

Technical Report

Configuring NuDesign's 64bit SNMPv3 Agent Service to use 64bit and 32bit Extension Agent DLLs simultaneously

NuDesign Technologies Inc.

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Introduction

This paper describes the configuration of a 64 bit NuDesign SNMPv3 Agent Service targeted for a 64 bit environment and providing access to Extension Agent DLL's designed for both 32 and 64 bit environments, simultaneously.


We will assume that the environment is Microsoft Windows 64 bit OS Server 2008 or later (Vista or later). This system does not have an SNMP agent installed.

The 32 bit DLL in this case is NuDesign's xAgentBuilder sample Garage MIB DLL ([NDGarageV2.MIB](#)) and was built on Microsoft Visual Studio 2008. The 32 bit DLL must NOT be stored in "\Windows\syswow64" to work. This example uses "\Work\" to store the DLL.

Testing was done with the NuDesign MIBrowser Professional. It allowed the discovery of the agent under test and retrieved objects from the "system group". Once the 32 bit DLL is configured you can also get objects defined in the Garage MIB.

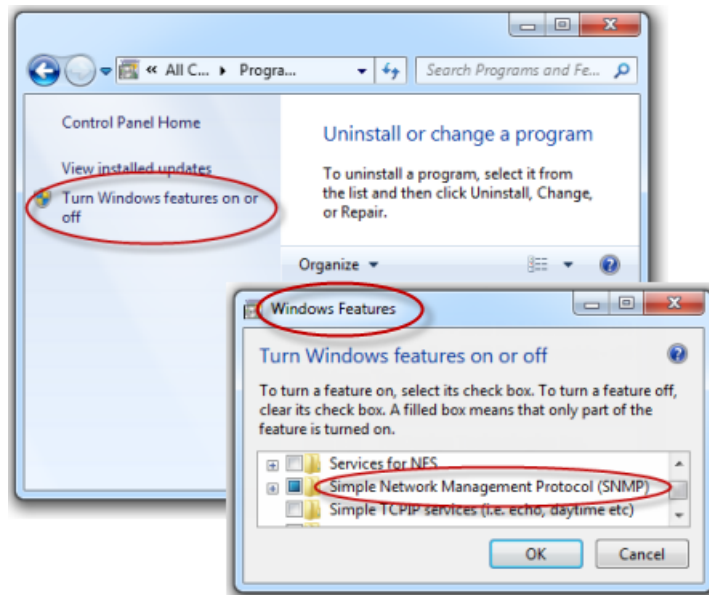
The NuDesign's MIBrowserPro is available as a 30 day evaluation from <http://www.ndt-inc.com/SNMP/Download.html>.

Step 1. Install the Windows feature "SNMP"

In the Control Panel open "Programs and Features" 

In the left navigation pane click on "Turn Windows Features On or Off"

Select "SNMP Feature" and click "O.K."



Step 2. Configure the SNMP Service

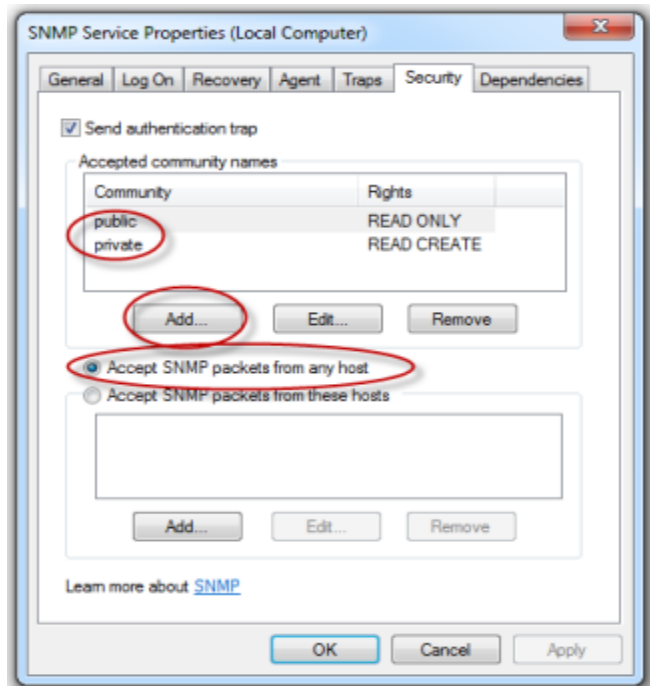
Open the "Services Manager" by running "C:\Windows\System32\Services.msc"

Display the SNMP service properties by double clicking on the "SNMP Service" entry.

Select the "Security" tab and set the agent to "Accept SNMP packets from any host"

Add communities "public" and "private" then click "O.K." to return to the Service Manager.

If you have a means of testing the current state of the agent it is useful to do it now.



Step 3. Next add the pointers for the 32 bit DLL

Start regedt32.exe

All theKey changes are in the HKEY_LOCAL_MACHINE branch, abbreviated "HKLM".

Add the Extension DLL registry key:

```
HKLM\SYSTEM\CurrentControlSet\Control\SNMP\Parameters\ExtensionAgents  
with the value:  
p32bit REG_SZ SOFTWARE\NuDesign\p32bit\CurrentVersion
```

And then create the associated key pointer to the actual 32 bit DLL:

```
HKLM\SOFTWARE\Wow6432Node\NuDesign\p32bit\CurrentVersion  
with the value:  
Pathname REG_SZ C:\Work\p32bitDLL.dll
```

Exit regedt32.exe. Restarting the SNMP Service will allow you to confirm access to the Garage MIB.

Step 4. Prepare system for addition of NuDesign Agent Service

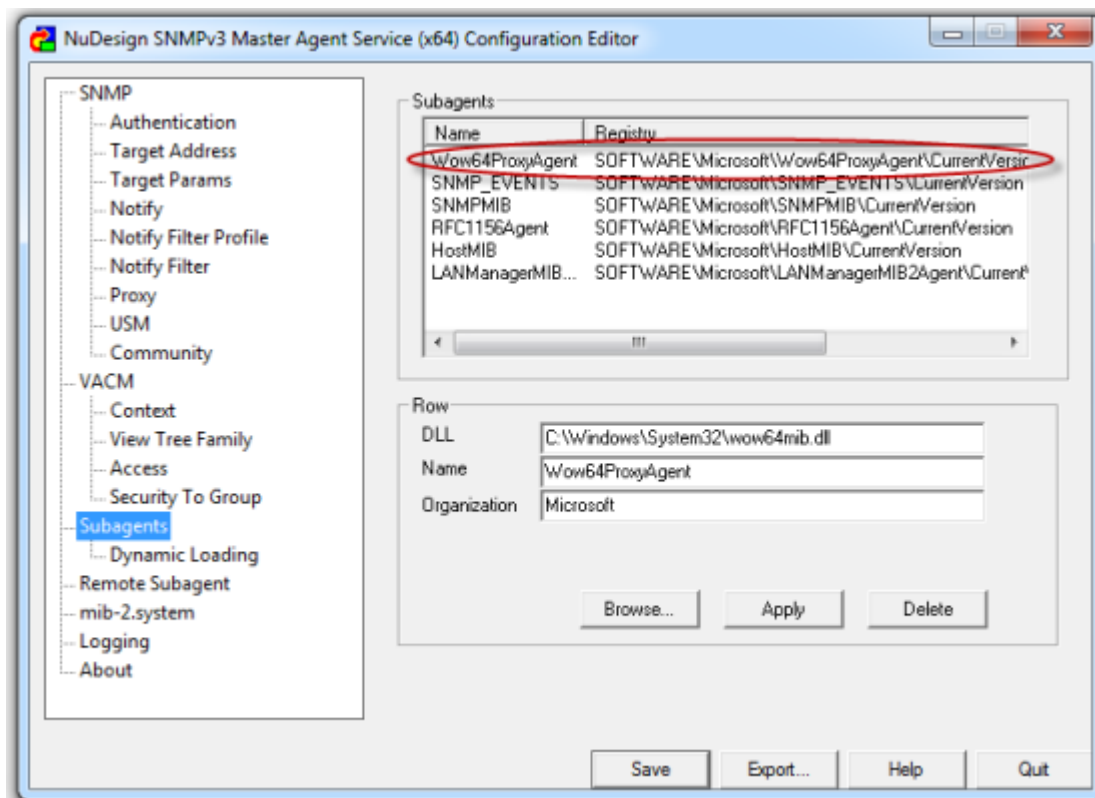
First adjust the Microsoft Agent Service to the "Stopped" state and the "Startup type" to "Manual".

Open the "Services Manager" by running "C:\Windows\System32\Services.msc".

Display the SNMP service properties by double clicking on the "SNMP Service" entry where those changes can be made.

Step 5. Install NuDesign 64 bit Agent Service

Run the installation program for the NuDesign 64 bit Service Agent.
 When the installation is completed open the Agent Service Configuration editor and if the Proxy extension DLL is not present then add it from
 C:\Windows\System32\WOW64mib.dll"



Saving and Quitting the configurator will cause the Agent Service to start and the MIBs instrumented in the 32 and 64 bit extension DLLs will be accessible.

About NuDesign SNMPv3 Agent Service for Windows

NuDesign SNMPv3 Agent Service for Windows is a seamless upgrade of Microsoft SNMP Agent Service. The product comes with a redistributable SNMPv3 Agent Configuration Applet. All extension DLLs that run with Microsoft SNMP Agent Service will run with NuDesign's SNMPv3 Agent Service for Windows as well.

NuDesign SNMPv3 Agent Service operates under Windows XP, Windows Server 2003, 2008 & 2012, Vista, Windows 7, Windows 8/8.1 and Windows 10; 32bit and 64 bit versions. Benefits of using NuDesign SNMPv3 Agent Service for Windows:

- it supports SNMP v1/v2c/v3 access to MIB management objects via Microsoft's Extension Agent DLL architecture. A full SNMPv3 support is offered, v3 security (CBC-DES or CFB128-AES-128 privacy and HMAC-MD5 or HMAC-SHA authentication) and v3 Administration Framework for Notifications (implements SNMP-TARGET-MIB and SNMP-NOTIFICATION-MIB)
- support for either the 32bit legacy extension DLL's in both 32/64bit Windows environments or new 64bit extension DLL's in 64bit Windows environments.
- it provides full support for "SNMP over IPv6" as well as "SNMP over IPv4" networks.
- it allows extension DLLs to be started or stopped dynamically, without interrupting the Service, with the help of NuDesign SNMPv3 Service Configuration Applet. Microsoft SNMP Service needs to be stopped before a new extension DLL is added or an existing DLL is removed. There is no such restriction with NuDesign's SNMP Service.
- it supports the use of remote subagents, either the lightweight subagents based on UDP communications & SNMP BER encoding, or the TCP/IP based subagents using the IETF AgentX, rfc2741 standard. The NuDesign Service can be deployed as a Master controlling a network of desktop & embedded devices equipped with AgentX remote subagents.
- it provides full support for all SNMP notification types (v1/v2 traps & informs including a callback mechanism that provides extension agent DLL with status information).
- it fully implements SNMP Proxy Forwarder Application as per rfc3413.
- it is a multithreading service. One thread is always listening to incoming requests and other threads are responsible for satisfying the requests. With this architecture, SNMPv3 Agent Service is never blocked.
- it has been built using Standard C/C++ libraries, can therefore be readily ported to numerous embedded environments.

This product in conjunction with NuDesign's Visual xAgentBuilder for C++ provides a comprehensive SNMPv3 Agent solution for Windows OS'es.

About NuDesign Technologies

NuDesign provides network monitoring and management solutions to networking manufacturers and service providers worldwide. The company also provides professional services to customers developing custom solutions.

The products and services that NuDesign's customers develop enhance the visibility and control of networking infrastructures, applications, services and facilitate configuring, managing, and controlling of products in the LAN, broadband access, and telecom industries.

NuDesign's products / services include:

- the Management Agents for embedded targets, implementing standard and custom YANG / MIB data models with secure, integrated NETConf / SNMPv3 / CLI and / or RESTConf access.
- the secure SNMPv3 and CLI management solutions for multiple desktop and embedded targets.
- the secure monitoring of Windows and Linux Servers using extensible SNMPv3 Agent Service for Windows or Linux with standard and / or custom extension subagents, configured with the provided SNMPv3 Configuration Editor. NuDesign SNMPv3 Service for Windows is a direct, drop-in replacement of Microsoft Windows SNMP Service.
- the SNMP Browser, MIB Builder and Traffic Monitor products that are feature rich, extensible, and easy to use in development, test and production environments.
- specialized SNMPv3 Management Agents and Managers for avionics AFDX® / ARINC664 networks and SNMPv1 products for NTCIP Transportation industry.

The highly automated management Agent / Subagent / Manager development tools, code generation wizards, multiple target development libraries, samples, evals with associated tutorials and our technical support enable quick learning, fast prototyping, experimentation, development and reliable production deployment.

The code generation tools facilitate organization of design process, providing for generation of very complete and immediately compilable agent or manager user code and project files for target OS / RTOS.

For more information please visit www.ndt-inc.com or call 416 737 0328