



OptoAgent Integration for Unicenter Network and Systems Management 3.1

Getting Started
Form 1476-040818

OPTO 22

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Introduction to OptoAgent Integration for Unicenter Network and Systems Management 3.1

1-1 Opto 22

Opto 22 is a leading manufacturer of hardware and software for applications in industrial automation, remote monitoring, and enterprise data acquisition. Opto 22's input/output (I/O) and control system hardware uses standard, commercially available Internet and computer technologies to connect any mechanical, electrical, or electronic device to wired and wireless networks, and software applications. As co-inventors of the solid-state relay in the early 1970s, Opto 22 has decades of experience facilitating this type of communication. This experience has helped place Opto 22 at the forefront of the growing business trend towards enabling machine-to-machine (M2M) communications throughout the enterprise.

Opto 22 products allow organizations to monitor, control, and acquire data from all systems and equipment that are essential to business operations. These include such disparate enterprise assets as manufacturing machinery, refrigeration systems, telecommunications equipment, server cabinets, data centers, HVAC systems, storage tanks, and security equipment, as well as more industry-specific assets like water and power utility equipment, natural gas compressors and pipelines, traffic management systems, and restaurant and convenience store equipment.

Because Opto 22 hardware and software are based on open, standard, and commercially available technologies, our products are ideal for integration with legacy hardware and software systems and are suitable for diverse applications such as remote equipment and facilities monitoring and management, supply chain optimization, energy management, regulatory compliance, discrete manufacturing, and process control.

1-2 Unicenter Network and Systems Management (Unicenter NSM) 3.1

Unicenter NSM provides unmatched integration capabilities, blending business and management information to relate the full impact of problems and appropriate actions on business processes. Unicenter NSM can ensure the reliability and performance of eBusiness initiatives because Unicenter NSM manages every aspect of the eBusiness infrastructure, from the application to the customer or partner.

Unicenter NSM monitors and manages the entire eBusiness infrastructure including extended enterprise, through firewalls, of wired and wireless networks. This ensures the network's health and availability, helping to provide reliable IT services. Unicenter NSM identifies problems and automatically generates alarms that notify IT administrators. Its

advanced event correlation and extensive root cause analysis help to identify the origin of problems.

1-3 OptoAgent Integration for Unicenter NSM

OptoAgent Integration for Unicenter NSM, in conjunction with Opto 22 SNMP-enabled Ethernet hardware, provides a convenient method for monitoring and managing real-world devices and business assets. OptoAgent allows for real-world data to be integrated into Unicenter NSM. The OptoAgent Integration supports both SNMP traps and polling to keep Unicenter NSM updated on the current state of the hardware, and alert Unicenter NSM of any problems. It also gives the user the ability to control the Opto 22 hardware.

OptoAgent Integration takes advantage of Unicenter NSM Agent technology to graphically represent the Opto 22 hardware to the user. This Graphical User Interface (GUI) makes monitoring and managing real-world assets intuitive.

OptoAgent gives you the ability to read and write digital and analog I/O points that are attached to the Opto 22 hardware. These I/O points are connected to real-world electrical, mechanical, and electronic devices — such as lights, temperature and pressure sensors, motors, and serial devices. Using Unicenter NSM, OptoAgent, and Opto 22 hardware, you can manage these real-world devices.

You can use ioManager software (available free at www.opto22.com) to configure the Opto 22 hardware and I/O points for use with OptoAgent. You can also configure OptoAgent to send SNMP traps based upon events you define.

Once the Opto 22 hardware and I/O points are configured, you can use OptoAgent View to see information about the Opto 22 hardware and the status and values of digital and analog I/O points.

This integration is the OptoAgent Integration for Unicenter NSM. It is also referred to as the SnapB3000 Integration for Unicenter NSM. In addition, the Opto 22 hardware is sometimes referred to as “the brain”.

1-4 Related Documentation

In order to get the most out of the OptoAgent Integration and Opto 22 hardware, it is recommended that you review the following related documentation:

1. Form 1476, OptoAgent Integration for Unicenter NSM, available at www.opto22.com.
2. OptoAgent_ReadMe.txt, located in the {Unicenter_Install_Dir}\Help directory after installing OptoAgent.
3. OPTOAGENTHELP.HLP, located in the {Unicenter_Install_Dir}\Help directory after installing OptoAgent.
4. Form 1440, ioManager User’s Guide, available at www.opto22.com.

5. The appropriate Data Sheets and User's Guides for the specific Opto 22 hardware you are using. This documentation is available at www.opto22.com.

Installing the OptoAgent Integration for Unicenter NSM

2-1 Prerequisites for Install

1. SQL server (repository for Unicenter NSM) is already installed and running.
2. Awwservices/Agent services are already started and running.
3. Unicenter NSM Explorer is closed (required for importing TRIX scripts during install and uninstall).
4. There are no instances of the TRIX utility running (i.e., TRIX is not currently in use).

2-2 System Requirements

OptoAgent Integration will work on any computer running Windows for its operating system that is capable of running Unicenter NSM. OptoAgent does not add a significant load to the System.

2-3 Platforms Supported

This install routine is only for Microsoft Windows operating systems such as Windows NT, 2000, XP, etc.

2-4 CA Products and Versions

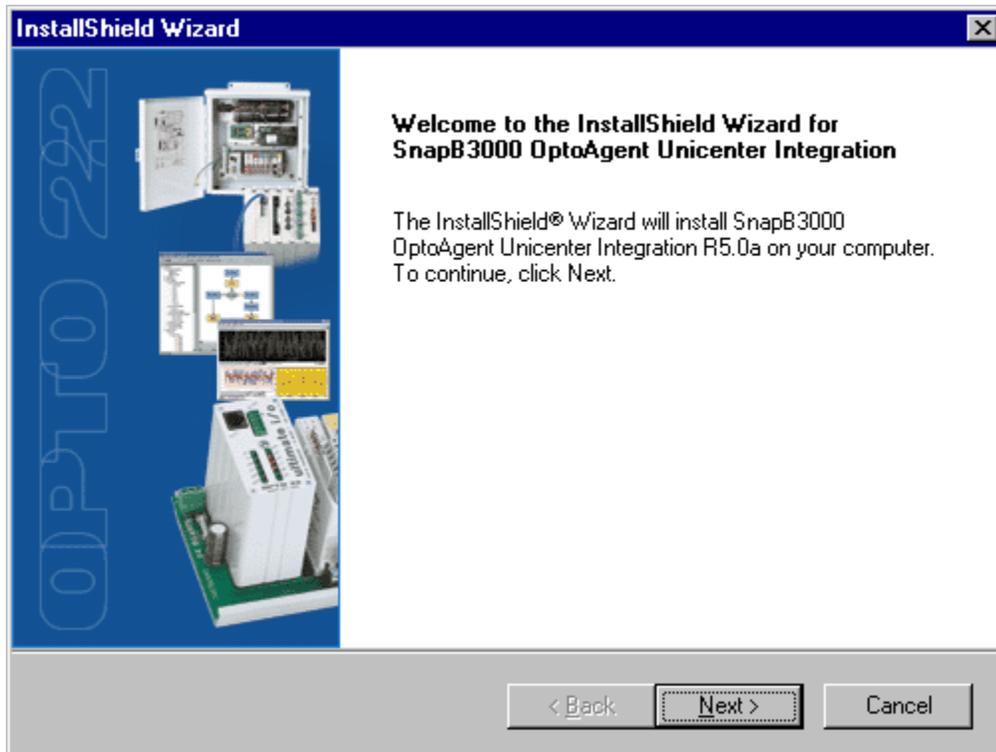
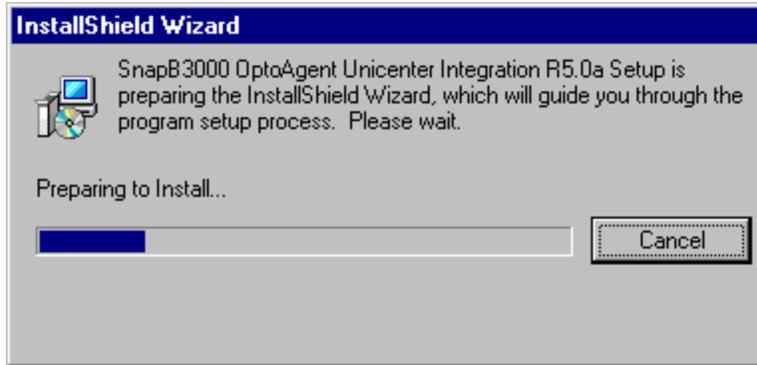
Unicenter NSM 3.1, as well as 2.1, 2.2, 2.4, and 3.0, are supported.

2-5 Opto 22 Products and Versions

All Opto 22 products and versions which have an Ethernet interface and built-in SNMP server are supported. Examples include SNAP-B3000-ENET, SNAP-ENET-D64, SNAP-UP1-ADS, SNAP-UP1-D64, and SNAP-IT.

2-6 Installation

To start the installation, launch Setup.exe. The installation does the following:



1. Checks Unicenter TNG/TND/NSM version and install path.
2. Dialog asks user for Repository Name, User ID, and Password. These parameters are required for proper and complete installation. It then tries to import a blank TRIX test script in order to validate the information provided by the user. If any one of the parameters is incorrect, it will re-prompt the user for the correct information. Ensure there are no spaces in these parameters.

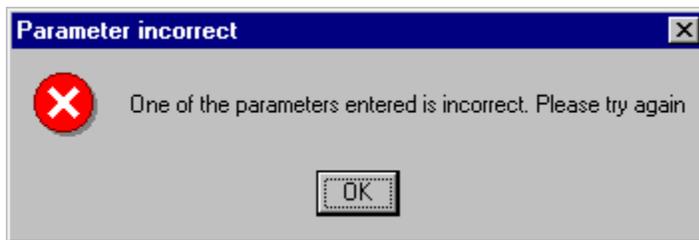
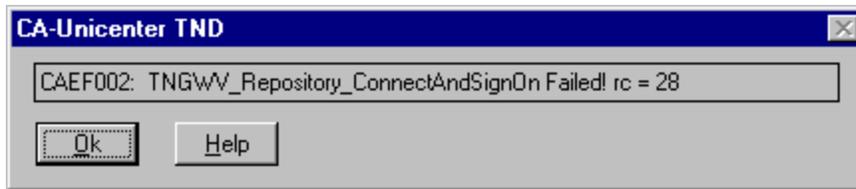
The Repository field is required and cannot be blank. The Install process checks to see if the Repository field is blank, and if so, displays this dialog:



The UserID (Username) field is also required and cannot be blank. The Install process checks to see if the UserID field is blank, and if so, displays this dialog:



If the Repository and UserID fields are not blank, but one of the fields contains data that does not match, then the following two dialogs are displayed:



Once the correct Repository, UserID, and Password parameters have been entered, the installation continues.

3. File transfer copies files to correct locations on hard drive. See section 2-8, item 1 for file locations.
4. Appends the contents of SnapIO.dat prior to the final # sign in Nodes.dat. SnapIO.dat is a temporary file only used during the installation process. However, if the Unicenter version is 2.1, the contents of snapio2_1.dat are appended instead.
5. For Unicenter versions 2.2 and newer, appends the following line to Enterprise.dat:

```
4473 Opto 22 Mark Engman mengman@opto22.com
```

6. If the Unicenter version is 2.1, it appends the contents of OptoAgent.wvc to AwWvCfg.dat.
7. Uses TRIX utility to import SnapIO.tng (SnapIOUnit class), and OptoAgnt.tng (OptoAgent class). For Unicenter version 2.2 and newer, it also imports OptoPoll.tng.
8. Loads the Opto MIB file using the following command line:

```
{Unicenter_Install_Dir}\Services\Bin\ldmib.exe -n opto -m {path}\opto.txt
```

(see section 2-8, item 1, below for location {path} of opto.txt). For more information on the Unicenter NSM ldmib command, type the following at a command prompt:

```
ldmib -?
```

This will display command usage and syntax.

9. Adds SNAPB3000 category to problem ticket using the following command line:

```
{Unicenter_Install_Dir}\Bin\cautil.exe DEF CAT ID=SNAPB3000 PUR = 'Opto  
22 SNAPB3000 ENET brain'
```

10. Prompts the user as to whether it is OK for the install process to reset the Distributed State Machine (DSM) and then re-start the Agent services, or whether the user wants to do these things manually at a different time. This step can take several minutes. The following dialog prompts the user for this step:



If the user selects the “No” button, then the following dialog gets displayed:

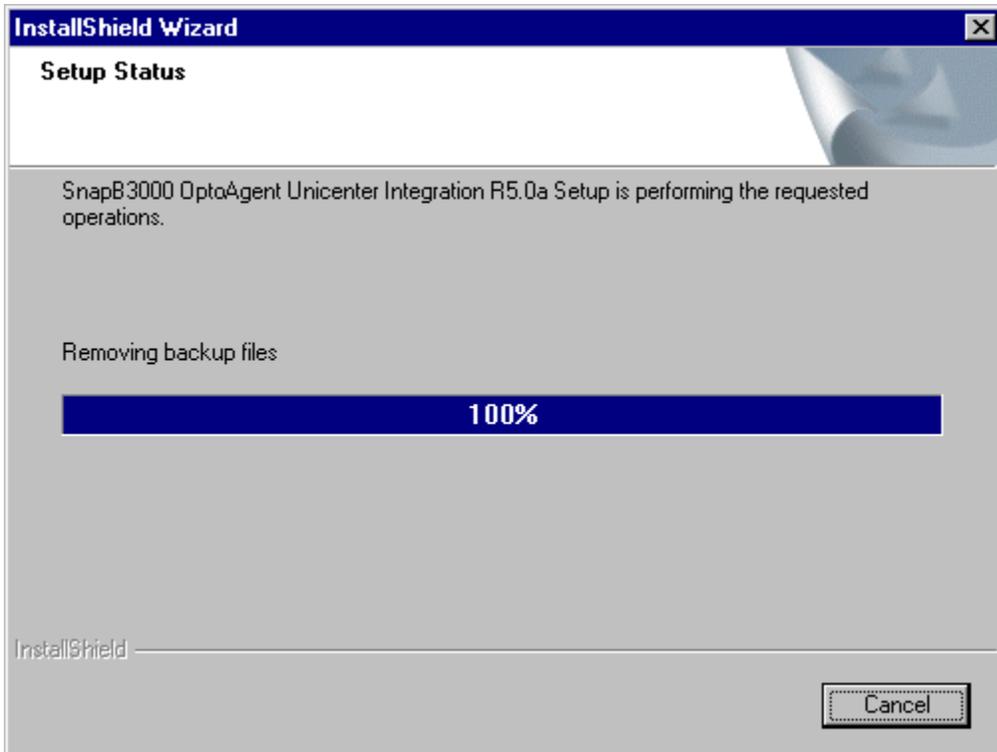


If the user selects the “Yes” button, then the Unicenter NSM `resetsdm` command is executed and the following window will be displayed during the `resetsdm` process:

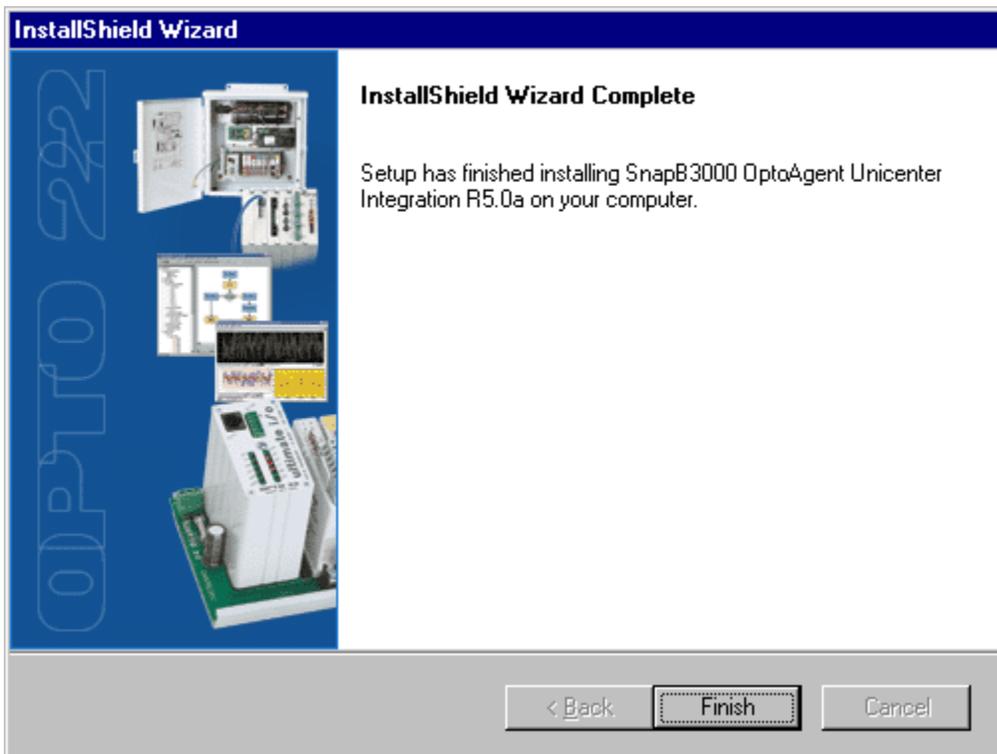
```
D:\WINNT\system32\CMD.exe
...stopping awsservices
STOPPED      exagent:exagent
STOPPED      aws_wugate:aws_wugate
STOPPED      prfagent:prfagent
STOPPED      casqlagent:casqlagent
STOPPED      caint4os:caint4os
STOPPED      caagate:caagate
STOPPED      hpaagent:hpaagent
STOPPED      aws_dsm:aws_dsm
STOPPED      aws_store:aws_store
STOPPED      aws_sadmin:aws_sadmin
STOPPED      aws_snmp:aws_snmp
STOPPED      aws_orb:aws_orb
awsservices stopped
...cleaning ObjectStore
...cleaning aws_nsm database
...loading DSM Class Definitions
...stopping services
awsservices is not running
"awsservices" service starting.
"awsservices" service started.
...starting Object Store service
RUNNING      aws_orb:aws_orb
RUNNING      aws_store:aws_store
...remove old menu definitions
...starting Class Definitions load
...stopping Object Store service
STOPPED      aws_store:aws_store
STOPPED      aws_orb:aws_orb
awsservices stopped
...Finished loading Object Store with Class Definitions
...starting ING WU Class Definitions load
-
```

11. The install also creates or appends to a log file at C:\OptoAgentInstallLog.txt.

The following window gets displayed during the final stages of the install process:



When the install is complete, this window gets displayed:



After installation, if you view the installed programs by launching the Add/Remove Programs utility from the Windows Control Panel, you will see an entry that indicates:

SnapB3000 OptoAgent Unicenter Integration R5.0,

where R5.0 is the version of the OptoAgent install package.



2-7 Unicenter NSM Discovery of the Opto 22 Hardware

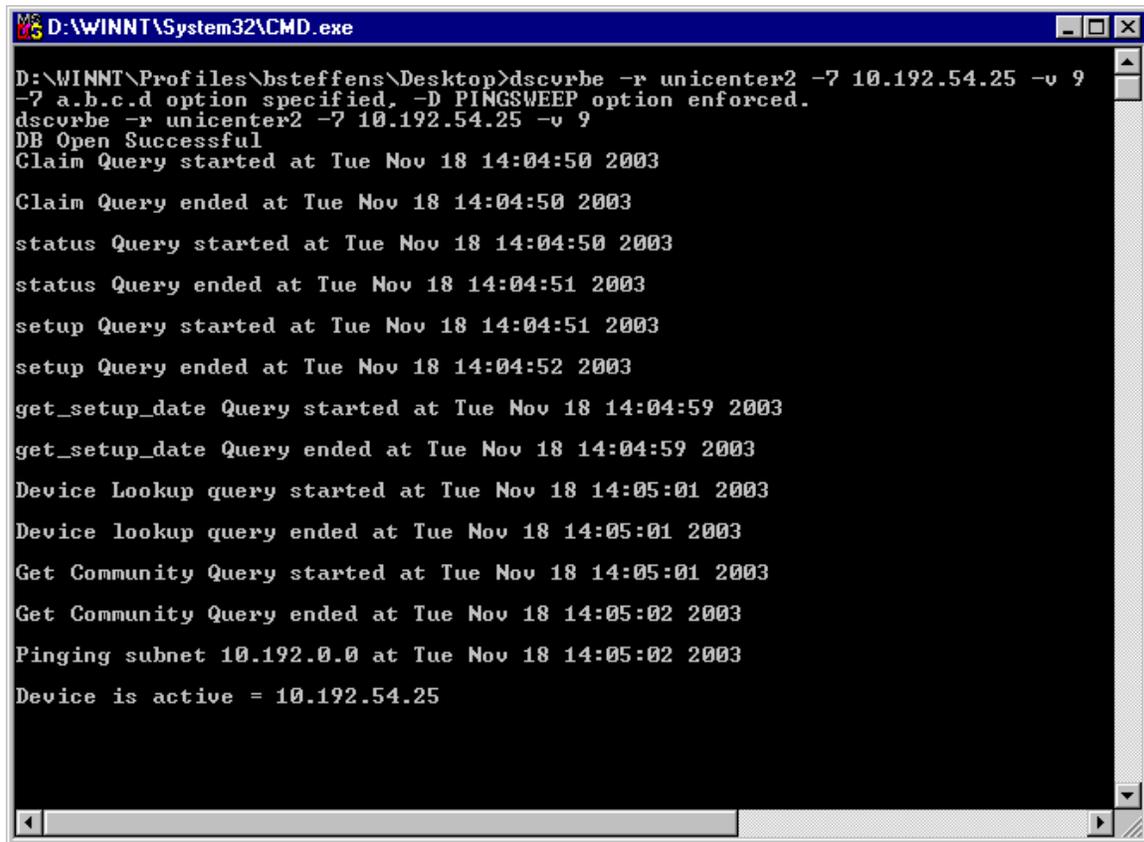
After the OptoAgent Integration has been successfully installed, the next step is to use Unicenter NSM to discover the Opto 22 hardware. This can be done through Unicenter NSM's Auto Discovery, or through a command line discovery. To discover the Opto 22 hardware from the command line, try the following from a command prompt:

```
dscrbe -r {Repository} -7 {IP address of the Opto 22 hardware device} -v 9
```

For example,

```
dscrbe -r UNICENTER2 -7 10.192.54.25 -v 9
```

where UNICENTER2 is the Repository name, and 10.192.54.25 is the IP address of the Opto 22 hardware. The dscvrbe.exe command results in a window that should look something like the following:



```
D:\WINNT\System32\CMD.exe
D:\WINNT\Profiles\bsteffens\Desktop>dscvrbe -r unicenter2 -7 10.192.54.25 -v 9
-7 a.b.c.d option specified, -D PINGSWEEP option enforced.
dscvrbe -r unicenter2 -7 10.192.54.25 -v 9
DB Open Successful
Claim Query started at Tue Nov 18 14:04:50 2003
Claim Query ended at Tue Nov 18 14:04:50 2003
status Query started at Tue Nov 18 14:04:50 2003
status Query ended at Tue Nov 18 14:04:51 2003
setup Query started at Tue Nov 18 14:04:51 2003
setup Query ended at Tue Nov 18 14:04:52 2003
get_setup_date Query started at Tue Nov 18 14:04:59 2003
get_setup_date Query ended at Tue Nov 18 14:04:59 2003
Device Lookup query started at Tue Nov 18 14:05:01 2003
Device lookup query ended at Tue Nov 18 14:05:01 2003
Get Community Query started at Tue Nov 18 14:05:01 2003
Get Community Query ended at Tue Nov 18 14:05:02 2003
Pinging subnet 10.192.0.0 at Tue Nov 18 14:05:02 2003
Device is active = 10.192.54.25
```

For more information about the use of the Unicenter NSM dscvrbe command, type the following at a command prompt:

```
dscvrbe /?
```

This will display command usage and syntax.

2-8 Verifying Correct Installation of OptoAgent

If you wish to verify the installation of the OptoAgent Integration for Unicenter NSM, perform the 3 steps listed below:

1. Verify that all files were installed. The following are the files that get installed, along with their locations. {Unicenter_Install_Dir} may be \TNG, or \TND, or \NSM, or similar, depending on version of Unicenter:

```
\Directory\  
Files
```

```
-----  
\{Unicenter_Install_Dir}\Bin\  
-----
```

AgentView.exe
delobj.exe

\{Unicenter_Install_Dir}\Config\Abrowser\
Browser.OptoAgent

\{Unicenter_Install_Dir}\Data\
OptoAgn.tng,
OptoPoll.tng (Applies to Unicenter NSM version 2.2 and newer),
SNAPIO.tng

\{Unicenter_Install_Dir}\Help\
OptoAgentHelp.cnt,
OPTOAGENTHELP.HLP,
OptoAgent_ReadMe.txt

\{Unicenter_Install_Dir}\Icons\
analog.ico,
digital.ico,
O22ablac.ico,
O22agray.ico,
O22agrnc.ico,
O22aoran.ico,
O22ared.ico,
O22ayell.ico,
O22hblac.ico,
O22hgray.ico,
O22hgrnc.ico,
O22horan.ico,
O22hred.ico,
O22hyell.ico,
OptoAgentICON,
SnapIcon

\{Unicenter_Install_Dir}\Icons\WVCLASS\Small\
Opto22_16.BMP

\{Unicenter_Install_Dir}\Icons\WVCLASS\Large\
Opto22_32.BMP

\{Unicenter_Install_Dir}\Images\
brdFrnt.tga,
enet.tga,
optMet2.tga,
optMet1.tga

\\{Unicenter_Install_Dir}\\Models\
alongbx2.3ds,
prym.3ds,
pyr.3ds,
rack.3ds,
Opto22.jt

\\{Unicenter_Install_Dir}\\Schema\\Included\
opto.mib

\\{Unicenter_Install_Dir}\\Services\\Config\\Aws_Nsm\\Dm\
optoAgent.Cnf (this may look like a Windows shortcut file),
optoAgent.dat

\\{Unicenter_Install_Dir}\\Services\\Config\\Aws_Wvgate\
OptoAgent.wvc

\\{Unicenter_Install_Dir}\\Services\\Config\\Mibs\
opto.txt

2. Run the Unicenter NSM Class Wizard, and look for the following classes:
ManagedObject->Agent->optoAgent;
ManagedObject->OtherDevices->SnapIOUnit;
3. Run the Unicenter NSM Object Browser and look for the following objects:
Popup_Menu->OptoAgentMenu (5 entries)
Popup_Menu->SnapIOUnitMenu (10 entries)
Reference->Pollset->OptoPollset (Applies to Unicenter NSM version
2.2 and newer)
Toolbox->Icon->Icon_2d->SnapIO
Toolbox->Icon->Icon_2d->optoagent
Toolbox->Icon->Icon_3d->SnapIOUnit
Toolbox->Icon->Icon_3d->OptoAgent
Toolbox->Icon->TND_Icon->optoagent
Toolbox->Icon->TND_Icon->snapiounit

If the items in 2 and 3 (above) are not present, you should run the TRIX utility to import the classes again. The files to import are OptoAgnt.tng, OptoPoll.tng, and SNAPIO.tng located in the \\{Unicenter_Install_Dir}\\data\\ directory. (See the file list in section 2-8, item 1, above).

2-9 Manual Installation for non-Windows Operating Systems

This install only works on appropriate Microsoft Windows operating systems. The OptoAgent Unicenter NSM Integration has only been tested on Microsoft Windows operating systems. However, if manually installed, it should work on other operating

systems. The files that are copied to the hard drive during installation are listed in section 2-8, item 1, above. These files can be extracted from the Data1.cab file using appropriate unzip software, such as WinZip. The steps to take are listed in section 2-6, above. However, temporary files used only during the installation process will need to be provided separately. Please contact Opto 22 Product Support Group at support@opto22.com for more information.

Using the OptoAgent Integration for Unicenter NSM

3-1 Configuring and Using the Opto 22 Hardware and the OptoAgent Integration

After installing the OptoAgent Integration for Unicenter NSM, it is necessary to configure the Opto 22 hardware to be accessible by Unicenter NSM. Configuration of the Opto 22 hardware includes SNMP system variables, setting up SNMP communities and hosts, and optionally configuring SNMP traps with specific trap types. Once all of this is done, it is necessary to store the configuration changes to the flash memory of the Opto 22 hardware. Opto 22 provides a configuration utility called ioManager which is available for download from the Opto 22 Web site: www.opto22.com.

Briefly, the configuration of the Opto 22 hardware includes using ioManager to accomplish the following items:

1. Assign values to the SNMP system variables:
 - a) sysName
 - b) sysLocation
 - c) sysContactNote: spaces are not allowed for these variables.
2. Assign Community 1: Community String: public
3. Assign Community 2: Community String: admin
4. Assign Host 1:
 - a) Community String: public
 - b) Host IP Address: {this is the IP address of the management host computer running Unicenter NSM}
5. Store parameters to flash.
6. Wait 30 seconds.
7. Execute the ioManager command: Reset from Powerup.

Full details on the configuration and use of the Opto 22 hardware and the OptoAgent Integration are provided in the OptoAgent online help file. This file is located at:

{Unicenter_Install_Dir}\Help\OPTOAGENTHELP.HLP.

For details on the use of ioManager, see the ioManager User's Guide which is Opto 22 form 1440 and can be downloaded from the Opto 22 Web site: www.opto22.com.

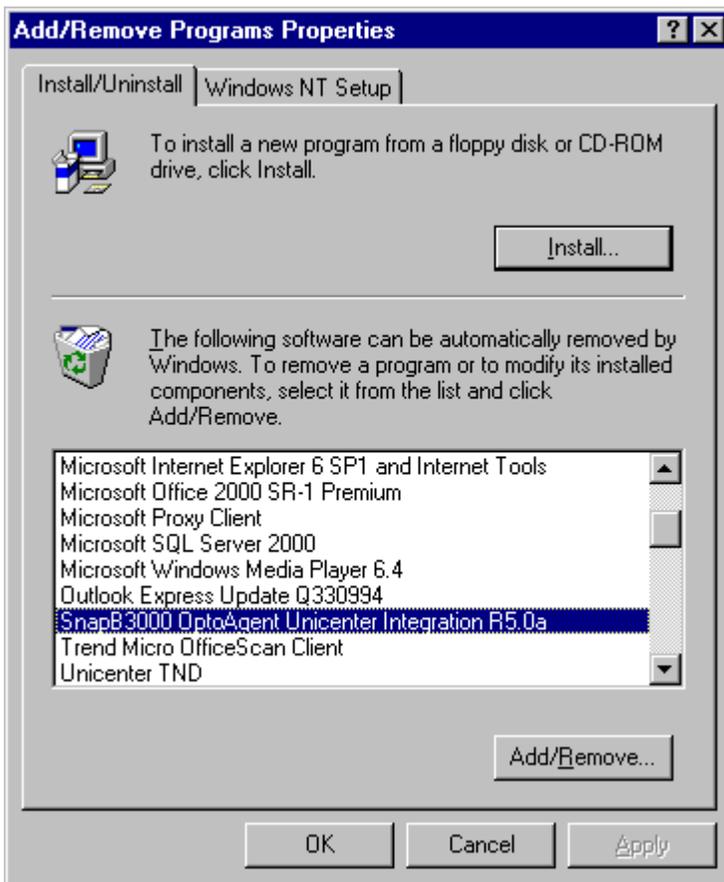
Removing the OptoAgent Integration for Unicenter NSM

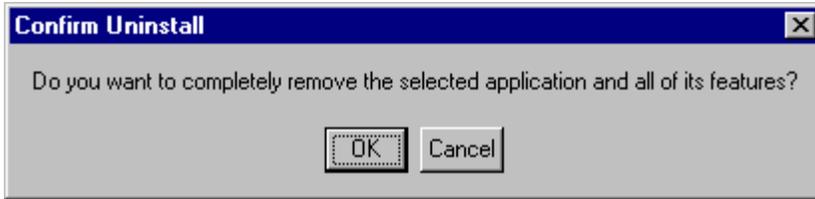
4-1 Prerequisites for Uninstall

1. SQL server (repository for Unicenter NSM) is already installed and running.
2. Awaservices/Agent services are already started and running.
3. Unicenter NSM Explorer is closed (required for importing TRIX scripts during install and uninstall).
4. There are no instances of the TRIX utility running (i.e., TRIX is not currently in use).

4-2 Removing the OptoAgent Integration

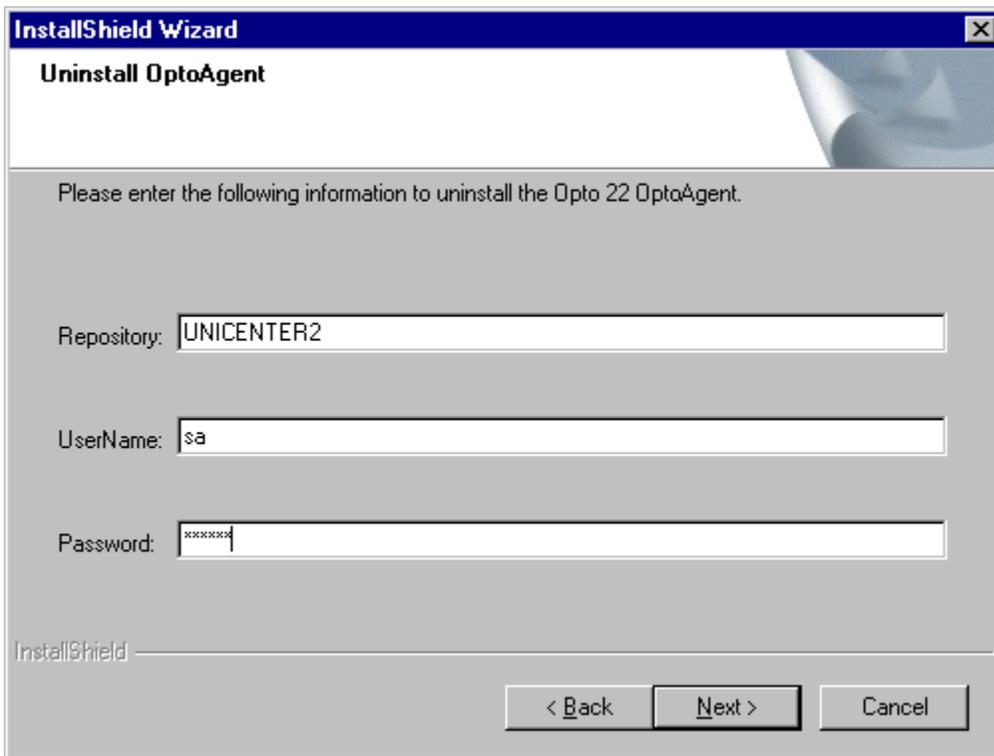
To remove the OptoAgent Integration, launch "Add/Remove Applications" from the Windows Control Panel and select the entry titled, "SnapB3000 OptoAgent Unicenter Integration R5.0".



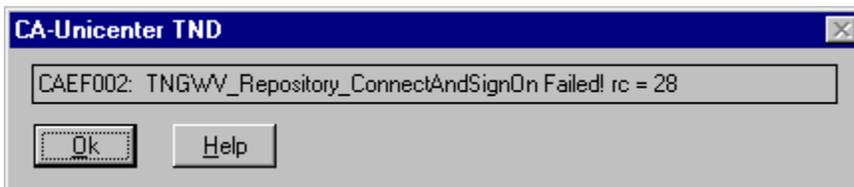


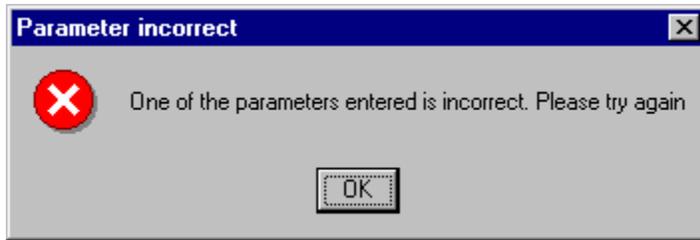
The Uninstall does the following:

1. Dialog asks user for Repository Name, User ID, and Password. These parameters are required for proper and complete removal. It then tries to import a blank TRIX test script in order to validate the information provided by the user. If any one of the parameters is incorrect, it will re-prompt the user for the correct information. Ensure there are no spaces in these parameters.



If the Repository and UserID fields are not blank, but one of the fields contains data that does not match, then the following two dialogs are displayed:





2. Deletes objects that were created during discovery. This includes the following: SnapIOUnit objects, Unispace Children of SnapIOUnit objects, and OptoAgent objects. This is done with a utility named DelObj.exe with the following command line:

```
DelObj.exe -n * -c SnapIOUnit -r -R {Repository} -U {UserID} -P {Password}
```

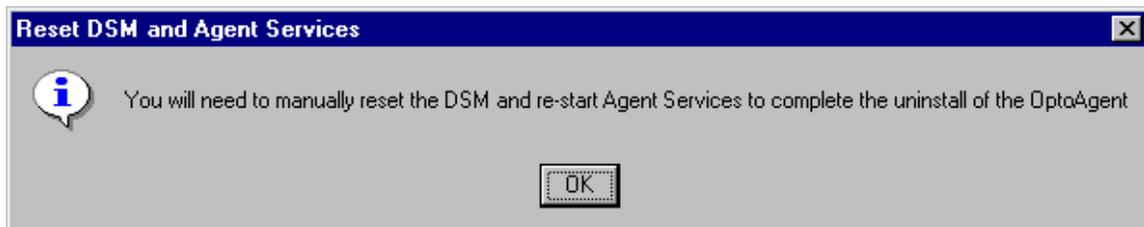
3. Unloads the Opto MIB file using the following command line:

```
ldmib -n opto -r
```

4. Stops agent services.
5. Uses TRIX utility to import Uninstall_OptoAgent.tng which removes SnapIOUnit and OptoAgent classes, popup menus, alarms, etc.
6. Removes information appended to files during the install.
7. File removal (deletes files that were copied to the hard drive during the Install).
8. Prompts the user as to whether it is OK for the uninstall process to reset the DSM and then re-start the Agent services or whether the user wants to do these things manually at a different time. This step can take several minutes.



If the user selects the "No" button, then the following prompt is displayed:



9. The uninstall also creates or appends to a log file at: C:\OptoAgentInstallLog.txt.

Chapter 5

Troubleshooting Tips

Note: The ioManager utility for configuring the Opto 22 hardware can be downloaded from www.opto22.com. Please refer to the OptoAgent online help file for additional tips.

If the Opto 22 hardware and/or the agent cannot be discovered, or if you are unable to read from or write to the hardware, verify the following items:

1. There are NO spaces and NO punctuation marks (apostrophes, commas, periods, etc.) in the sysName, sysLocation, or sysContact fields of the Opto 22 hardware SNMP Configuration using the ioManager configuration utility.
2. The IP address of the computer doing the discovery is listed in the Management Hosts section of the Opto 22 hardware "Configure SNMP Agent" section using the ioManager configuration utility. Also, make sure the community string is set to "public" for reading data and "admin" for writing data. Unicenter NSM 2.2 allowed the use of the community name "public" for both reading data from and writing data to the Opto 22 hardware. However, Unicenter NSM version 3.0 and newer defaults to the use of the community name "admin" for writes.
3. The information has been stored to the Opto 22 hardware memory using the "Store to Flash" function of the ioManager configuration utility. Allow 30 seconds for this to complete before doing the next step.
4. Power has been cycled to the Opto 22 hardware after performing steps 1-3 above. This may be done manually, or by using the "Restart from Power-up" command of the ioManager configuration utility. If done manually, wait approximately 10 seconds after turning off power before turning power on again.
5. In Unicenter NSM version 2.1, it may be necessary to also run the DSM wizard to associate the OptoAgent class to the OtherDevices:SnapIOUnit class.

Chapter 6

Modifying the OptoAgent Policy Files

Note: The current OptoAgent policy files (OptoAgent.dat and OptoAgent.cnf) should be adequate for most users.

1. It is possible to modify the problem ticket generation defaults used by the OptoAgent.

The default is to generate a problem ticket with a Priority of 99, and a status of Active (ACT). To change the Priority and/or status of the generated tickets, modify the line below, located in the GenerateTicket() script in optoAgent.cnf, where PRI=99 is the priority, and STATUS=ACT is the status. (Note: the line is split into 2 lines below, for readability in this document, but appears as one line in optoAgent.cnf)

```
System(Format("cautil DEF PROB CAT=SNAPB3000 PRI=99 SYMP='%s'  
STATUS=ACT MGPTTRKId=B3000ENET", szMsg));
```

2. The current policy is to generate a problem ticket for trap types 2500 and 3500 only. If you wish to have problem tickets generated for all trap types (2000, 2500, 3000, and 3500), copy the "GenerateTicket(key);" line from the optoAgent.cnf file, and place it BEFORE the "break;" statement under the appropriate "case", where the number in quotes is the trap type. (See code snippet and comments below)

```
case "2000":  
    SendMsg(0, "", "", "", "", szData);  
    break;  
case "2500":  
    SendMsg(0, "", "", "", "", szData);  
****COPY FOLLOWING LINE TO HAVE OTHER TRAPS  
****GENERATE PROBLEM TICKETS  
    GenerateTicket(key);  
    break;  
  
... <more code>
```

3. In some cases, you may want or need to change the default community name. The initial default community name is "public". To change it, you will need to edit the OptoAgent policy files (OptoAgent.dat and OptoAgent.cnf). See instructions in the comments at the beginning of each of these files. Essentially, this requires searching each of the two policy files for the word "public" (without the quotes), and replacing each instance with the new default community name.

Chapter 7

Revision History

August 17, 2004 - The OptoAgent.cnf file was updated as follows:

The AckTrap function was changed to take into account the possibility of the Event Message number being a 3 digit number. Previously, it was assumed the Event Message number would be either 1 or 2 digits. Because of this, if the Event Message number was a 3 digit number, then the 3rd digit would be omitted and the Acknowledgement would be sent for the wrong Event Message number.

For example, if the Event Message number was 101, then the number would be truncated to 10, and the acknowledgement would be sent for Event Message 10.

July, 2004 – Touch-up editing of the User’s Guide.

November, 2003 - The following changes were made to support CA Smart certification of OptoAgent Integration R5.0 for Unicenter NSM versions 2.1 through 3.1:

1. The name of the ReadMe file was changed from OptoAgent.txt to OptoAgent_ReadMe.txt.
2. Graphics files were added to support Unicenter NSM Explorer version 3.0 and newer. These files are Opto22.jt, Opto22_16.BMP, and Opto22_32.BMP.
3. The OptoAgent online help file was modified to fix missing links. The content of the help file was also changed to reflect the use of ioManager for configuration of the SNMP server on the Opto 22 hardware.
4. Corrected the Windows Start menu shortcut to the OptoAgent online help file.
5. The file OptoPoll.tng was modified to increase the timeout value to 25 seconds to eliminate infrequent timeout errors.
6. The file Browser.OptoAgent was modified to correct two errors in the OIDs that reference Event Messages. These errors were causing script errors on the Event Message page.
7. Removed menu option for launching a browser. This was done for compatibility with current Opto 22 firmware.

(continued)

8. The following Install/Uninstall changes were made:
 - a) Added support for multiple Unicenter NSM versions: 2.1, 2.2, 2.4, 3.0, and 3.1.
 - b) Now automatically loads and unloads the Opto.MIB file.
 - c) Now automatically resets the DSM and restarts the agent services at the end of the Install/Uninstall. The user is prompted prior to this step. The user can choose to let the install routine do this step or they can implement these actions manually at a more convenient time.
 - d) The uninstall now correctly removes all objects, menus, alarm sets, icons, etc. that were created by the install.
 - e) The uninstall now removes information added to Nodes.dat, Enterprise.dat, and AwWvCfg.dat during the install.
9. Graphics files were added to the icons directory: optoAgentICON and SnapIcon.
10. Modified OptoAgent.cnf to correctly change state from DOWN to Up when polling re-establishes communication with the Opto 22 hardware.