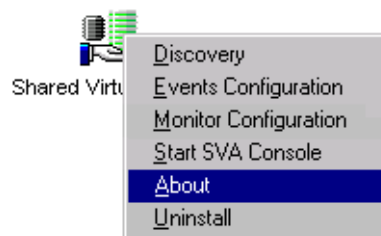
Eventually, you will see the Unicenter TNG Map of your database repository with the Managed Object folder open. This folder contains the Unispace, Network and StorageTek icons as well as an icon for each other installed monitor.



5. Double click the StorageTek icon.

This should open the **StorageTek** folder, in which you will find the Shared Virtual Array icon.

6. Right-click the Shared Virtual Array icon, then select About in the popup menu.



This will bring up the About SVA NMP Monitor box with information on the product and release version.

The System Information button allows the viewing of information about the machine on which SVA NMP Monitor is running. This information can be useful for troubleshooting purposes or if you need to contact StorageTek for assistance.

Click on OK to close the About SVA NMP Monitor box.

About This Manual

For more information about navigating around the StorageTek SVA NMP Monitor for Unicenter TNG and understanding the GUI (Graphical User Interface), read [Chapter 3 “Using the SVA NMP Monitor”](#).

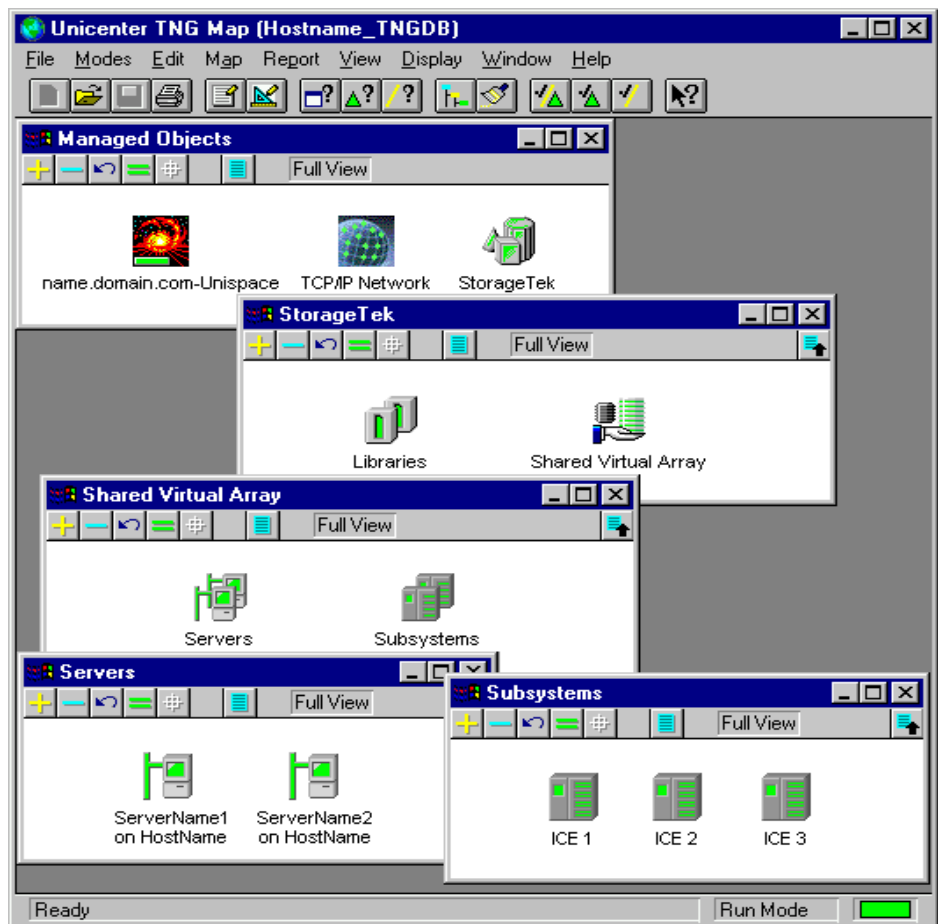
If you are already familiar with Unicenter TNG and are eager to start using the features of the StorageTek SVA NMP Monitor for Unicenter TNG, you can go directly to [Chapter 4 “Getting Started”](#).

Chapter 3. Using the SVA NMP Monitor

Once the StorageTek SVA NMP Agent and Unicenter TNG are installed, the StorageTek SVA NMP Monitor for Unicenter TNG will retrieve information via SNMP about the servers and subsystems and display it through the graphical user interface (GUI) as described in the following sections.

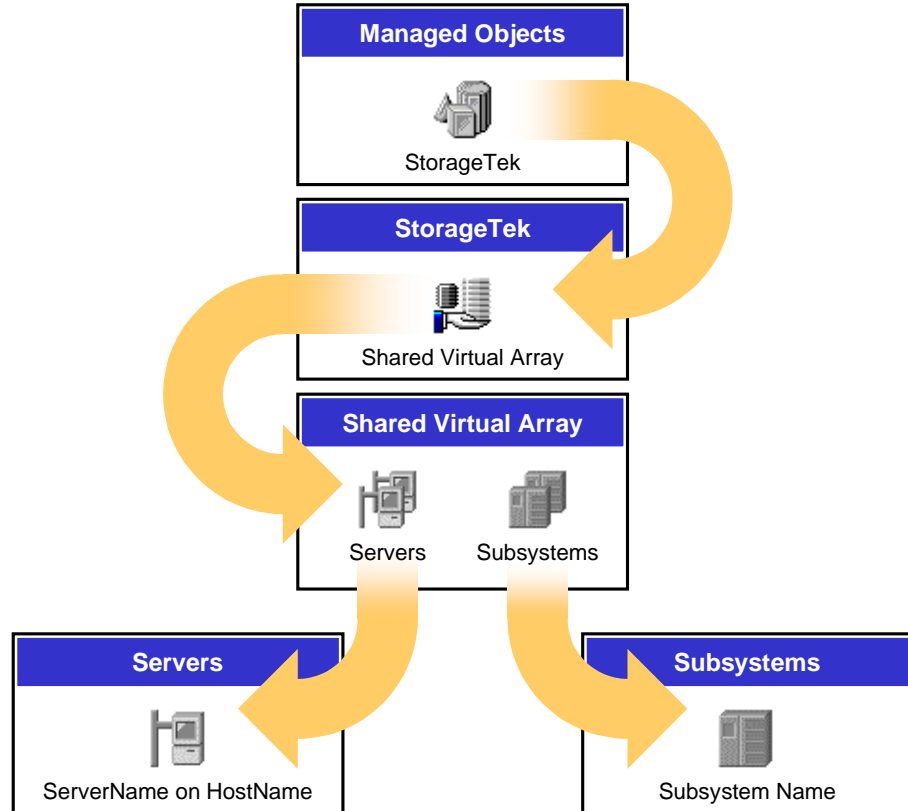
Navigation

Starting from the StorageTek icon in the Managed Objects folder, you can display the four different folders of StorageTek SVA NMP Monitor for Unicenter TNG, as shown below.



From your GUI, you will see the StorageTek icon giving you access to other graphical objects representing your SVA system's servers and subsystems.

The navigation order from the StorageTek icon in the Managed Objects folder down to individual servers and subsystems is illustrated below.



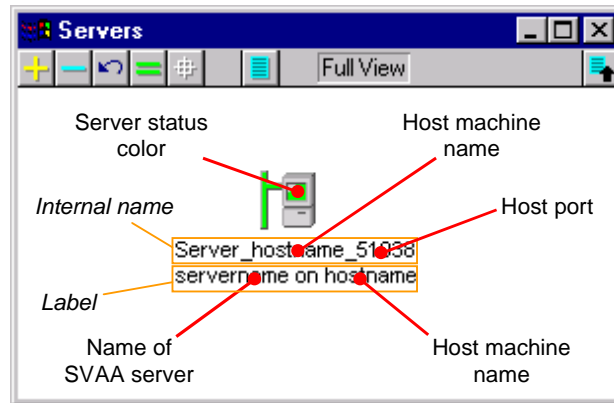
Graphical Representation

Servers Servers are represented as described below.

By default, each server icon is displayed with a label (made up of the name of the server software and the host machine on which the server is running).

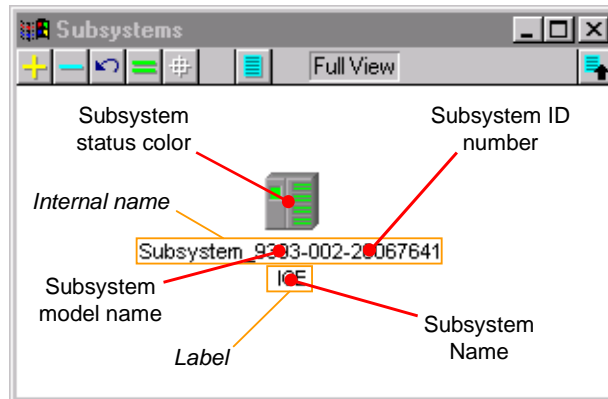
Using standard Unicenter TNG commands, you can also display the object's internal name which is composed of the hostname and port.

Colors (green, gray, yellow and red) indicate the status of server objects. For details on colors, statuses and their meaning, refer to “[Status Propagation](#)” on page 10.



Subsystems

Subsystem icons are represented as shown below, with a label indicating the subsystem name. The subsystem’s internal name, which is made up of the subsystem model number and unique ID number, can also be displayed by using standard Unicenter TNG commands.



Like server icons, subsystem icons indicate the status of the actual subsystems by their color (green, gray, yellow, orange and red).

Status Propagation

The status of the StorageTek, Shared Virtual Array, Servers and Subsystems folders reflect those of the actual servers and subsystems. In other words, the status of the StorageTek folder will only be normal if the status of all of its components are normal. However, if any servers or subsystems have a different status, then the most critical status will be escalated to all parent objects up to the StorageTek folder.

This ascending inheritance of the most critical status complies with common behavior inside Unicenter TNG. As shown in the table below, the color of the icon representing a class instance indicates the status of the instance.

Label <i>Internal Name</i>	Status NORMAL Color GREEN	Status UNKNOWN Color GRAY	Status WARNING Color YELLOW	Status MINOR Color YELLOW	Status MAJOR Color ORANGE	Status CRITICAL Color RED	Status REMOVED Color GRAY crossed in RED
StorageTek <i>StorageTek</i>							
Shared Virtual Array <i>Shared Virtual Array</i>							
Servers <i>Servers</i>							
Subsystems <i>Subsystems</i>							
servername on hostname <i>Server_hostname_port</i>							
subsystemname <i>Subsystem_subsysid</i>							

SNMP calls transmitted to the SVA NMP Agent will provide the information listed in the following table.

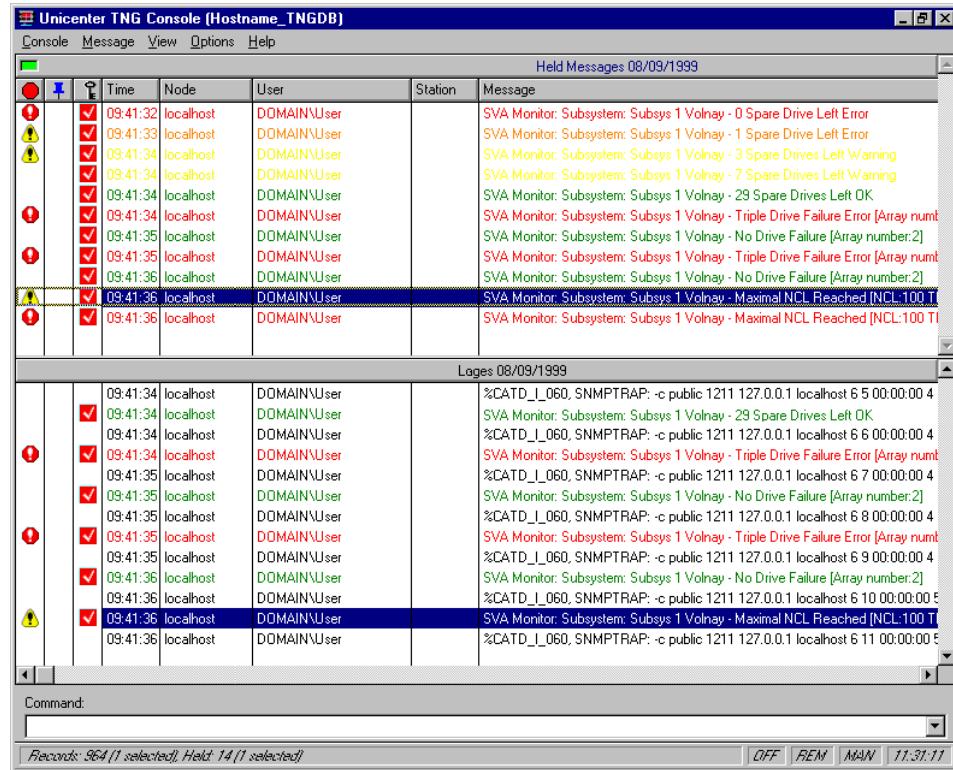
**LESS
Critical**

Unicenter TNG status StorageTek icon color	Meaning
NORMAL GREEN	The status of the servers and subsystems are satisfactory.
UNKNOWN GRAY	A server or subsystem status is unknown because the Monitor is unable to retrieve information about it from the SVA NMP Agent.
WARNING YELLOW	There is an error in a server or subsystem. This problem may be due to a variety of actions. Details of the error status are given in the Status and Properties boxes of the related instance.
MINOR YELLOW	
MAJOR ORANGE	
CRITICAL RED	
REMOVE GRAY crossed out in RED	A server or a subsystem may have been removed. If the Discovery command is executed, the related icon will no longer be displayed.

**MOST
Critical**

Event Console Message Display

All traps sent by an Agent on an SVA server or subsystem are recorded in the Unicenter TNG Console. Different information severity levels are highlighted in different colors.



Refer to the documentation provided with Unicenter TNG for Windows NT/2000 for details on using the Event Console.

Trap Event Messages

The SVA NMP Monitor receives trap messages based on the information provided by the SVA NMP Agent software. Messages are displayed in the Events Console, preceded with `SVA Monitor:`, to indicate the status of a SVA server or subsystem.

Below is the list of messages that can be sent by the SVA NMP Monitor:

Subsystem Spare Drive Left Messages

These messages are sent when the SVA NMP Agent software detects a change in the number of spare drives on a given subsystem. Depending on the number of remaining spare drives, the trap event is given a Normal, Warning, Minor or Major Error status.

Subsystem: *name* - 0 Spare Drives Left Error

Subsystem: *name* - 1 Spare Drive Left Error

Subsystem: *name* - *number* Spare Drives Left Warning

The following message is sent when the spare drive situation returns to normal:

Subsystem: *name* - *number* Spare Drives Left OK

Subsystem Drive Failure Messages

These messages occur when any drive failures are detected on *array*. The number of failing drives affects the status that is given to the event.

Subsystem: *name* - Double Drive Failure Error [Array number: *array*]

Subsystem: *name* - Triple Drive Failure Error [Array number: *array*]

When no more drive failures are detected, another message is sent:

Subsystem: *name* - No Drive Failure [Array number: *array*]

Subsystem NCL Threshold Messages

These messages are issued when the *ncl* (Net Capacity Load) percentage exceeds the threshold *value* defined for a given subsystem.

Subsystem: *name* - NCL Threshold Reached [NCL: *ncl* Threshold: *value*]

Subsystem: *name* - Maximal NCL Reached [NCL: *ncl* Threshold: *value*]

When the NCL percentages returns to a normal level, this message is displayed:

Subsystem: *name* - NCL Threshold OK [NCL: *ncl* Threshold: *value*]

Server Unreachable/Down Messages

When the SVA NMP Agent software fails to connect to the SVA server, the following message is sent, where *host* and *port* are the host and port on which the server is running.

Server: *name* - Server Unreachable/Down [Host: *host* Port: *port*]

This message is sent once normal communication is established

Server: *name* - Server Running [Host: *host* Port: *port*]

Server Tracing Messages

These messages indicate when tracing has been enabled or disabled on a given server.

Server: *name* - Trace Enabled

Server: *name* - Trace Disabled

Discovery Complete Message

This message is sent after a Discovery command has been completed (See [“Discovery and Refresh Commands” on page 15.](#))
SVA Agent on *IPAddress* has reinitialized its data

PPRC Paths Messages

These messages are issued when the percentage of *error* (i.e. the ratio of PPRC paths in error to the total number of PPRC paths) is not 0% or exceeds the threshold value defined for the current subsystem.

Subsystem: *name* - value% or less Paths Error [Error:*error* Total:*total*]

Subsystem: *name* - value% or more Paths Error [Error:*error* Total:*total*]

Subsystem: *name* - All Paths Error [Error:*error* Total:*total*]

When all paths are established, another message is sent:

Subsystem: *name* - All Paths OK [Error:*error* Total:*total*]

PPRC Path by I/O Interface Messages

These messages indicate the status of a specific PPRC path (they indicate the I/O interface, the primary SSID, and the secondary SSID for this PPRC path).

Subsystem: *name* - Path Error [IO:*io* priSSID:*primaryssid* secSSID:*secondaryssid*]

When the path is established, the following message is sent:

Subsystem: *name* - Path OK [IO:*io* priSSID:*primaryssid* secSSID:*secondaryssid*]

PPRC Pairs Messages

These messages are issued when the percentage of *suspended* (i.e. the ratio of suspended PPRC pairs to the total number of PPRC pairs) is not 0%.

Hint: Beware that *suspended* and *total* are computed on functional devices only, and that *total* does not include bridge pairs.

Subsystem: *name* - 25% Pairs suspended [Suspended:*suspended* Total:*total*]

Subsystem: *name* - 50% Pairs suspended [Suspended:*suspended* Total:*total*]

Subsystem: *name* - 75% Pairs suspended [Suspended:*suspended* Total:*total*]

Subsystem: *name* - +75% Pairs suspended [Suspended:*suspended* Total:*total*]

When all the PPRC pairs are synchronized or pending, the following message is sent:

Subsystem: *name* - All Pairs OK [Suspended:*suspended* Total:*total*]

PPRC Pair by Volume Message

This message indicates that a specific PPRC pair is suspended.

Subsystem: *name* - Pair Suspended [FDID:*fdid* Type:*type*]

Hint: Please note that *type* is either primary or secondary.

Chapter 4. Getting Started

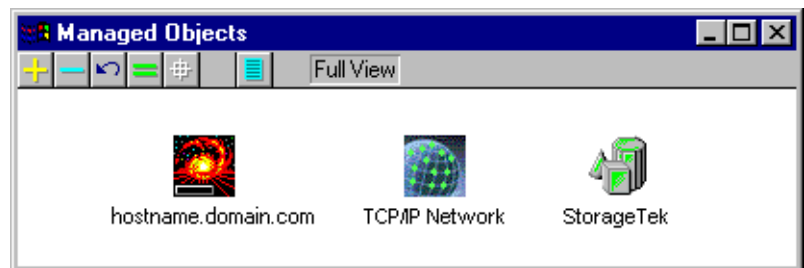
You are now ready to monitor your StorageTek Shared Virtual Arrays. First of all, you may wish to see what your storage system looks like from your workstation.

Discovery and Refresh Commands

The Discovery and Refresh commands are useful to make sure that you see your StorageTek Shared Virtual Arrays in their current configuration and status.

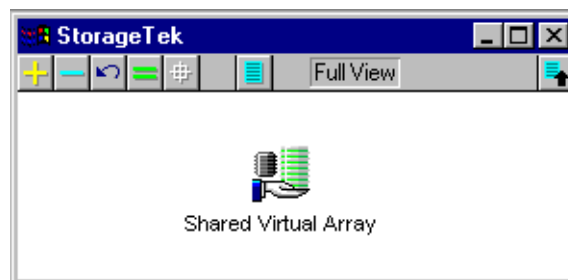
The Discovery command is used to obtain a full configuration map of your Shared Virtual Arrays, for instance if you have added or removed any devices from the network. The Refresh command merely updates the status of currently displayed objects.

To Discover the Current SVA Configuration



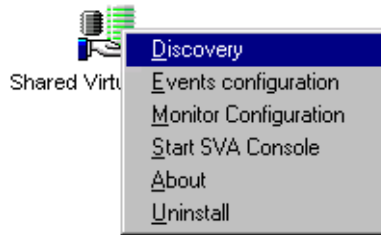
1. **From the Managed Objects folder, double-click the StorageTek icon.**

This opens the StorageTek folder.

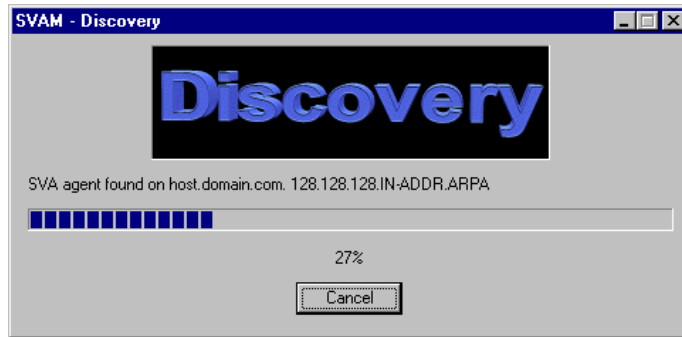


2. **From the StorageTek folder, point the mouse cursor to the Shared Virtual Array icon.**
3. **Click the right mouse button.**

4. Select the Discovery command when it pops up.



You can read information in the StorageTek Discovery box. The text displayed may indicate that new elements are being discovered. The search progress rate is displayed.



Discovery command execution time depends on the number of machines present on the network as well as overall network performance.

A completed discovery guarantees that your GUI will reflect current SVA configuration and status. After a Discovery command execution, you will get an updated view of all servers and subsystems that are online.

If you stop the discovery before completion by clicking the Cancel button, any changes to the configuration will not be taken into account by the StorageTek SVA NMP Monitor.

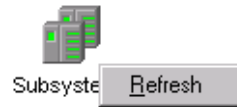


Note: A background task is launched at machine startup. Whether or not Unicenter TNG is open, this process automatically issues a Discovery command at regular intervals. To change the interval at which automatic discovery requests are sent, refer to [“Monitor Configuration” on page 27](#).

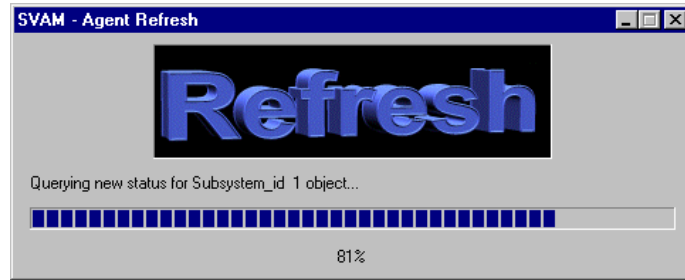
To Refresh the Status of Currently Displayed Objects

The Refresh command can be invoked from either the Servers or Subsystems icons, or any particular server or subsystem icons. It will be applied to child classes below that object, or only the object itself if there is no child. For instance, if you select the Refresh command from the Servers icon, only views of the available servers will be updated.

1. For instance, point the mouse cursor to the Subsystems icon to update the display of all of your subsystems and click the right mouse button.
2. In the popup menu, select the Refresh command.

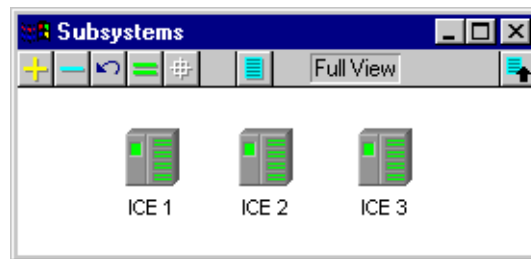


The Refresh box displays a refresh progress indicator.



3. Double-click the Subsystems icon.

This opens a folder displaying an updated status icon for each subsystem.



Viewing Your System Labels

By clicking a server or subsystem icon, a tooltip box containing the name of the StorageTek object class, its label, its status and the related host IP address (if applicable) can be displayed next to the current icon.

To Display a Label

1. Point the mouse cursor to the left of an icon.
2. Click the left mouse button.

A tooltip box pops up next to the related icon.

A subsystem class information tooltip has the following format:

SvamSubsystemClass	Normal
CE	255.255.255.255

Subsystem label

Subsystem status

Subsystem IP address

A server information tooltip box is as follows:

SvamServerClass	Normal
server on host	host

Server label

Server status

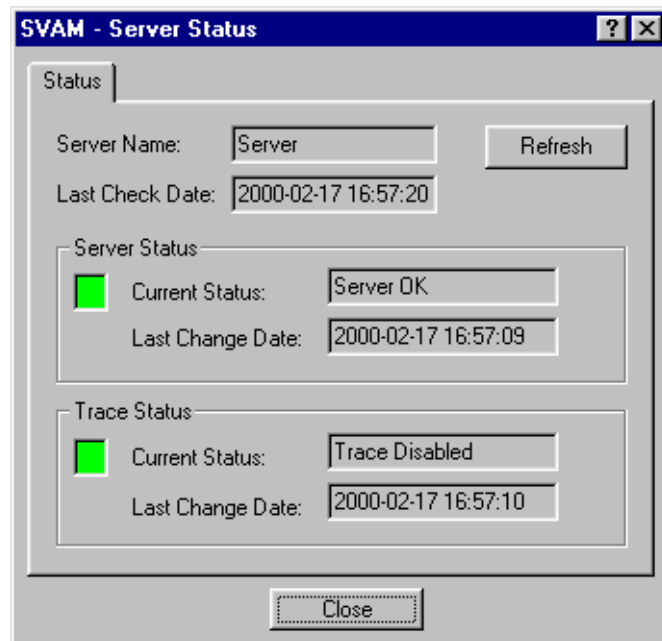
Host machine name

Server and Subsystem Status

The current status of a server or subsystem is reflected by the color of the object's icon as well as all parent icons. However, if you wish to obtain more details on an object's status, you will need to view the Server Status or Subsystem Status box.

Obtaining Detailed Server Status Information

1. Right-click a server object and select Status from the popup menu. That opens the Server Status dialog.



Note: While the Server Status box is displayed, you can issue a Refresh command by clicking the Refresh button. This will update the currently displayed information.



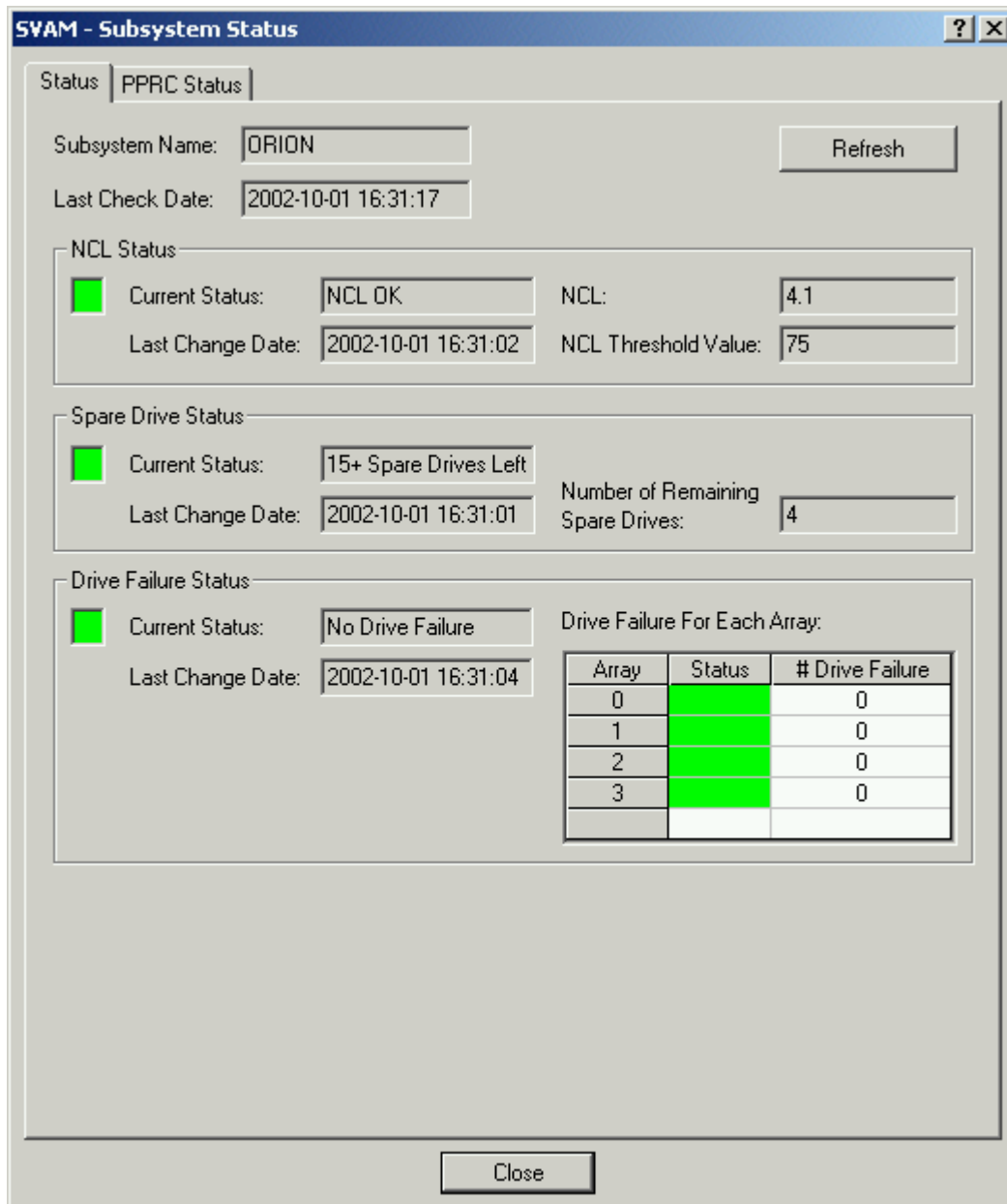
Note: All StorageTek SVA NMP Monitor dialogs provide field-level context-sensitive help. To display such help, click the What's This? button [?] in the top right-hand corner of the dialog, then click the object for which you need help.



Note: Under Windows 2000 the context-sensitive help sometimes does not operate correctly.

Obtaining Detailed Subsystem Status Information

1. Right-click a subsystem object and select Status from the popup menu. That opens the Subsystem Status dialog.



Note: While the Subsystem Status box is displayed, you can issue a Refresh command by clicking the Refresh button. This will update the currently displayed information.

Obtaining Detailed PPRC Subsystem Status Information

1. Right-click a subsystem object and select Status from the popup menu. That opens the Subsystem Status dialog.
2. Click the PPRC Status tab. That displays the following dialog.

SYAM - Subsystem Status

Status PPRC Status

Subsystem Name: Refresh

Last Check Date:

Path Status

Current Status: Number of PPRC Paths Error / Total: /

Last Change Date:

PPRC Paths in Error, that were created from this subsystem:

ID Number	ID Name	Pri SSID	Sec Serial #	Sec SSID	Status
0.C		3	00000025	3	Escn lnk offline

Pair Status

Current Status: Number of PPRC Volume Pairs Suspended / Total: /

Last Change Date:

FDIDs of PPRC Primary Volume Pairs Suspended:

014	016						

FDIDs of PPRC Secondary Volume Pairs Suspended:

030	031						

Close

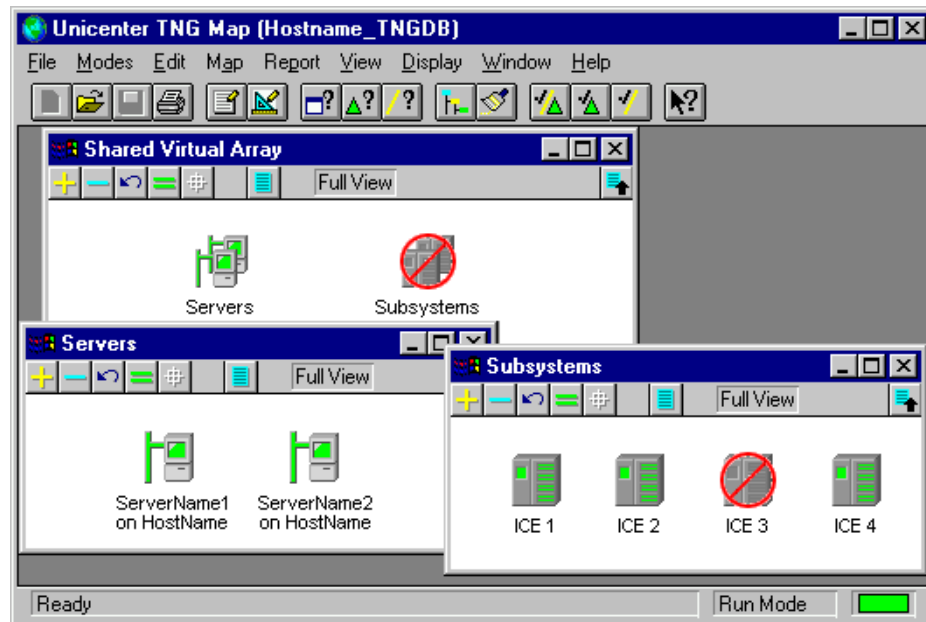


Note: While the Subsystem Status box is displayed, you can issue a Refresh command by clicking the Refresh button. This will update the currently displayed information.

Status of a Removed Subsystem and Remaining Subsystems

A server or subsystem with a REMOVED status will still be displayed after a Refresh. The server or subsystem icon will be actually removed on the next Discovery.

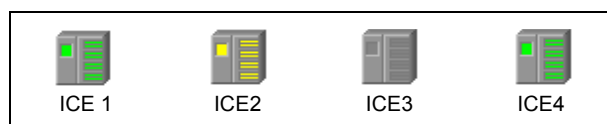
However, and except for the removed server or subsystem, queries will return up-to-date information on the remaining devices.



The tables below should help you understand the effects of the removal of a server or subsystem.

Before a Server or Subsystem Is Removed

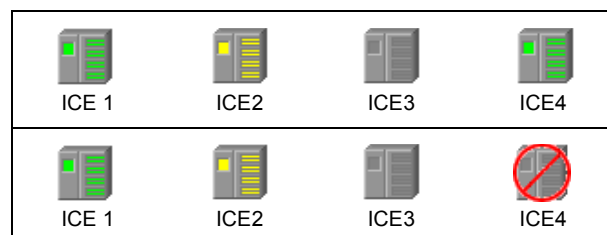
All devices below are displayed.



After a Server or Subsystem Is Removed

Let's assume subsystem ICE4 was removed.

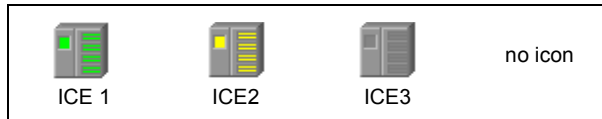
Before a Refresh



After a Refresh



After a Discovery



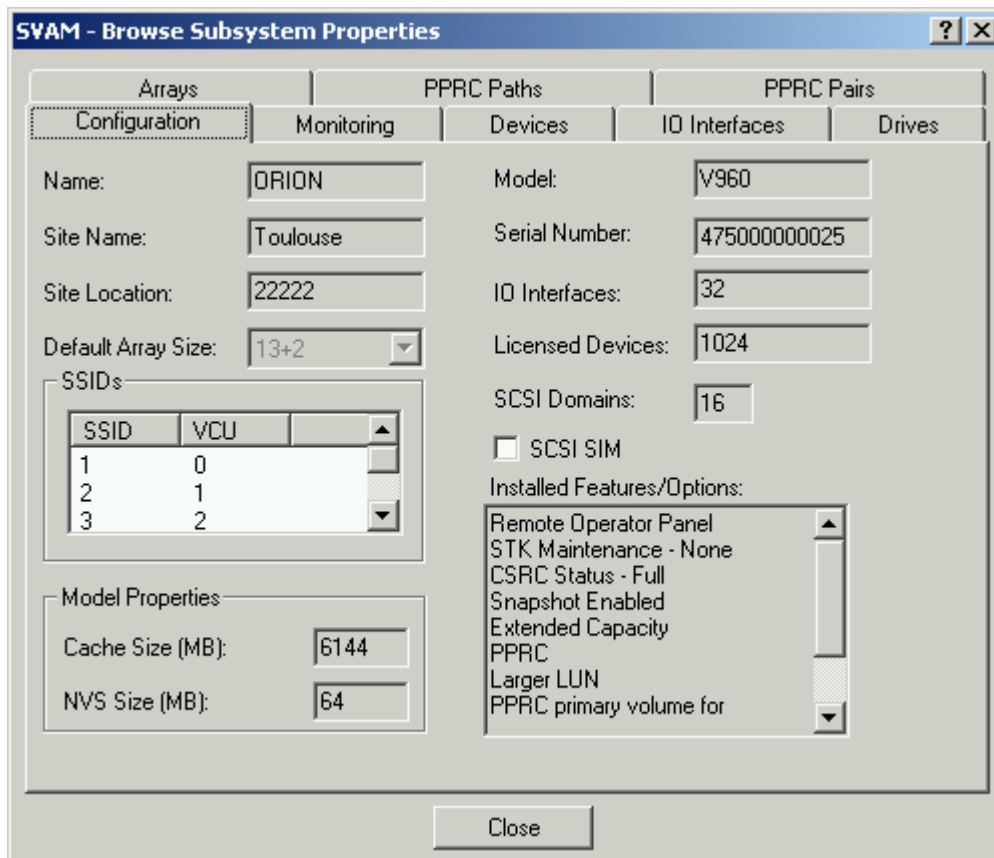
The Object Properties Command

Properties of a server or subsystem may be accessed by using the properties command. To do this:

1. **Point the mouse cursor to a server or subsystem icon and click the right mouse button.**
2. **Select Properties in the pop-up menu.**



The properties box for the selected icon will be displayed. For instance, if you have invoked a Properties command on a subsystem icon, the Browse Subsystem Properties box will appear like this.



If the StorageTek SVA NMP Agent is restarted or the host is rebooted *and* a Refresh or Properties command is launched, an error message will be displayed.

If you are aware of StorageTek hardware configuration modifications, click OK and run a Discovery command.



Warning: You may get the following message when you click one of these tabs: **Devices, IO Interfaces, Drives, Arrays, PPRC Paths** or **PPRC Pairs**.

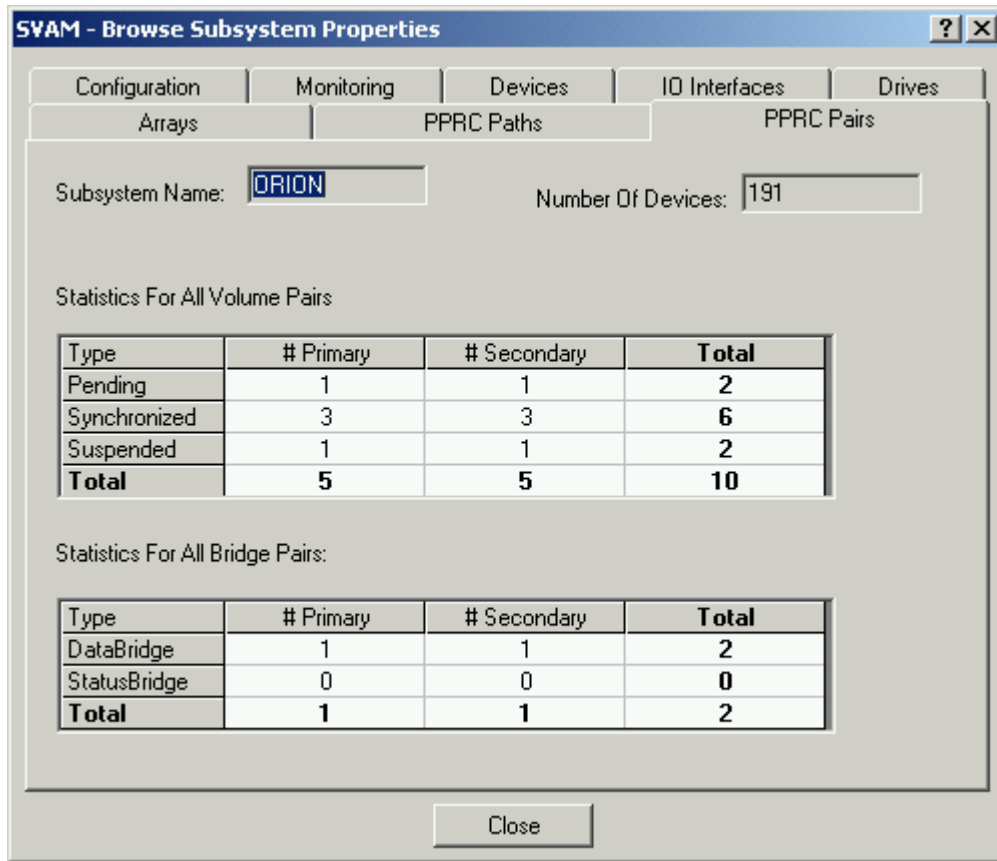
An unsupported operation was attempted

If that is the case, this message is displayed because a required file called MSFLXGRD.OCX is missing from your system or is available but not up-to-date. One of the reasons may be that SVA NMP installation program found a file with the same name and decided not to overwrite it (as it may be required by another application).

The required MSFLXGRD.OCX file can be found on the CD-ROM under /Shared Files. To register this file on your system:

1. **Copy MSFLXGRD.OCX in WINNT/SYSTEM32.**
2. **Issue the following DOS command:**
regsvr32 msflxgrd.ocx

PPRC Pairs Configuration

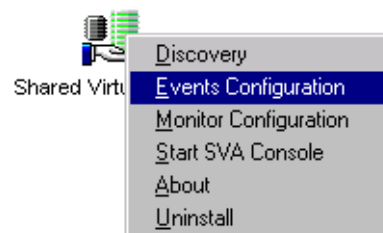


Note: The number of devices represents the total amount of functional devices. Statistics on pairs are computed on functional devices only.

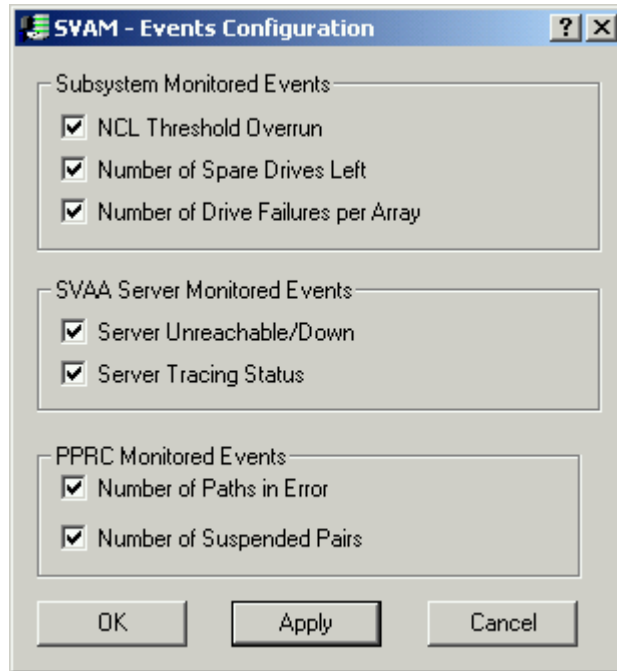
Events Configuration

It is possible to modify the way in which trapped events are processed by the StorageTek SVA NMP Monitor for Unicenter TNG.

1. In the managed objects windows, right-click on the Shared Virtual Array icon.
2. When the menu below pops up, select Events configuration



This will open the Events Configuration dialog.



3. **Select which events should be trapped and sent to the Events console by clicking on the corresponding check box. By default, all events are checked.**

For more information on specific trap events and related messages, refer to [“Trap Event Messages”](#) on page 13



Note: Unchecked events will still be displayed in the lower pane of the Event Console window, but will no longer be accounted for in the general status of the object. The corresponding status in the Server Status or Subsystem Status dialog will be grayed out. Messages related to the event will not be logged in the upper section of the Event Console nor will they require acknowledgement.

4. **Once finished, click on the OK or Apply button to apply changes, or Cancel.**

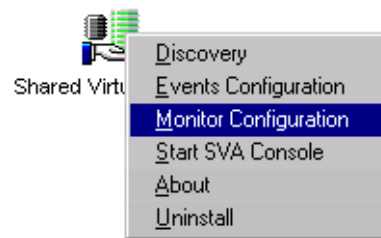
Monitor Configuration

The Monitor Configuration dialog allows the user to set working parameters for the SVA NMP Monitor software. The following settings can be defined by the user:

- Automatic Discovery Polling Rate
- SNMP Timeout

Accessing the Monitor Configuration Settings

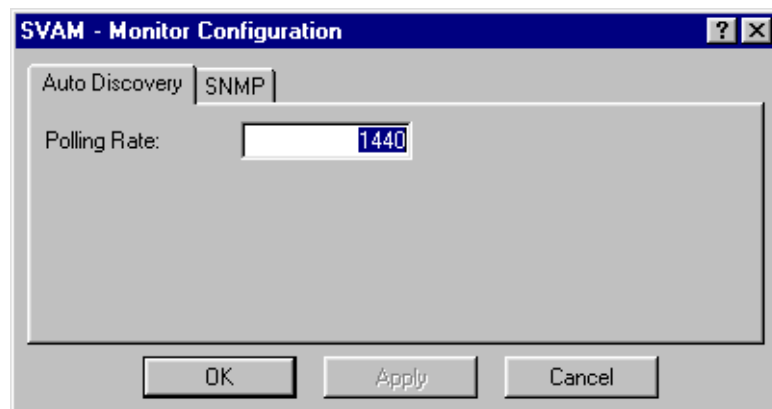
1. **To access the Monitor Configuration dialog, right-click on the Shared Virtual Array icon in the Managed Objects folder.**
2. **When the menu below pops up, select Monitor Configuration.**



This will open the Monitor Configuration dialog. Select the setting you want to change by clicking on the SNMP or Discovery tab.

Auto Discovery Rate

When you start the machine on which SVA NMP Monitor is installed, an automatic discovery process is launched, whether or not Unicenter TNG is running. This Auto-Discovery will run at a regular Polling Rate that is specified here in minutes.



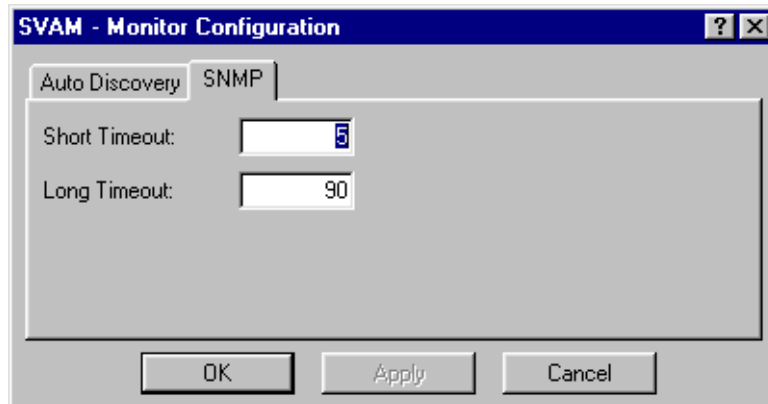
The default cycle interval is 1440 minutes (ie: once a day). The minimum value is 60 minutes.

After changing the Polling Rate, click OK or Apply to validate the new setting.

SNMP Timeout

SNMP requests travel over the network and, in some cases, may take more time than expected. The SNMP Timeout settings allow you to specify for

how long - in seconds - SVA NMP Monitor will try to contact a server or subsystem before returning an error message.



The Long Timeout value is for the heavier SNMP requests such as the Discovery and Refresh commands. Valid Long Timeout delays range from 10 to 600 seconds (default is 90 seconds).

The Short Timeout value is for other quick and regular requests such as checking that a device is online or detecting trap events. Valid Short Timeout delays range from 2 to 10 seconds (default is 5 seconds).

Click OK or Apply to validate any changes.

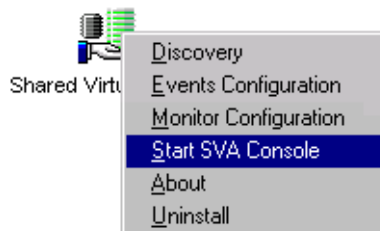
Starting the SVA console

The Shared Virtual Array Console (SVA Console) is a tool providing a single user-friendly point of control for virtual management of Direct Access Storage Devices (DASD).

The SVA Console provides extended facilities for configuring and administering SVA subsystems and for obtaining performance reports regarding SVA subsystems.

See documentation provided with the StorageTek Shared Virtual Array Console software for more details.

1. **In the StorageTek window, right-click on the Shared Virtual Array icon**
2. **When the menu below pops up, select the Start SVA Console command to open the SVA console.**



The SVA Console will be launched in a new window.



Warning: Depending on how the SVA Console was installed, this function may or may not work properly. If the SVA Console is not launched, start it from the Windows NT/2000 **Start** menu.

Uninstalling the SVA NMP Monitor

The procedure for uninstalling the StorageTek SVA NMP Monitor is fully covered in the [StorageTek SVA NMP Monitor - Installation Guide](#).

